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Environment, Food and Rural
Affairs Committee

**Climate change: the
“citizen’s agenda”**

Eighth Report of Session 2006–07

Volume II

Oral and written evidence

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Environment, Food and Rural Affairs Committee

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The current staff of the Committee are Chris Stanton (Clerk), Nerys Welfoot (Second Clerk), Dr Antonia James (Committee Specialist), Dr Jim Watson (Specialist Adviser) Marek Kubala (Inquiry Manager), Andy Boyd and John-Paul Flaherty (Committee Assistants) and Mandy Sullivan (Secretary).

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Cit 15a Centre for Sustainable Energy: Annex 1: *Local & Regional Action to Cut Carbon*

Cit 15a Centre for Sustainable Energy: Annex 2: *Making energy advice part of EEC3*

Cit 23a Royal Society of Arts: Background paper: *YouGov research note*

Cit 23b Royal Society of Arts: Annex B: *YouGov results*

Cit 37 Greenpeace: *What are we waiting for? (DVD)*

Cit 43 Dr Jillian Anable: Annex: *An evidence based review of public attitudes to climate change and transport behaviour—Report summary*

Cit 44 Alan Simpson: Annex: *Lacemakers House Green Products Guide*

Cit 45 BEAMA: Background paper: *Smart meters in practice*

Cit 46 TEHVA: Background paper: *Low Carbon heating solutions*

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CRED 01a Jon Cape: Background paper: *Fife Energy Co-operative*

CRED 01a Jon Cape: Background paper: *Renew co-operative energy services*

CRED 10 Andy Ross: Background paper: *Carbon Rationing Action Groups*

CRED 28 North Norfolk Environment Forum: *Background paper: The Energy Review Questions*

Oral evidence

Taken before the Environment, Food and Rural Affairs Committee

on Wednesday 25 October 2006

Members present:

Mr Michael Jack, in the Chair

Mr David Drew
Patrick Hall
Lynne Jones
David Lepper

Sir Peter Soulsby
David Taylor
Mr Roger Williams

Memorandum submitted by the Energy Saving Trust (CIT 25)

The Energy Saving Trust welcomes the opportunity to address the specific questions raised in the Committee's inquiry to examine how the ordinary citizen can change his or her lifestyle to minimise the impact of climate change and to mitigate its effects. The Energy Saving Trust was set up by the Government following the 1992 Rio Earth Summit and is one of the UK's leading organisations addressing the damaging effects of climate change. We play a leading role promoting energy efficiency and renewables to the domestic household sector, and promoting cleaner fuels and vehicles to the business transport sector. This response should not be taken to represent the view of Energy Saving Trust members.

EXECUTIVE SUMMARY

1. The real scope for individual and local action to contribute to tackling climate change is through behavioural change that becomes embedded in everyday actions. Research demonstrates that this is best achieved by independent and trusted sources underpinned by a comprehensive package of policy measures, including the provision of information and advice, regulation, fiscal incentives and clear Government leadership.

2. We have identified the following three key activities required to increase action by UK citizens on climate change.

- The creation of a Sustainable Energy Network of local centres that:
 - Deliver an advice service to citizens, which includes not only energy efficiency but also advice and information on the use of renewable energy in homes and energy in road transport that is not currently available to most UK citizens and a clear gap in UK climate change policy.
 - Instigate local awareness raising activity that links with national marketing and is integrated with local delivery mechanisms to provide a compelling and comprehensive message for citizens that is amplified, rather than confused by local messages.
 - Support and co-ordinate the range of existing local delivery agencies and fill any gaps.
- Strengthen the role of local authorities, by the provision of incentives that result in increased commitment to sustainable energy through the development and implementation of strategies that tackle efficient energy use in the housing and transport sectors, as well as the smaller market of public sector buildings and the implementation of microgeneration technologies.
- Improve the cost effectiveness of Government activity on climate change initiatives, by joining up the investment in the separate behavioural change activities of Government departments into a single compelling message that combines energy efficiency, microgeneration and consumer transport at the national level consistent with local delivery.

Q1. *What is the real scope for individual and local community action to contribute to tackling climate change?*

- Reducing energy consumption—not only electricity, but also energy used in heating and transportation.
- The provision of desirable low carbon alternatives, such as energy-saving lightbulbs or using public transport.
- The potential for, and barriers to, microgeneration.
- The potential for “smart metering”.

- Awareness of climate change and availability of information about the role of the individual in tackling the problem.

BACKGROUND TO BEHAVIOURAL CHANGE IN THE CONTEXT OF SUSTAINABLE ENERGY

3. The real scope for individual and local action to contribute to tackling climate change is through behavioural change that becomes embedded in everyday actions. In the context of sustainable energy, “behaviour change” can be broken down into two broad categories, namely changes to purchasing or routine behaviour, which are summarised in Table 1.

Changes to purchasing behaviour:

- *Purchase the low carbon option.* These purchases are generally prompted by the need for replacement, for example when an appliance breaks down. They are relatively rare purchases, and require only a modification in behaviour (ie a change in purchase decision in favour of the most energy efficient replacement).
- *Make a new sort of purchase.* Such purchases are not prompted by the need for replacement, for example buying loft or cavity wall insulation (CWI). They require consumers to do something they were not necessarily going to do in the first place.

Changes to routine behaviour:

- Minor change to a common routine. Some changes to existing routines are relatively simple and easy to implement, for example turning down the thermostat, and switching off the lights.
- Behave in a completely new way. Other changes to existing routines require a complete change in behaviour, for example using public transport instead of driving.

Table 1

TYPES OF BEHAVIOUR CHANGE

<i>Frequency</i>	<i>Scale of behavioural change</i>	
	<i>Modification/minor change</i>	<i>Complete/major change</i>
Rare (purchases)	Purchase the low carbon option Compact florescent lights A-rated appliances Efficient boiler Efficient cars (in same class)	Make a new sort of purchase Loft or cavity wall insulation Green electricity tariff Smaller, lower power or alternatively powered car Micro-generation Move house to reduce commute
Common (use)	Minor change to a common routine Turn down the thermostat Switch off the lights Don't overfill the kettle “Eco drive”, eg don't accelerate hard Switch off not standby	Behave in completely new way Use public transport Cycle or walk Take holidays close to home Video or tele-conference Buy at the local shop

4. Behavioural modification is relatively modest and can be done within normal routines and social norms whilst complete behavioural change requires more fundamental changes. Broadly speaking, the major changes in operating behaviour are strongly focussed on transport while home energy use issues tend to be more purchase related. Major changes in routine behaviour require more conscious thought and decision-making. As Holdsworth and Steedman¹ note in their report for the National Consumer Council “even if alternative travel were obviously cheaper consumers would have to make conscious choices that challenged their travel habits and their relationship to their car and weigh future environmental impacts against immediate short-term factors like convenience”.

5. However, the challenges posed by “just” getting consumers to modify, as opposed to completely change, their routine behaviour should not be underestimated. Habit is the one overriding factor that affects consumer behaviour. To break habit requires “unfreezing” existing habits, which may involve changing the social context in which consumers operate. To change and sustain behaviour change (“refreezing”) involves providing the structures that reinforce behaviour change.

6. The easiest changes for consumers to make (eg making minor changes to a common routine) will generally save less energy/carbon than major changes and capital purchases. The latter should therefore be the key focus of Government intervention but as part of a combined package that results in lasting behavioural change.

¹ Holdsworth, M and Steedman, 2005, 16 Pain-free ways to help save the planet.

THE SCOPE FOR TACKLING HOUSEHOLD ENERGY EFFICIENCY

7. Home energy efficiency in the UK is already a success story with investment in improvements in UK households having doubled energy efficiency since 1970. These changes now reduce carbon emissions by 30 MtC per annum, saving consumers over £15 billion every year. This is three times the carbon saving from the whole nuclear industry and almost as much as the emissions of the UK's current fleet of coal fired power stations. Defra reports² that the cost effectiveness per tonne of carbon saved from demand-side measures is greater than that achieved from supply side measures. Household energy efficiency is over four times more cost-effective than the next best demand side sector, which is business.

8. However, there continues to be a large potential for proven, cost-effective energy saving improvements in existing homes. If implemented, these measures would save some 9 MtC per year, mostly from reductions in space and water heating. We believe that the household sector is capable of contributing a 60% reduction in carbon emissions as part of Government's long term target, through a combination of currently cost effective measures, energy efficiency measures that are not yet cost-effective and microgeneration technologies. Such a combination has the technical potential to reduce emissions by approximately 30 MtC/year.

9. Ultimately the long-term key to unlocking the substantial energy saving potential in the household sector is to change consumer behaviour. Although challenging, we believe this can be achieved through Government policy and leadership at national, regional and local levels.

THE SCOPE FOR INCREASING THE DELIVERY OF THE ENERGY EFFICIENCY COMMITMENT (EEC)

10. EEC is successful in improving the purchase of insulation products or more efficient appliances but this is typically through a one-off approach or via social landlords and therefore does not delivering changes to purchasing behaviour.

11. EEC1 2002–05 achieved savings of 86.8 TWh and after the first quarter of the second year of EEC2 energy suppliers have already delivered 78 TWh savings (68% of the target) and are reducing activity, which is of major concern to the energy efficiency supply chains. EEC is cost-effectively delivering significant carbon and comfort savings and whilst the energy suppliers deserve credit for achieving these levels it is clear that more can and should be done. We therefore advocate that EEC3 2008–11 should be set at double the double the current level and thereafter at least set at this equivalent level to 2020.

12. Allowance carry-over of the additional measures announced in Budget 2006 will help suppliers deliver this goal but other adjustments to the scheme will also be required:

- Currently EEC is dominated by cavity wall insulation (CWI). Both a whole-house approach and more innovative measures need to be encouraged.
- Further incentives to tackle off-gas network and “hard to treat” homes through the use of renewable microgeneration solutions and stimulating the use of renewable heat to tackle these issues would be helpful.
- We believe that developing a cost-efficient mechanism that allows third parties direct participation might be helpful in price transparency, encouraging innovation and action at a community/local level.
- Further thought also needs to be given to how best to facilitate the delivery of behavioural measures.
- The widespread mistrust of supplier programmes needs to be addressed. The Energy Saving Trust can help overcome this through its advice, community and marketing activity to support EEC activity, especially locally.

13. The long-term goal, we believe Government should be working towards is a constraint on household carbon emissions. Ultimately this may require incentivising energy suppliers to make energy demand reductions, as opposed to delivery of energy efficiency measures. Currently there is no incentive for energy suppliers to go beyond their obligations (other than carry-over into the next obligation period). And the overall regulatory framework still incentivises sales.

14. A supplier cap and trade scheme for the household sector may be feasible. However, such an approach working effectively will be contingent on several unproven approaches eg energy services, behaviour change instigated by suppliers and smart metering. Without implementing prior measures to underpin these approaches, replacing EEC with a supplier cap and trade scheme would risk losing some of the proven effective delivery mechanisms in EEC (eg retail schemes and social housing schemes) without viable alternatives. Any form of carbon cap would also need to address social equity issues and the potential incentive not to supply high demand customers.

² Figure 9 page 2 Part I and Table on page 57, Part II of Synthesis of Climate Change Policy Evaluations April 2006 <http://www.defra.gov.uk/environment/climatechange/uk/ukccp/pdf/synthesisccpolicy-evaluations.pdf>

THE PROVISION OF LOW CARBON HOMES

15. Up to one third of UK homes that are estimated to be required in 2050 have yet to be built. At current rates of improvement to newbuild performance requirements, housing built between now and 2050 would lead to carbon emissions equal to 10–15% of those from the current housing stock. If total emissions from housing are to be reduced to only 40% of the current level (in line with the Government’s ambitions for the economy as a whole) it is therefore important to reduce the carbon emissions from newbuild homes faster than currently planned.

16. The UK already has the makings of a good framework in place to deliver new low carbon homes based upon:

- Building regulations that are strengthened at five year intervals where the key energy performance standard in this respect should be 25% above current Building Regulations Part L (2006) for England and Wales.
- Reducing the time period for the implementation of future building regulation improvements.
- Effective enforcement of regulations, which will required improved training and resourcing of building control officers.
- Transformation of newbuild markets to greater energy efficiency through the implementation of the Code for Sustainable Homes (or its devolved equivalents) including for all publicly funded housing. Moving forward the role of the Code could be strengthened by requiring developers to build a minimum percentage of buildings to the Code standards.

17. However, the December 2005 Energy Efficiency Innovation Review (EEIR)³ identified 23 technologies with the total potential to save 17 MtCO₂ by 2020 with five key technology groups accounting for 56% of the savings. Four of these technologies are specifically relevant to the household sector:

- *Advanced controls* for use in building management systems including home networking systems.
- *Advanced applications of Light Emitting Diodes (LEDs)*, including use as solid state lighting and for monitors and TVs.
- *Glazing* including integrated designs and innovative glazing technologies.
- *Dematerialisation/lightweighting and decarbonisation* of products.

18. For each of these priority areas, we advocate the development of specific “roadmaps” to help identify the path from R&D through to commercialisation, on the model now used for renewable energy technologies. Given the large carbon saving potential of micro-CHP, the range of potential technologies (including fuel cells) and the preliminary results from the Carbon Trust small-scale CHP field trials, micro-CHP technology should clearly be another priority area for early demonstration.

19. Demonstration projects are also required to ensure conversion of early prototypes to full-scale commercial production by providing potential consumers with sufficient confidence to invest. Such projects are particularly helpful in showcasing technologies that can both improve the housing fabric and building services as we move to tighter building regulations in the future and in measuring energy and carbon savings and to gain information on costs and benefits, skills constraints and occupancy behaviour.

20. As household energy consumption represents 31% of UK energy usage and four of the five key technological groups identified for further RD&D cover the household sector, we believe that adequate funding for demonstration projects in the household sector is required. This is particularly relevant to underpin the Code for Sustainable Homes, to allow technical innovation and to develop solutions to tackle hard to treat properties. The demonstration of technologies could also lead to earlier uptake through the Code ahead of inclusion in future building regulations.

21. In this respect, we note that the Energy Efficiency Demonstration Scheme (EEDS) ran successfully from the late 1970s until in March 1989 generating energy savings worth over £5 for every £1 of Government money invested.⁴ EEDS was followed by the Energy Efficiency Best Practice Programme that continued to demonstrate new technology. Following the split of funding for Best Practice work into £19 million to the business sector and just £1 million to the household sector, the latter sector has lacked the resources for a demonstration scheme. Recommencing such a scheme, funded from the Environmental Transformation Fund announced in the Energy Review, would give support to innovative technologies and provide confidence to the early adopters of new technologies. We believe that with increasing energy prices, rising carbon emissions and technological advances, it is once again appropriate to run a scheme of this kind in the household sector.

³ <http://www.defra.gov.uk/environment/energy/eeir/pdf/fes-report.pdf>

⁴ Future Energy Solutions report to the Energy Efficiency Innovation Review.

THE PROVISION OF LOW CARBON PRODUCTS

22. There is a wide variety of energy consuming products used in the home, from light bulbs and kitchen appliances to boilers and home entertainment. With the exception of boilers and major appliances, these do not individually consume a large amount of energy. However, collectively household domestic appliance electricity consumption rose from 44 TWh in 1972 to 89TWh in 2002⁵ and is expected to grow by a further 12% to over 100 TWh by 2010.⁶ Defra's Market Transformation Programme (MTP) projections estimate the potential following savings from IDTV, set-top boxes and external power supplies to be 23.6 TWh in 2020 equivalent to 2.76 MtC.

23. Typical characteristics of household products are listed below:

- A significant variation exists between the least and most efficient eg a CFL consumes a quarter or less that of the equivalent incandescent lamp.
- Ownership levels of most products are very high with annual sales typically in the millions.
- Most products have lifetimes not exceeding 15 years with products rapidly changing.
- Many products are labelled to illustrate their efficiency but the energy consumption of most products is not a selling feature.
- Significant transformation towards more efficient products has already occurred in many markets.
- Standby power and power consumption of products left on (eg charging units) is a significant and growing proportion of total energy consumption.
- There are disposal and life cycle environmental impact issues with all products.

24. Against this backdrop, there is considerable scope to reverse the rising trend in energy consumption and reduce total carbon emissions through an aggressive products policy. Below is an illustrative list of the types of measures that have worked effectively already (whether in the UK, EU or elsewhere) and which could form part of a more aggressive UK products policy:

- *Accelerated and sustained tightening of product standards.* EU standards for white goods have already banned some of the least efficient products. We believe that UK Government should press for a long term EU-wide approach where the least efficient (eg 25%) of the market is removed on a regular basis (eg every 3–5 years, depending on product).
- *Minimum standby power consumption.* The EEIR and other recent reports have highlighted the future importance of energy use in consumer electronics due to the rapid growth driven by switchover to digital TV. In much of consumer electronics, lifetime energy use is very dependent on “standby” consumption where the variation in standby use is very large and the policy costs of reduction are very low (in the range £1-4/tC).⁷ These changes will not be driven by consumer demand or by appliance manufacturers (as costs to reduce energy consumption in products are material in these very competitive markets). International interest in a “One Watt Initiative” to move standby consumption to 1W should be driven by the EU as a priority under the new Eco-Design of Energy Using Products Directive. For products which are designed to operate for significant time in standby mode, the 1W standard should be adopted as mandatory as soon as practicable. Wherever possible, full OFF function should be made available and easy for users to apply.
- *Voluntary agreements with retailers combined with expanded use of ESR labelling.* However, EU progress on consumer electronics is likely to be slow, and therefore we urge the rapid progression of the initiative announced in Budget 2006 to introduce voluntary agreements in the UK in the interim with major retailers, as proposed in the EEIR. The EU has already established a Code of Conduct that currently requires maximum standby consumption in the range 2–3W (depending on product type), but this is not proving very effective. We believe that extending the Energy Saving Recommended (ESR) scheme to consumer electronics would add pressure to the retailers to sign up to the Code and can build upon the recent extension of ESR to integrated digital televisions (IDTV) to also cover set top boxes, and external power supplies (EPS). Incentives to provide better information at the point of sale would also help influence purchasing behaviour.
- *Tax on inefficient products.* For products which cannot readily be addressed through tightening of standards, an inefficiency tax should be considered. Two categories might be:
 - Where products are grossly inefficient compared to others on the market (eg GLS light bulbs compared to CFLs). For example, incandescent bulbs could be taxed at a rate of at least 50 pence per unit.
 - Where “luxury” products are deemed to have a disproportionately high environmental impact in relation to their utility (eg domestic air conditioning).

⁵ DTI table 3.10 Total electricity consumption by household domestic appliance 1970–2002 http://www.dti.gov.uk/energy/inform/energy_consumption/ecuk3_10.xls

⁶ Taken from MTP publication: Sustainable Products 2005: Policy Analysis and Projections Jan 2006 Table 2.1 http://www.mtprog.com/ReferenceLibrary/MTP_Sustainable_Products_2005_FINAL.pdf

⁷ Energy Efficiency Innovation Review.

- *Outright bans of products.* This has already proved successful, eg for inefficient refrigerators. There is no reason why this cannot be extended. An example might be incandescent light bulbs > 100W.
- *Binding agreements with retailers/service providers.* Placing obligations on retailers and/or service providers.
- *Greater R,D&D and accelerated technology deployment for energy efficient products.* For example, the technology of vacuum packs to enhance the insulation performance of cold appliances has been in existence for many years however, they have hardly been used at all in domestic appliances.
- *Mandatory product standards in new build homes.* Requirements on housing developers to only install the most efficient appliances (where home is sold with appliances) and dedicated CFL fittings.

THE POTENTIAL FOR, AND BARRIERS TO, MICROGENERATION

25. The Renewables Obligation (RO) is already delivering substantial growth in large scale renewable generation capacity. However, the RO does nothing to encourage renewable heat and provides very limited support in practice to renewable microgeneration⁸ technologies.

26. Last year, the DTI published the report “Potential for microgeneration study and analysis” to inform the Low Carbon Buildings Programme (LCBP) and the wider microgeneration strategy.⁹ The report undertaken by the Energy Saving Trust on behalf of the DTI revealed that microgeneration could potentially provide 30–40% of the UK’s total electricity needs by 2050 and reduce CO₂ emissions by 15%.

27. Recent consumer research conducted by the Energy Saving Trust on attitudes towards microgeneration technologies shows that more than half of the people in the UK would like to generate their own energy. It is critical that consumers embrace these technologies to stimulate the deployment of microgeneration, which necessitates sufficient support and a more favourable market framework to deliver the potential offered by microgeneration. The report showed that capital grant schemes, building regulations and ensuring a fair price for electricity exports are likely to be critical to their success. In addition to the LCBP and the granting of permitted developed status for microgeneration technologies, we advocate the following to overcome the market barriers for microgeneration:

- Fair reward for exported electricity from microgeneration and the removal of the unnecessary requirement for a “sale and buy-back” agreement. The implementation of smart metering would help facilitate this.
- Easier access to Renewable Obligation Certificates (ROCs) for microgeneration technologies through the implementation of “type approvals”. As a minimum, data aggregation for individual microgenerators should be allowed to reduce transaction costs.
- A requirement on local authorities to encourage microgeneration combined with the inclusion of sustainable energy in the Comprehensive Performance Assessment (CPA) and the implementation of a Planning Policy Statement on Sustainable Energy.
- A requirement on network operators to ensure that the development of the distribution network takes into account the installation of increased microgeneration capacity.
- Development of microgeneration product and installer standards such as codes of practice for the supply of microgeneration, accreditation of products and installers and training courses.
- Inclusion of microgeneration technologies under EEC to allow a whole-house approach. An alternative approach would be to impose a microgeneration commitment on suppliers, focused on the able to pay market, and including the provision of finance and energy efficiency measures as part of a whole house energy services package. This would help increase penetration in existing homes, which may not benefit from the LCBP as much as newbuild and other sectors.

28. As a first priority, we urge that the actions identified in the DTI Microgeneration Strategy “Our Energy Challenge—Power from the people” are progressed as a priority.

THE POTENTIAL FOR “SMART METERING”

29. Evidence demonstrates that there is considerable potential for smart metering.¹⁰ The report by Sarah Darby (ECI) in April 2006 to Defra¹¹ indicates direct feedback, via well-positioned consumer interface, can deliver savings of 1–26% and indirect feedback, eg processed data via a bill or over the internet, by 0–13%. We believe savings between 5–10% to be a reasonable assumption and note that research by Sustainability First¹² has demonstrated that 3% savings provides an overall positive cost-benefit calculation and that just 1% energy saving still represents 8.6% of the Government’s domestic CO₂ reduction target.

⁸ Microgeneration is defined as any technology, connected to the distribution network (if electric) and with a capacity below 50–100kW. Most domestic installations will be below 3kW, though thermal systems could be larger.

⁹ <http://www.dti.gov.uk/energy/consultations/pdfs/microgeneration-est-report.pdf>
<http://www.gnn.gov.uk/Content/Detail.asp?ReleaseID=181382&NewsAreaID=2>

¹⁰ By smart metering we mean Automated Meter Management allowing 2 way communication with ability to store and communicate consumption data by time-of-use.

¹¹ <http://www.defra.gov.uk/environment/energy/research/pdf/energyconsump-feedback.pdf#search=%22sarah%20darby%20%20defra%22>

¹² <http://www.sustainabilityfirst.org.uk/docs/smart%20meters%20pdf%20version.pdf#search=%22sustainability%20first%22#>

30. Recent market research from Logica¹³ concluded that 36% of citizens have no idea how much energy they use, 70% want more information on home energy use and appliance running costs and 82% believe that an in-home display would encourage action. We therefore urge the national roll-out of smart metering technology and trials of the way information is provided from it to consumers to identify the most effective approaches to changing behaviour.

THE SCOPE FOR THE TRANSPORT SECTOR

31. There is a great potential for energy and carbon saving in transport. In this sector, “energy saving” really means “oil saving”, leading to less reliance on imported oil, with benefits for energy security, as well as the environment. This year’s report¹⁴ by the Bartlett School of Planning, University College London and Halcrow Group for the Department for Transport (DfT) identified how potential carbon saving policy packages could deliver a 60% reduction in transport carbon emissions.

32. Consumer information and advice on low-carbon vehicle choice, “eco-driving” and low-carbon transport modes should become a priority for DfT. Currently there is a gap in the promotion of low-carbon transport to the consumer sector that must be filled. The integration of transport with advice on energy use in the home, through a consumer facing Sustainable Energy Network, seems very likely to be the most cost-effective means of advice provision.

Increase the UK uptake of lower-carbon vehicles and fuels

33. As with energy efficiency behavioural change is best undertaken through a combination of fiscal measures, grant programmes and improved advice and information. In vehicle markets, as with consumer products, higher mandatory standards must be agreed at the European level to replace the current voluntary system. We believe a mandatory standard of 120 g/km should be introduced for cars. This could include a trading element to optimise efficient delivery. It will also be important to ensure that the benefits are realised within the UK.

34. We strongly support reformed fiscal measures to provide greater incentives for low carbon cars and disincentives for high-carbon cars. The announcement in Budget 2006 of a reduction in VED (Vehicle Excise Duty) for the most environmentally friendly cars and the introduction of an additional band for cars above 225 gCO₂/km is a starting point that should be built upon over time by implementing further increases to the higher bands resulting in greater differentials. Band G should be the focus of most attention to provide very strong disincentives to “gas guzzlers”. Until high enough pricing differentials to encourage individuals to switch to the lowest carbon cars are implemented, we believe that state aid-approved grant programmes have a significant role to play in increasing take up of the lowest carbon vehicles. Discount schemes for very low carbon vehicles in those towns and regions implementing charging regimes would provide further incentives.

35. Improved awareness by individual car purchasers will impact on purchasing behaviour. Whilst the new labelling scheme is an excellent first step, we believe that provision of complementary advice to customers is also essential given that CO₂ levels of privately purchased vehicles are rising at present. As with home energy efficiency, advice is most likely to be effective when given at the local level.

Eco-driving techniques

36. Schemes are required to help individuals to improve the efficiency of their driving. For new licence holders eco-driving could simply be delivered through the driving test curriculum. Eco-driving techniques are best delivered to existing drivers through a combination of two routes.

- In the business sector, by expanding fleet advice in an integrated approach that combines support to business transport managers with driver advice.
- In the consumer sector, by building upon experience of home energy advice, using the local advice network and signposting to providers of driver training. This could be underpinned by the provision of support for reduced cost eco-driving training.

Increase the use of lower-carbon modes of transport—“modal shift”

37. This can be implemented through improved public transport provision, the promotion of non-car transport choices and reduced car usage. Reducing dependence on energy intensive transport modes will be a key part of moving towards a low carbon society. The provision of advice on business and commuter travel, through the Transport Charter programme and signposting to other information sources, such as Transport Direct, via the Energy Saving Trust’s national campaign and local advice centres would help underpin other policy initiatives in this area.

¹³ <http://www.logicacmg.com/uk/energyefficiency>

¹⁴ <http://www.bartlett.ucl.ac.uk/research/planning/vibat/index.htm>

AWARENESS OF CLIMATE CHANGE AND AVAILABILITY OF INFORMATION ABOUT THE ROLE OF THE INDIVIDUAL IN TACKLING THE PROBLEM

38. The report led by the UK Energy Research Centre (ERC) for DfT¹⁵ provides detailed information on the level of awareness of climate change. It concludes that awareness of climate change is very high but understanding of the causes is mixed, especially in relation to the link between individual behaviours and CO₂ emissions. In particular, it found that “there is only a weak link between knowledge and awareness of climate change on the one hand and travel behaviour at the individual level on the other.” Our tracker surveys show that there is a greater degree of awareness of the link between climate change and home energy use.

39. There is a mass of information on home energy efficiency available to consumers through different channels, but this can be confusing and inconsistent. There is also an over-emphasis on simple actions, such as not over-filling the kettle, which although important collectively across the UK as a whole, can dis-engage the individual or divert attention away from the more important carbon saving measures. Most importantly research consistently shows that providing information on its own, will not result in long-lasting behavioural change.

40. The Institute for Public Policy Research publication “Warm Words”¹⁶ by Linguistic Landscapes found that the current climate change discourse is confusing, chaotic and unproductive. It recommends that “interested agencies now need to treat the argument as having been won, at least for popular communications. This means simply behaving as if climate change exists and is real, and that individual actions are effective.” Instead of providing further messages, based on rational argument and top-down persuasion, it recommends working “in a more shrewd and contemporary way, using subtle techniques of engagement”. The conclusions of the report are provided in Appendix 1. This is consistent with the UK ERC report that also concluded “there is a need to engage the public in issues of transport and climate change using deliberative methodologies to deviate from ‘top-down’ methods of information provision.”

41. The Energy Saving Trust has already adopted detailed market segmentation techniques, based upon a combination of attitudinal and socio-demographic variables (based on postcode), to inform and access its target audiences and the “ordinary hero” concept advocated in the report and will build upon this approach in this year’s Energy Saving week at the end of October. Our segmentation work means that the Energy Saving Trust knows who to target, where they live and what messages to use.

Q2. *What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?*

THE BARRIERS

42. Consumer market research routinely identifies the following key barriers:

- *Lack of consumer knowledge.* Few consumers are clear about the risks of climate change (although awareness is increasing) and what effect energy saving may have on it.
- *Individuals find it hard to believe they can really make a difference.* While most people are sympathetic to protecting the environment, they hold many beliefs that support inaction.
- *Many just find it all too difficult.* Most people say “they need to make it easier for us”.

43. Different barriers exist for different types of behaviour. For example, for infrequent purchases consumers cannot be expected to have the relevant information to hand. It needs to be provided at the decision point, eg through energy labelling of appliances. But consumers do not always trust those who are encouraging them to make such purchases, particularly energy suppliers. This is confirmed by both the EEIR and highlighted by consumers interviewed as part of the research undertaken in support of our publication “Changing Climate, Changing Behaviour: Delivering Energy Saving through Fiscal Incentives”.¹⁷ For routine behaviours, the lack of tangible benefits and social constraints are more important. This is well illustrated by the following example: it may be cheaper for consumers to take public transport than to drive, other factors (the consumers’ relationship with their car, convenience and adverse perceptions of public transport etc) work against the consumer making this choice.

¹⁵ Evidence base review of public attitudes to climate change and transport behaviour, July 2006—http://www.dft.gov.uk/stellent/groups/dft_sustravel/documents/page/dft_sustravel_612225.pdf

¹⁶ Warm Words: How are we telling the climate story and can we tell it better? <http://www.ippr.org.uk/publicationsandreports/publication.asp?id=485>

¹⁷ Energy Saving Trust (2005) Changing Climate, Changing Behaviour: Delivering Energy Saving through Fiscal Incentives.

THE SOLUTIONS

44. Jackson and Michaelis in their report “Policies for Sustainable Consumption” highlight that:

“Government has a key role to play in shaping the institutional, social cultural and ethical context within which individual consumer behaviour is negotiated”. Our experience suggests that different types of Government intervention work best for different behaviours, as illustrated in Table 2.

Interventions to change purchasing behaviour:

- *Purchase the low carbon option.* For purchasing behaviour we know that regulation works. The Energy Efficiency Commitment (EEC) has been particularly successful in transforming the market for energy efficiency white goods. “A rated” appliances now account for 94% of washing machines sold and 78% of fridge freezers. Under the building regulations gas boilers installed in England and Wales must be A or B rated, except where technical factors require otherwise.
- *Making a new sort of purchase.* For products whose purchase is not stimulated by replacement, policies have to focus on creating demand. This is where incentives, including fiscal measures, have an important role. While existing policies go some way towards creating this, they are not at a sufficient scale to create the level of demand envisaged by Government targets. Our research and practical experience shows that incentives linked to council tax could effectively stimulate consumers to install insulation measures. Braintree District Council’s council tax scheme carried out in conjunction with British Gas, which provides consumers with a £100 rebate on their council tax bill for the installation of CWI, has resulted in a doubling of the rate of CWI in the district. The success of this scheme, which is now being rolled out across 16 councils, is partly attributable to the visibility that linking an incentive to a high profile and unpopular tax and partly due to the effectiveness of local networks.

Interventions to change to routine behaviour:

- *Minor changes to common routines.* Small changes in routine behaviour can be difficult to sustain and need to be socially acceptable. Here, education and information is needed, and our EEACs and marketing activity play a key role. Such activities are also particularly cost effective.
- *Behave in a completely new way.* Major behaviour changes are tougher still to effect and will only occur with the right physical infrastructure and if social norms allow. This is illustrated by the London congestion charge where increased provision of public transport meant that the bulk of the physical infrastructure was in place to support greater numbers travelling by public transport. Collective/community based policies tend to be much more effective in this context.

Table 2

INTERVENTIONS TO CHANGE BEHAVIOUR

<i>Frequency</i>	<i>Scale of behavioural change</i>	
	<i>Modification/minor change</i>	<i>Complete/major change</i>
Rare (purchases)	Purchase the low carbon option Labelling Standards/negotiated agreements Supply chain training Supply chain incentives (eg in EEC) Product policy works and is critical	Make a new sort of purchase Regulation eg Building Regs, EEC Capital/fiscal incentives Installer training/accreditation Independent advice and promotion Supply push and demand pull. Incentives need to be at point of purchase and visible
Common (use)	Minor change to a common routine Product design (eg low energy standby) Needs personal responsibility (<i>cf</i> litter) Social acceptability is the only real incentive Product policy has a role but sustained education and information is needed	Behave in completely new way Infrastructure and land use planning Behavioural leadership Operating cost incentives (eg congestion charge) Community based programmes (eg travel plans) Collective/community based policies rather than exhortation of individuals

45. In all cases, solutions have to be “simple, cheap and easy” at the point of decision, and some policies can cut across different types of behaviour change, for example the Energy Saving Trust’s Consumer Marketing activity and our Sustainable Energy Network, which we discuss below, support each category of behaviour change.

46. For future consumers, it may be easier to encourage pro-environmental attitudes and behaviour at an early stage. Education therefore has a key role to play. It will be most effective to link climate change, energy efficiency and renewable energy in the curriculum with practical work to encourage efficient use of school energy resources. Educating children about sustainable energy has the potential to raise levels of environmental awareness not only of students, but also of teachers and parents. It can affect behaviour of individuals in the home. Activity to raise awareness and positive attitudes in schools needs to be increased. With the Building Schools for the Future programme in England and the announcement of additional funding under the Low Carbon Buildings Programme for schools, now is an excellent time to step up engagement with schools on these issues.

THE ROLE OF A SUSTAINABLE ENERGY NETWORK (SEN) IN DELIVERING BEHAVIOUR CHANGE

47. The Energy Saving Trust is piloting the SEN concept with the creation of Sustainable Energy Centres (SECs) in three parts of the UK (two in England and one in Northern Ireland) which build upon the existing infrastructure provided by our Energy Efficiency Advice Centre (EEAC) network. It will become the key locally delivery element of our carbon saving activities for UK citizens providing independent and trusted services. The EEACs currently focus on the provision of home energy efficiency advice, which has proven extremely successful and now advise 770,000 people annually. In 2005–06 the advice led to actions saving 1MtC over their lifetime at an average cost of just £6/tC.⁴⁸ Under the SEN model the provision of the advice service will be part of an integrated approach to changing consumer behaviour on a much larger scale, where each SEC will:

- Deliver defined regional carbon saving targets in their territory. Such a role will involve supporting and co-ordinating the range of existing delivery agencies and filling any gaps.
- Provide an advice service that also covers the use of renewable energy in homes and energy in road transport. This “one-stop-shop” will operate as a high profile service that can link consumers to delivery mechanisms for consumer sustainable energy, thereby making it easy and convenient for them to take action. SEN will therefore fill the current gap in the provision of renewables and transport efficiency advice to UK citizens.
- Instigate local awareness raising activity that links with national marketing and is integrated with local delivery mechanisms. This will provide a compelling and comprehensive message for citizens that is amplified, rather than confused by local messages.

48. Ultimately the aim of SEN is to create “low carbon citizens” and secure large scale carbon savings, but it will also seek to maximise carbon savings from householders in their homes and transport in the short to medium term through identifying and targeting the priority areas for carbon saving within a region. This process will be assisted through our segmentation data which goes down to postcode level. As well as identifying the likelihood of particular segments responding to environmental messages this will also provide information on the media they use etc. so that the SEC can determine the best ways of reaching them. This will allow SECs to take a focussed approach to reaching citizens and stimulating the take-up of those measures that have been identified as priorities.

49. The service will therefore focus less on proactive engagement through advice (eg completion of DIY Home Energy Checks in return for incentives) and more on generating customer led enquiries and fulfilling these with verbal advice and support, as well as pro-actively following up customers who have, for instance, completed a Home Energy Check or who have received an Energy Performance Certificate, as required from next year for house sales. Overall the aim will be a more “sales driven” process that cross-sells renewables, energy and transport efficiency, through impartial advisors that will endeavour to motivate and facilitate customers to take action.

50. As well as supporting delivery by helping local organisations working in sustainable energy to achieve their objectives, particularly local authorities but also environmental NGOs etc, SEN will also bring together wider-ranging organisations such as DIY retailers, car dealerships that may see it as only a small or peripheral part of their business.

51. We believe that the SEN approach will result in a more joined up approach to delivery, will increase engagement with citizens and communities, will provide an effective infrastructure at the local level and will result in a step change in consumer action whilst maximising the effectiveness of Government policy initiatives.

52. We are evaluating the current pilot to assess the carbon savings and other benefits arising from the SEN quarterly and provide the most recent results in Appendix 2. Results from the first six months are extremely promising and show overall cost effectiveness of £9.7/tC against a target of £10/tC. We expect to see this improve in later rounds of the evaluation as renewables and transport activity increases. The evidence confirms that SEN advice is making a difference at individual customer level. Results for the full first year of operation will be available December 2006.

53. Interviews also show that the pilots have been well received in their region. Stakeholders are positive about the more strategic approach, the pilot objectives and the expected benefits. Over half of stakeholders interviewed have engaged in projects and almost all are satisfied with the outcomes. However, there is concern regarding limited funding for renewables and transport and the need to define the roles of different organisations.

54. We believe that this approach is likely to prove more cost effective than separate initiatives and if, as initial results suggest, the pilot is successful then the Energy Saving Trust would advocate that this approach be rolled out across the UK from April 2008. To enable full roll out of the pilot we have started to engage with regional/national bodies and other stakeholders to determine an agreed way forward for SEN in both regions and the devolved nations where there is currently no pilot. Subject to Government funding being made available for SEN beyond the pilot project, we envisage a fully operational UK wide network in place in 2008–09.

CURRENT INCENTIVES

55. Currently EEC does not address behaviour change although it does influence purchasing decisions (see above) and on its own neither will graduated VED. Currently EEC is strongly biased to insulation, which is the most cost effective means of delivering energy efficiency. At its current levels VED is unlikely to have much impact, but it does provide a platform that can be built upon by rapidly increasing the differentials. Existing policy measures form a platform that will facilitate behaviour change but in isolation cannot possibly deliver it.

Q3. How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

56. Government and other agencies should demonstrate real leadership through their own actions and purchasing behaviour. Delivering behaviour change requires regional bodies and local authorities to be incentivised to commit to real leadership on environmental issues. This is best addressed through the development and implementation of strategies that tackle efficient energy use in the housing and transport sectors, as well as the smaller market of public sector buildings. In essence, regional bodies and local authorities should become flagships for sustainability including within regeneration initiatives. Community projects are important as they will help engage with citizens and exemplify climate change actions but they are only part of the solution as illustrated in Table 2.

57. Effective promotion of sustainable energy needs to be embedded within local authority responsibilities at senior management level, which will only happen if it is assessed under the Comprehensive Performance Assessment (CPA) and its equivalents in the devolved administrations and the framework that follows it in 2008. In this respect, Government should be encouraging the Audit Commission to embed sustainable development within the CPA process. Sustainable development and public service modernisation are intrinsically linked. The CPA review provides a real opportunity to embed sustainable development within each local authority throughout its entire activities, which will bring economic, environmental and social benefits to the local community. There needs to be clearer accountability on sustainable energy within the regions.

58. Local authorities have a key potential role in delivering energy efficiency to private households, due to their effective local networks for citizen engagement and trusted position (market research indicates they have higher levels of trust than energy suppliers). This is consistent with the broader role of local authorities in the community as enabler and leader. This is already accepted by Government as illustrated in its Budget 2006 statements on energy efficiency. Effective engagement of local authorities potentially gives access to a range of local networks that can be used to engage with private households, including, but not restricted to, council tax billing. At present these local authority networks are scarcely utilised as local authorities have no duties requiring delivery of energy efficiency in the owner occupied housing stock.

59. We therefore welcomed the announcement in Budget 2006 of the £20 million funding over the next two years to help local authorities work with energy suppliers and others to promote and incentivise energy efficiency measures to households but are disappointed that the entire £5 million for this year has been diverted to the smart metering trials. If implemented next year the remaining £15 million will help stimulate consumer demand for energy efficiency measures and incentivise local authorities to address private household energy saving.

60. The Energy Saving Trust has established effective engagement with most local authorities through PracticalHelp providing on-line and telephone support to local authority officers, “in the field” through Local Support Teams based in our EEAC network and the Innovation Programme to provide support for the replication of innovative approaches. Support focused on assisting with development of energy strategies and developing schemes for social housing, often accessing EEC funding. However, this is now under major threat due to funding shortfalls on account of proposed changes to the VAT treatment of our operations. If implemented as proposed, this will curtail our support for local support teams from this November. Without the continuation of this support, local authority activity on sustainable energy is likely to take a backwards step.

61. Local authorities that are highways authorities also have very important roles in transport planning and public transport support in their local communities. Greater priority needs to be given, both in local transport investment plans and transport planning, to low carbon modes of transport, in particular to public transport, cycling and walking.

Q4. What is the role of NGOs in delivering the “citizen’s agenda” on climate change?

62. Through our Community Action for Energy¹⁸ (CAfE) programme and the EEACs we already have a significant role in working with local community groups. It is important for all stakeholders to work together to ensure clear and consistent messages are provided to citizens through different routes at national, regional and local level. Repeated delivery of the same message will be far more effective than *ad hoc* and inconsistent messaging, which are more likely to confuse and disengage citizens and thereby runs the risk of undermining actual behaviour change. We are working with NGOs and other stakeholders to provide practical solutions for citizens to help them take positive actions, both individually and collectively, to mitigate the impacts of climate change.

63. New initiatives such as the Climate Change Communications Initiative and Environment Direct should take advantage of existing delivery mechanisms and infrastructure, which have been informed and shaped over many years underpinned by detailed consumer market research and segmentation, such as the EEACs and Energy Saving Week.

Q5. Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?

64. Such approaches will only become a viable once the need for behavioural change is widely accepted by citizens. UK government should be working towards this goal accordingly.

APPENDIX 1

CONCLUSIONS AND RECOMMENDATIONS FROM THE INSTITUTE FOR PUBLIC POLICY RESEARCH PUBLICATION “WARM WORDS” BY LINGUISTIC LANDSCAPES

65. Many of the existing approaches to climate change communications clearly seem unproductive. And it is not enough simply to produce yet more messages, based on rational argument and top-down persuasion, aimed at convincing people of the reality of climate change and urging them to act. Instead, we need to work in a more shrewd and contemporary way, using subtle techniques of engagement.

66. To help address the chaotic nature of the climate change discourse in the UK today, interested agencies now need to treat the argument as having been won, at least for popular communications. This means simply behaving as if climate change exists and is real, and that individual actions are effective. The “facts” need to be treated as being so taken-for-granted that they need not be spoken.

67. The disparity of scale between the enormity of climate change and small individual actions should be dealt with by actually harnessing this disparity. Myth (which can reconcile seemingly irreconcilable cultural truths) can be used to inject the discourse with the energy it currently lacks.

68. Opposing the enormous forces of climate change requires an effort that is superhuman or heroic. The cultural norms (what we normally expect to be true) are that heroes—the ones who act, are powerful and carry out great deeds—are extraordinary, while ordinary mortals either do nothing or do bad things. The

¹⁸ CAfE is designed to promote and facilitate local community-based energy projects through a network of people who share a common interest in such projects and ideas.

mythical position—the one that occupies the seemingly impossible space—is that of “ordinary hero”. The “ordinary heroism” myth is potentially powerful because it feels rooted in British culture—from the Dunkirk spirit to Live Aid.

69. More generally, the challenge is to make climate-friendly behaviours feel normal, natural, right and “ours” to large numbers of people who are currently unengaged, and on whose emotional radar the issue does not figure. The answer is not to try to change their radar but to change the issue, so it becomes something they willingly pick up, because it means something valuable in their own terms. This can be achieved by shaping communications in several key ways, including:

- Targeting groups bound by shared values and behaviours rather than by demographics—making desired climate friendly behaviours feel simply like “the kinds of things that people like us do” to large groups of people.
- Reflecting the fact that a large proportion of the population have esteem-driven needs—they want to feel special and are accustomed to achieving this through what they do and buy, rather than what they do not do or do not buy.
- Working on the basis that people increasingly trust other people more than governments, businesses and other institutions.
- Using non-rational approaches like metaphor as well as more rationalistic approaches to enable people to engage emotionally and make desired behaviours appear attractive.

70. Ultimately, positive climate behaviours need to be approached in the same way as marketers approach acts of buying and consuming. This is the relevant context for climate change communications in the UK today—not the increasingly residual models of public service or campaigning communications. It amounts to treating climate-friendly activity as a brand that can be sold. This is, we believe, the route to mass behaviour change.

APPENDIX 2

INITIAL RESULTS FROM THE SEN PILOT

71. The Energy Saving Trust is currently piloting the SEN concept in three areas:

- Anglia (Norfolk, Suffolk, Cambridgeshire and Peterborough).
- The North East region.
- Northern Ireland.

72. The pilot commenced in April 2005 and will run for two years through to March 2007 during which it will be subject to extensive analysis and evaluation throughout. Performance of the pilot will be assessed in two key ways:

- Performance against the defined key performance indicators (KPIs) to ensure that the SEN is delivering to the level required, particularly in respect of customer numbers.
- The results of the Energy Saving Trust’s evaluation activity to assess that the impact of the pilot activity is achieving an increased level of carbon savings from householders against what would happen if the SEN were not in place.

73. The key findings for the first year of operation have proved promising despite the reporting period covering the process of finalising staff recruitment, developing partnerships and developing and integrating the provision of transport and renewable advice with energy efficiency.

Combined performance against KPIs (for the whole of 2005–06)

- Number of customers advised is 97,513 (target—91,500)
- Number of customers advised in more than one category, ie energy efficiency *and* transport or renewables, is 23,790 (target—5,456)
- Number of customers referred onto grant and discount schemes is 20,508 (target—34,850)
- Number of customers who received a follow up consultation to offer further advice is 22,772 (target—18,900)

Evaluation activity (first six months of 2005–06: April to September only)

- Lifetime carbon saving per customer through direct advice is 1.94 tC (pilot target—1.63 tC)
- Increased customer action is confirmed by a corresponding increase in CWI installations within the pilot areas beyond national trends from market data.
- Cost effectiveness for the first year of the pilot is £9.7/tC against a pilot target of £10/tC lifetime at rollout.
- There is a good level of customer satisfaction with the Advice Centres and that stakeholders are positive about the more strategic approach, the pilot’s objectives and the expected benefits of the pilots.

 OPERATIONAL ACHIEVEMENTS (WHOLE OF 2005–06)
Energy efficiency

74. SEN activity within energy efficiency builds on the success of the EEAC network and aims to make existing policy measures, such as EEC work more effectively.

- The North East SEN has set up the North East Home Insulation Partnership with a short term target of doubling the annual fill rate for CWI by 50%. The partnership has been successful by ensuring all partners use consistent marketing messages and to stabilise the market following the reduction of “able to pay” EEC schemes.
- Northern Ireland SEN identified a problem within the appliance retail environment whereby retailers were not displaying either the EU label or the Energy Saving Recommended accreditation mark. As a result consumers were unaware of which products to purchase. A cohesive programme has been developed involving staff training and promotional activity. The chair of the NI Euronics stores has now registered to the EST scheme and is working to encourage wider take up of the scheme by independent retailers, a traditionally hard to reach audience.
- Historically energy saving activity within Anglia has had a fairly low profile. Therefore a focus for 2005–06 was to increase the awareness of energy saving in general and of the SEN. This was achieved by initiating an integrated marketing campaign, involving field marketing, radio, online and press activities, prompting over 8,000 householders to respond to a co-ordinated message. Work has also begun in Anglia to target senior managers within Local Authorities to encourage adoption of sustainable energy strategies and subsequent delivery of these strategies. A key activity is to increase the number of authorities signed up to the Nottingham Declaration.

Renewables Activities

75. The primary focus for all three centres is to increase the number of DTI accredited installers within their regions to balance increasing consumer demand.

- The market analysis in Northern Ireland concluded that biomass was the area with the best market transformation potential, due to a new pellet plant being opened but an immature installer market. In 2005–06 activity focused around influencing installers of other renewables technologies and traditional heating installers and held three seminars with over 100 installers attending. The seminar also involved study tours to demonstration sites within the province. Feedback was very positive and the work is being evaluated at present to assess the overall outcomes.
- The Anglia SEN has carried out a similar range of seminars within their region to encourage installer diversification but also to showcase renewable technologies to consumers. Anglia will also be working to influence the update of renewable technologies within the substantial amount of new build housing along the M11 growth corridor.
- The North East centre is working with its Regional Development Agency One North East and the New and Renewable Energy Centre (NaREC) to establish ways of increasing training for installers. They have been looking at the potential of replicating the Installer Academy in Northern Ireland that is managed by Action Renewables.

Transport Activities

76. There is no specific funding from DfT for SEN in relation to transport activities, meaning only limited activity is taking place. However, we have managed to address this gap through participating in the EU funded TREATISE programme, to provide training to all advisors to enable the cross selling transport (and renewables) advice to energy efficiency customers.

77. The Tactical Teams within each centre are beginning to develop relationships with transport partners within the region, to provide practical solutions to consumers. This work builds on existing relationships and enable to SEN to provide holistic solutions and signpost to other initiatives. Some examples include working with Travelwise in Northern Ireland and working with the two DfT Sustainable Transport Demonstration Towns in Peterborough and Darlington.

Energy Saving Trust

September 2006

Witnesses: **Mr Philip Sellwood**, Chief Executive, and **Dr Nick Eyre**, Director of Strategy, Energy Saving Trust, gave evidence.

Q1 Chairman: In the words of the famous radio programme, if you are all sitting comfortably then we will begin. Can I welcome everybody to this the first evidence session of the Committee's inquiry into climate change. We have called it "the citizen's agenda" in an effort to discover how we can get more of our fellow citizens involved in this very important area of work. We are taking evidence this afternoon from the Energy Saving Trust and the Local Government Association, and I would like to formally welcome the Energy Saving Trust and their Chief Executive, Mr Philip Sellwood, and their Director of Strategy, Dr Nick Eyre. You are both very welcome. Can I thank you at the outset for your every comprehensive written evidence and, also, the information that was attached to it. That is very much appreciated. It may well be that with the constraints of time there are questions that we are not able to put to you orally on which we will want to write to you in order to tease out some more of your views. With that, I want to start by saying that your evidence is quite interesting in overall terms in that it sort of contains a certain amount of frustration, a certain amount of aspiration and hope that things will be done; quite a lot of indication as to things you would like to have happen but, perhaps, not going hard at the barriers to progress. In other words, who actually is stopping a more aggressive stance being taken on the whole subject of energy saving. Mr Sellwood, I do not know whether you would like to comment on my overall impression of your evidence by way of starting?

Mr Sellwood: Yes, thank you, Chairman. I think it is fair to say that we have been, in our written evidence, stronger on the analysis in some respects than on the solutions, but on your specific question about the barriers, I think it is really quite important because there may be others who come before you who talk almost exclusively in terms of the lack of resources, for instance, as being a key barrier. Clearly, we would not be saying anything other than "more resources would be terribly helpful" but one of the things that we feel does need addressing, probably even over and above that issue, is the whole question of each and every government department, whether here in Westminster or beyond, actually taking full responsibility for not only energy saving but sustainability generally. What I mean by that is we sense, at the moment, that there is still very much a case of it being led by Defra with other departments coming along behind. It is not necessarily a matter of "Is government joined up"? It is a matter of whether or not sustainability is seen in the DCLG or DfT or the DTI as central to what they are about as opposed to being an add-on to their daily business. We think that is a very, very important issue that needs to be faced.

Q2 Chairman: Let me ask you a simple question because this reflects on comments you made in paragraph 2 of your evidence, where you say "... improve the cost-effectiveness of Government activity on climate change initiatives by joining up the investment in the separate behavioural change

activities of Government departments." Who do you think, in an ideal world, ought to be in charge of this area and achieving the points you have just made?

Mr Sellwood: In terms of within government, I think the creation of the climate change office, effectively, within Defra, could—and I emphasise "could"—become the organisation that joins up government across government in terms of those individual activities because there are many activities that are taking place in each individual government department but, too often, they are not seen with any sense of synergy from the point of view of the audience. So the average citizen is often seeing things coming from different directions, from different government departments, and we think that just means that they are much less effective than otherwise they might be, and certainly a lot less cost effective than they could be.

Q3 Chairman: However, you hope that the new body will take control. Do you actually see any evidence already within government of the kind of co-ordinatory activity that you have just outlined?

Mr Sellwood: I think it is a mixed picture, Chairman. I think it is fair to say that, in recent times particularly, Defra have definitely been seen both at official level and ministerial level to be taking a very strong lead on the issue, but if you actually quickly review the other government departments that have a key role we sense that the newly created DCLG has certainly demonstrated a great appetite, at least in the rhetoric to date, for the whole of the question of the sustainability agenda, the DTI and Defra work quite well together, but it is also fair to say that there are other government departments—and we would note we are not entirely convinced yet the Department for Transport have really got the message in terms of sustainability across government. So our response would be that we think it is a mixed picture.

Q4 Chairman: Would you like to see, if you like, the ball resting firmly in Defra's court? Do you think that they are actually being proactive enough and focused enough on the whole question of energy saving? In some of our other reports we get the impression there is a great deal of ministerial rhetoric but we do not always get the impression there is the hard slog behind it.

Mr Sellwood: I think it is fair to say that one of the criticisms we quite often have is that when any minister stands up to talk about this particular agenda they normally start by saying how important energy efficiency is and then—somewhat churlishly, you might think, perhaps, on our part—spends the next half-an-hour talking about renewables and more exciting areas of technology. So there is no question, we believe, of a gap between that which is talked about and that which needs investing in in terms of resources and, indeed, in terms of Parliamentary/ministerial air time for this particular topic. It really still is somewhat of a Cinderella subject.

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Q5 Chairman: In the establishment of the Office for Climate Change (I do not know how far that has actually got but if it is moving forward), have you been invited to make recommendations as to how your area of activity should be developed?

Mr Sellwood: Yes, it is literally in its infancy. I think it has one person currently constituted within that office. It has literally been a matter of the last couple of months. We have indeed been asked and I personally have actually gone along to make some recommendations as to how we think that office should operate. Indeed, one of the recommendations I have made is that that should become central to helping not only join up government departments in terms of its thinking but preventing duplication in terms of effort because it is not entirely uncommon to come across different government departments doing very similar things, particularly in the area of citizen engagement.

Dr Eyre: Can I just add to that, Chairman? My Chief Executive does not even know this yet because it only happened about an hour ago: I have arranged a meeting with people at the Office for Climate Change at their request—

Q6 Chairman: Does that mean there is more than one—?

Dr Eyre: I believe that is the case, yes.

Q7 Chairman: So you are going to meet with all two of them.

Dr Eyre: I am going to meet with at least two of them.

Chairman: At least two of them. Well, you heard it here, folks; we are absolutely up with the news of the latest developments.

Q8 David Lepper: Can we just check, Chairman: are those one or two people currently involved in Defra or are they from other departments?

Mr Sellwood: The individual that I was referring to, which obviously is now history, was on secondment from the DCLG.

Dr Eyre: It is very clearly a Defra focus.

Q9 Chairman: That is good and that is something that we can follow up. Resources are inevitably going to weave their way through some of the things we will be talking about this afternoon. Much of the pump-priming money for work in this area is often demanded of the Government or local authorities, but the whole area involves government and commerce, non-governmental organisations, but if we are looking at the people who have got money then clearly climate change has, for example, an effect on insurance companies and retailers (to name but two) and energy service providers. Are all of the partners making a contribution, if you like, over and above selling their commercial services to encourage the evolution of the ethos of energy saving which is very much underpinning the kind of work that the Trust does?

Mr Sellwood: I think the answer is, again, that it is a fairly mixed picture. If you look at it by sector, if you look at the energy suppliers, they, for instance,

through the Energy Efficiency Commitment, will be spending or at least will be committing somewhere between £350 million and £400 million annually in the quest to encourage and work with their consumers to implement energy efficiency saving measures in the home. So I am sure if you talk (and I am sure you may) to the big energy utilities they would say they are certainly doing their bit in regard to this agenda. Similarly, retailers, particularly retailers in certain sectors—white goods, electronics and so on—would “protest” (probably would be the word I would use) that they are doing a great deal in this regard with labelling, information schemes and so on. It would be our judgment that in all of these sectors, probably with the exception of the energy utilities because of the obligation that is placed upon them, the market leaders tend to be heavily involved. So, if you look at the white goods area, whether it is a machine manufacturer like Bosch or Siemens, they would be very much at the forefront of this agenda. If you look at retailers, the John Lewis’ and so on would actually be very much at the head of this queue in terms of this particular agenda. However, what we are not seeing is that consistent throughout. So you can go into some retailers, as I am sure you are aware, today and purchase new electronic items—plasma TVs and DVDs—and you would be forgiven for thinking that the energy debate had never happened; they are not labelled, the staff are not trained, they are not interested, actually, in talking to the public and engaging the public on this agenda. The reason we think this is so fundamentally important is that the scale of the growth, for instance, in new electronics coming forward between now and 2015 according to people such as Sony, will actually dwarf the energy consumption that we currently have on the entire white goods industry. So this is not a small problem, and it is one of the things that we think both the private sector working with government has to pay much, much more regard to.

Q10 Mr Drew: Just before we move on to this area of Personal Carbon Allowances, just to be clear in my own mind, in terms of the supply side pressures, where there is this notion you are moving away from supply *per se* to energy services, is that how you see it?

Mr Sellwood: We actually see, conceptually, it is a very attractive option, but we believe it has one fundamental problem that has yet to be addressed, and there is no kind way of putting this. Customers do not trust the suppliers. Why is that important? It is important because, for years and years and years, energy suppliers have been intent, very open, about the need to sell more energy to their consumers, and the consumers know this. What the energy services model seeks to do is to turn that on its head, effectively, and persuade the consumers of the product that the suppliers wish to sell them less. Given the distrust that exists between many consumers and the brands, that is going to be a very, very difficult thing to pursue. Having said that, you would expect me, as the Head of the Energy Saving Trust, to endorse any initiative that is likely to reduce considerably energy demand.

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Q11 Mr Drew: If we are talking about reducing energy demand are we talking about reducing energy or reducing carbon use?

Mr Sellwood: I think we are talking both. One of the things that we emphasise here is yes, of course, for instance, energy efficiency is important but, actually, what we need to do going forward is not just to be more efficient but actually reduce our overall usage and, therefore, our carbon footprint. So those things are really, really important. Energy services could deliver that.

Q12 Mr Drew: As a technical issue, where do you start and end in comparison to the Carbon Trust? That is why I asked that question about the relationship between actually reducing carbon and reducing energy.

Mr Sellwood: There is a very clear division of audiences. The Carbon Trust predominantly works with large public sector utilities, such as hospitals and universities, and large (and by “large” I mean the 900 largest) companies in the country in terms of their energy use. The Energy Saving Trust, essentially, works with communities, local authorities and 26 million household consumers. We are very, very clearly segmented in terms of our audiences. That, I think it is fair to say, had not always been so, but I think we are very, very clear now about where we are operating and where the Carbon Trust is operating.

Q13 Mr Drew: Finally, the notion of “cap and trade”. Why do we not just talk about “cap”? Let us be honest, we are trying to invent market solutions to situations that are beyond that. We need people to reduce their usage. We should just put a cap on them.

Mr Sellwood: Could I defer to my expert on the left on trade?

Dr Eyre: There are two areas of cap and trade, or just cap if you want to discuss that, currently being talked about. The first is migrating the Energy Efficiency Commitment away from what it is now, which is a scheme that promotes and incentivises (and does so successfully) energy efficiency projects, towards being a cap and trade scheme, i.e., a scheme in which suppliers are essentially incentivised to sell less to their customers.

*The Committee suspended from 3.54 pm to 4.06 pm
for a division in the House*

Q14 Chairman: Dr Eyre, the floor is yours.

Dr Eyre: Thank you, Chairman. I concluded what I was saying about the option of capping supplier energy use. The other option which is being discussed is capping energy use at the level of the individual, so-called personal allowances. We see that as certainly a very interesting policy option but one for the future. There are a number of very major challenges before this could be put in place around the information needed, the infrastructure needed, the enforcement, the market, et cetera. We would see

the key barrier to this being the need for people to understand what carbon is, how much they use of it and what they can do about it.

Q15 Chairman: If I may just interject, you would see this as a personal carbon allowance and not a personal energy allowance?

Dr Eyre: It could be either. There is not a great deal of difference as far as the average citizen is concerned because if they are using gas or oil that has got a fixed carbon content that is where most of their energy is being used, so if they do not have a realistic option for fuel switching it is much the same thing. As I said, we see it as an interesting option for the future but people would really need to understand what their budget is and what the currency is if they are to operate successfully in a market, so we would very much urge that citizen engagement comes first and potentially opens the way for personal carbon allowances in the future, but we certainly should not be waiting for personal carbon allowances before we are doing something to address our individual carbon emissions. As far as the specific question is concerned about why cap and trade rather than just cap, clearly the environmental benefit comes from the cap, not the trade. I think there are two arguments for allowing trading. One is an economic efficiency argument, that it is more efficient to allow people who can reduce emissions more cheaply to do so and allow people to trade amongst themselves. We think there is a second more important one which is linked to that. If you imagine setting a cap, for example, per household on energy use you would have to set it at a level that a large, solid-walled, electrically heated home could hope to achieve, and that would be far too high a level to be any use at all in providing an incentive for somebody in a small gas-heated, new, well-insulated flat, so allowing trading allows us to set the cap much lower and that will get more significant environmental benefits.

Q16 Mr Drew: But is this not all a bit slow and late in as much as if these interventions are going to be really meaningful we just have to get them in place now? That is why I say concentrate on cap. The trade is going to be, as always, a minefield of complication and detail. Just tell people they have got to use 5% energy less every year. It will shock people, you will lose elections, but they will understand that for the first time they might be able to do something to save the planet. We need to chase up these issues with the general public, so they really do see what a crisis we are now in, and this is the way to do it. It is like anything: suck it and see. I am sure there will be huge arguments advanced against it but somebody somewhere has to provide some leadership. If they can do it in places like California and be quite vigorous in the way in which they are pursuing not just market solutions but, as you said, real interventionist solutions—

Dr Eyre: Far be it from me to tell politicians how to lose elections, Chairman. I do not think that is our role.

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Q17 Chairman: You can; most people do. Do not feel you have to stay out of the fun.

Dr Eyre: What I would say is that we agree that there is a need for political leadership here and what we are saying is that that can be done without having a cap and trade system in place because that will take time. That leadership needs to come from government and others in leadership positions persuading individuals that the 50% of emissions that they as individuals are directly responsible for is something they can do something about. Most people know that climate change is an issue but they themselves are doing little or nothing about it, in many cases because they either do not realise they can do something about it or because they do not know what they can do about it. There are some real challenges we can address before we get onto the issue of capping emissions.

Chairman: I hope in the remainder of the replies you give you underscore your practical suggestions as to how we can address the agenda which you have very clearly outlined.

Q18 David Lepper: We are halfway through the tenth Energy Saving Week, I believe, and I am sad to see that up to yesterday only 33 Members of Parliament had signed up to the Early Day Motion supporting Energy Saving Week, but there we are. During this week the Energy Saving Trust is encouraging us all to think about what we do in our daily lives, from the small changes like switching off lights and only putting enough water in the kettle to fill the cup that we need to switching the kind of boiler we use or deciding not to use a car or to use public transport. The Energy Saving Trust has been around since 1992 and I just wonder if you can say what you feel over that period of time, and particularly more recently, has been the government intervention that has done most (if there is any at all) to encourage those kinds of behaviour changes, whether they are the small ones or the big decisions about capital expenditure.

Mr Sellwood: In recent times there are two things that stand out. One is around what one of your colleagues on the left there mentioned, state intervention, effectively. One of the single biggest impacts in the last two years has been the Government taking the decision that, from 1 April last year, if you put a new boiler into your house as a replacement you have to put in a highly efficient condensing boiler. On its own you might think that is a very small thing but one and a half million boilers are replaced every year, and in terms of carbon reduction the market for condensing boilers moved from about 5% to about 15% over the previous 15 years. In the last figures I saw for the last quarter condensing boilers were 89% of the market and, just to give you an illustration of how efficient they are in relative terms, they operate at 92–92% efficiency compared to most average boilers that they replace operating at anywhere between 75 and 80% if you are lucky. Mandatory regulation is one example of something very significant in terms of efficiency and carbon reduction. The other one, which we have already referred to, is the

development of the Energy Efficiency Commitment, which is a single measure, an obligation measure, working with the energy utilities. It saves somewhere in the order of 300,000 tonnes of carbon every year, is highly cost effective and an obligation but, interestingly enough, an obligation that now appears almost to have become part of the metabolism of energy utilities such that I suspect that even if it were not an obligation many of those utilities would now choose to continue with that activity. The reason that has also been important, and not just in carbon reduction terms, is that it has led them to think seriously about the development of the Energy Services Model which was mentioned earlier. One regulatory, one more market-led mechanism are just two examples.

Q19 David Lepper: Would you make a recommendation for the next step in mandatory requirements, whether it is at the level of the householder or the supplier?

Mr Sellwood: There is one, which is not EST policy currently but could very well be. If you are asking me for my personal view, we currently have eight million cavity walls uninsulated in the UK. It is economically and environmentally a complete no-brainer with regard to whether or not people should do this. It not only reduces carbon dramatically; it also pays back its capital cost to consumers within about 16–18 months and then continues to pay you a premium every year thereafter for between 25 and 40 years. Currently this is a voluntary mechanism but if you were looking at a household measure that would yield singly the largest carbon reduction to the greatest benefit of both the householder and UK plc I would say it would be cavity wall insulation.

Q20 David Lepper: And yet you say it is not a policy of the Energy Saving Trust?

Mr Sellwood: No, it is not policy because we believe that at the moment we have within the Energy Efficiency Commitment the ability for suppliers to deliver and they are delivering. The concern we have, as you will be, I am sure, aware, is that the commitment is out to consultation for the next round from 2008 to 2011 and that will require, if it is to deliver on its targets, a step change of insulation in domestic properties from round about this year 400,000 properties each and every year to a minimum of a million properties. I think we are probably moving, which is why I say it is not currently policy, from a mechanism that currently is a market-led mechanism to one where we will have to think very much harder about whether we can meet that step change and, if not, do we have to bring in regulation?

Q21 Lynne Jones: Would you explain how the Energy Services Model could ensure over a very short time, and we are talking about short timescales for what we need to do, that those 800,000 or however many you mentioned cavity walls get insulated?

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Mr Sellwood: As the regulation and the framework are currently constructed I do not think it could if you are talking the short term that I think you are talking because the essence of the Energy Services Model means that the current regulatory framework has encouraged, and we believe appropriately so, that if a consumer is unhappy with their energy supplier they can walk away. In order for some of these more expensive capital up-front costs to be recouped by energy suppliers they would argue, I am sure, if they were sitting in this chair that in order to do that they must be able to lock in their customers in the way, for instance, that you might through a mortgage or a financial product. That is not currently available. If that were available then I think there would be a possibility that they could get enough sign-up but at the moment in terms of the time frame you are talking about I think that would be quite difficult.

Dr Eyre: I think that is right. The Energy Services Model is very attractive and from a theoretical perspective we have been trying to encourage people to go down that route, both energy suppliers and other players, including local authorities, for the last 10 years with some success in some areas where there is, say, a district heating scheme, a CHP scheme, but where you are talking about individual households with individual boilers it is not currently an attractive business model, which is why it is not happening in the market.

Q22 Lynne Jones: We went to California and there they have massive programmes of photovoltaic installations with the energy companies and energy efficiency measures for businesses. The energy companies come in, do the work and say, "You will pay for it through your bills because you will have reduced consumption and therefore your bills will not be any higher. You will just be that much more energy efficient". We could not have that model here, you are saying?

Mr Sellwood: As a business model you could because there are very good examples already where large businesses working with the private sector, local authorities working with the private sector, do exactly as you have described, but if you are talking about engaging 26 million households, which is where the problem is,—

Q23 Lynne Jones: They do it street by street.

Mr Sellwood: You could not do that here as we currently are constituted. I am not saying we should not; I am just saying that we could not because we have got a different market structure. One of the things that we are very anxious to do is to get other players involved in this market place, and one of the initiatives that the EST has brokered with the Treasury is working with our major retailers to see whether or not retailers might get involved in the business of selling energy on an Energy Services Model, because frankly there is, to date anyway, very little appetite being shown by the incumbent utilities to change their market model because they are doing very well, thank you.

Q24 Lynne Jones: If you wanted to have cavity insulation at that level over a short period of time what order of magnitude might you need to put in in terms of grants to support those developments?

Mr Sellwood: At an individual household level, if you want to go and put cavity wall insulation into an average home today, you will pay anywhere from £200 to £250. That is a subsidised price and probably the economic price is about £400, but, interestingly enough, we have done quite a lot of market research over the last four or five years and one of the biggest barriers is that individual citizens think it is considerably more expensive. They usually start with four figures in front of it, so there is a real education role, which obviously we, working with our network and with local authorities and—

Q25 Lynne Jones: You are not answering my question. What sort of cash are we talking about that the Government might need to put up?

Dr Eyre: I think it is a related question because the Energy Efficiency Innovation Review that Defra and the Treasury did last year showed that an information campaign on its own could deliver about the same amount as the current subsidy regime of about a one-third subsidy within the Energy Efficiency Commitment but that the best way to go forward would be to have both and that that could give us perhaps 50% more activity. The cost of the advice programme is an order of magnitude smaller than the subsidy cost within the Energy Efficiency Commitment.

Q26 Lynne Jones: What proportion of people who get advice actually do something about it when they have to arrange for it themselves?

Mr Sellwood: It depends entirely and it comes to the heart of one of our strategic initiatives, if I may be so bold as to put it forward. The answer is not enough but there are certain circumstances, one around the offering of fiscal incentives, and your colleague over on the right asked about practical measures. I will give you a really good and current example. Normally the conversion rate for advice to action might be typically, for any one individual, anywhere between 10 and 20%, which actually is not bad, but if you start attaching a credible fiscal incentive to it—and many of you may be aware of an initiative that is being currently run by Centrica based on an innovation model that we developed about three years ago, and it runs like this. The energy utility with the local authority have constructed a scheme whereby, in return for implementing energy efficiency measures in the home, so loft insulation, double glazing, cavity walls, people get a rebate on their council tax. There are two staggering facts about these schemes. I think they are currently running in 18 local authorities. One is how small the rebate is. It is somewhere between £50 and £100, depending on the local authority and the scheme, but probably more important and staggering is that the conversion rate from attitude to action is about 60%. We have trawled back in the mists of time and we cannot find another single initiative that has delivered that level of conversion. We put forward a

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paper to the Treasury last year. We think it is credible with £100 million¹ of public money to run that scheme throughout the local authorities in the land, and again we just think that this is one of those things that stops short of regulation but would, because of the cost effectiveness of insulation measures, pay back in a very short space of time and obviously help very quickly, in the time frame that you are talking about, to deliver on the carbon projections that need to be delivered if we are going to meet the target.

Lynne Jones: It shows how people hate council tax!

Q27 Chairman: In that context, and I do not know how close you have been to the Stern Review, is that going to help, do you think, in the type of area it has been looking at, to give an underpinning and a justification for the use of public money in this area? There is a phrase I keep seeing in official papers which is called “the social cost of carbon” and I have yet to find out what this phrase means but it somehow suggests that society should value saving carbon at a certain rate. There should be some imputed value, in which case the Government would take collective justification for reordering its spending priorities to reflect the value that society puts on saving carbon. We have just discussed the juxtaposition between a commercial model for the saving of carbon via insulation as opposed to the use of public funds to respond to the council tax reduction programme which you mentioned. Are we going to get any nearer what I might call a rationale for the expenditure of public monies in this area?

Dr Eyre: The social cost of carbon is broadly speaking what you have said it is, Chairman. It is calculated by assessing the damage to the economy and to society globally that might result from climate change and essentially scaling that back to responsibility for emissions from the UK economy. From memory the current value that is recommended by Treasury is about £80 per tonne of carbon, and that number is being used. For example, it was used in calculation of the new building regulations that came into force this year. They did assume that the building regulations are calculated on the basis of what is a cost effective level to insulate a building to and “cost effective” was taken to mean at current or expected energy prices plus £70–£80 per tonne of carbon, so it is already being used in policy, and in that sense is reordering government priorities. You asked about the Stern Review. We do not know what it will say any more than you do. I understand that it will be published next week. Our expectation, from its terms of reference, is that it will focus very largely on the international dimension and we think that is appropriate. What has already been in the media from a speech that Professor Stern made in Mexico a couple of weeks ago indicates that they are likely to be saying that now is the time for action, that the benefits of doing something to reduce climate change certainly justify the current costs, and we would very much endorse that, particularly from our point of view, because most of the current

costs are negative. For every tonne of carbon that is saved as a result of our activities it costs the Government £6 but it saves the country as a whole £180, and the same is true for most energy efficiency programmes.

Q28 Chairman: Is that using the social cost of carbon model in the UK?

Dr Eyre: That is not using the social cost of carbon model at all. We are saying that even if the social cost of carbon were zero we should still be doing this.

Q29 Chairman: But when you quote a ratio of £6 to £180 where does the £180 come from?

Dr Eyre: What I am saying is that for every pound the Government spends we save a tonne of carbon, but associated with that tonne of carbon are wider benefits in the economy, mainly through homeowners making savings on their energy bills which add up to £180.

Q30 Chairman: If the trade-off is that good why throughout your evidence are you in many cases flagging up a lack of resources to take forward the kinds of programme that deliver such a fantastic rate of return?

Mr Sellwood: Because unfortunately the great British public are not familiar with classic endogenous economic theory and do not act like rational beings. The reason why we believe the council tax thing has worked is that it does three things. It brings very firmly the understanding to the end consumer of the real benefit to them, not just in terms of the council tax but also in the fact that it is going to save you between £160 and, in today's prices, over £200 every single year for the next 25 years. That is a pretty compelling argument. However, the reality is that most people do not know that and, bearing in mind that they also think that the cost of the solution is up to five times that which it really is, it is not surprising that they do not queue up to do cavity wall insulation. When you bring them together with the right actors though and the people who can implement it and you explain the economics of it, you can then explain, which is increasingly what we are doing, that that has a social benefit as well in terms of the environment and, hey, presto, you have got a 60% conversion rate. The problem is that there is a huge market barrier between people's understanding, not just from an environmental point of view also but from an economics point of view, but as soon as you point that out to people you have no problem selling the product. That is the reason why we have resources to do that, because all the evidence says that if you do not invite people to make that judgment, if you do not give them the information, if you are not out there with 46 energy advice centres telling people, they do not do it. If we could find a way of doing it without the resource then we would be as happy as anybody.

¹ Note by witness: Figure quoted should be £20 million.

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Q31 Chairman: Where does the £100 come from?

Mr Sellwood: In this instance it is coming from a fund between the utilities and the local authorities because they are sufficiently convinced, and I am sure you may hear it from the following witnesses, that this is something that works because, of course, there are spin-offs for local authorities too in terms of reducing fuel poverty, improving houses to a decent home standard, et cetera. There is a whole host of compelling reasons why people want to do this. At the moment, we will be perfectly honest, we have been singularly unsuccessful in persuading the Financial Secretary of the Treasury that this is something that we should be putting public money into, but we are convinced that if we really want to get speedy resolution in this very difficult area where market failure is taking place it is a very appropriate use of public money.

Q32 Patrick Hall: We have talked about local authorities and the powers they perhaps ought to have. The Budget this year allocated £20 million, I think, to help local authorities promote home energy efficiency and I think in your evidence to us you point out that 25% of that has already been diverted to the trials into smart metering. Is that a good use of those resources, do you think?

Mr Sellwood: I am saying two things. First of all, the £20 million that you refer to was additional money announced in the Budget which was essentially to deliver on energy efficiency in local authorities and in the domestic sector. We would not say that money devoted to smart metering trials, or indeed to renewables, was a bad thing, clearly we would not, but equally we would say that there is still at the base of the pyramid an absolute requirement to get basic energy efficiency into housing, and I am sure local authority colleagues behind will reinforce that. Until you do that, frankly, putting wind turbines on public buildings and the like is a great symbol but actually, if you find that the building is not thermally basically efficient, if it has not been lagged, if it has not been insulated, you are wasting public money not investing in it.

David Taylor: This includes Notting Hill Leaders of the Opposition houses as well, I understand.

Q33 Lynne Jones: It depends whether their house is well insulated.

Mr Sellwood: I could not possibly comment.

Q34 Patrick Hall: We have been talking about clarity of information and people becoming aware and making the connections. You will know that the Centre for Sustainable Energy has said that Defra and yourselves have “not invested in establishing an academically robust body of evidence that demonstrates the energy and carbon savings benefits of providing individuals with advice . . .”² Do you accept that point and, if so, what are you planning to do about it?

Mr Sellwood: We accept that there is no academic institution that you can go to that will be able to say, “If you do the following things we will be able to draw a line of sight between this and the saving incurred”. We fully concur with that.

Q35 Patrick Hall: I did not ask about an institution; that is quite different, is it not? The point being made by the Centre for Sustainable Energy is the need to try and establish some evidence; “an academically robust body of evidence” is the way that organisation puts it. I was simply asking you do you accept that there is a need to do that?

Mr Sellwood: In some areas, but basic energy efficiency, no. We are very clear what we invest and what your return in carbon saving is. If you are talking about new technologies, for instance, I would absolutely subscribe to that view. With some of the new technologies that are coming to the market place now there is as yet insufficient underpinning, academically, commercially or otherwise, that these products will do what they say.

Q36 Patrick Hall: I am sorry: that was not my question. I will try again, should I? What the Centre for Sustainable Energy has said is that yourselves and Defra have not sought to establish a robust body of evidence that demonstrates the energy and carbon savings benefits of providing individuals with choice, with information, with advice; right? Do you accept that point? Do you understand my question, because you have not answered it at all?

Dr Eyre: I understand the question and I think the answer would be no, I do not agree. I find it rather curious because one of the organisations which provides energy saving advice for us is the Centre for Sustainable Energy, and I have to say they do it very well. All our Defra funded programmes are regularly evaluated. Those include the advice programmes. Those evaluations were scrutinised in the analysis which was done by Government with independent consultants for the Climate Change Programme which was published earlier in the year. That is where the figures that I quoted of £6 of government money being required for one tonne of carbon saving came from, so they have been thoroughly scrutinised by Government as far as we are concerned. They have been published and the publication is on the Defra website.

Q37 Patrick Hall: So the money spent and the effort made to provide people with advice does not have to translate into being able to demonstrate that that has had carbon savings benefits?

Dr Eyre: Yes. The way we evaluate our advice programmes is to ask people who have received the advice what they have done and to estimate—there is some estimation involved—the carbon savings that result from that, but those estimations are based on very well established models of how homes behave. It would not be cost effective to go out and physically monitor every household to whom we provide advice.

² Ev 60, para 33.

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Q38 Patrick Hall: So you can tell the Centre for Sustainable Energy that you are indeed already doing that and you are doing that through your own resources?

Mr Sellwood: Yes, we have a fully constituted evaluation group. We would be very happy for anybody to come and look at its results and it is thoroughly independent and very robust.

Q39 Patrick Hall: Obviously, the Centre for Sustainable Energy does not realise that. I would like to move on to your own evidence now on this subject of availability of information and awareness of climate change, which is on page 10 of your evidence. You say in a nutshell, and I think I am summarising it fairly, that there is a pretty good general level of awareness of climate change but people do not link that general awareness to their own behaviour, and you go on to say at paragraph 39, "There is a mass of information on home energy efficiency available to consumers through different channels, but this can be confusing and inconsistent". So, presumably, you would like to see clarity and light shone upon these matters. You go on to cite from the IPPR's publication *Warm Words*, which talks about the discourse on these matters being confusing chaotic and unproductive. You say at paragraph 41 that you have already adopted "detailed market segmentation techniques based upon a combination of attitudinal and socio-demographic variables". What does that mean?

Mr Sellwood: What that means basically is that, for the first time (which is actually recognised in the IPPR research), an independent body has actually cut up, so to speak, the UK population into recognisable social groupings and their attitudes and, indeed, their behaviour with regard to energy efficiency and other areas of sustainability; so it is the first time we have tried to get to grips with an evidence base that is based on something rather more robust than, "Would it not be nice if people actually took this advice and did something with it." It is based on the very well-known Experian model, which is, in fact, a private sector model based on all of the post codes in the UK. So, for the first time, we can start (and I emphasise start) to recognise, for instance, on a geographical, a social basis where those homes are, where those families are, where energy efficiency has actually taken place, where it has not taken place. So, it is a first real attempt to underpin what probably some might describe in the past as a feeling with some real evidence in terms of market research, and that, tied up with the output which you referred to earlier, hopefully means that we are aiming at the right social groupings and we are also measuring the right output in terms of our evaluation, because, you are right, we are very clear, and we were quite pleased that in that document they said this was looking like the best segmentation model around in this particular area.

Q40 Patrick Hall: How do you communicate with the people within the segment?

Mr Sellwood: Through basic marketing, classic marketing.

Q41 Patrick Hall: Such as?

Mr Sellwood: It might be direct mail; it might be through local authorities, a whole host of marketing techniques. What you do not do, or you do not do very often, is attempt to do a mass marketing campaign and hope that a lot of people turn on the TV and hear about energy efficiency. What we are trying to do is to look at those segments and to look at particular ways of reaching those segments. It might be through communities, it might be through faith groups, it might be through the church, there are any number of channels to those individual consumers and communities, and it is a highly complex and complicated exercise, but we think that is what we need to do.

Q42 Patrick Hall: More complex than it needs to be. This is just like political parties nowadays. They use these sorts of techniques of trying to identify all kinds of socio-economic factors that they do not verify by going out and doing the one thing that really matters, which is to knock on doors or telephone people and speak to them. Why do you not just save a lot of time and energy by going and knocking on the doors of people and talking to them and following up with them for the next six months so that they know the cost of cavity wall insulation?

Mr Sellwood: Could I talk to that, because that is exactly what we do. Once we have used the segmentation model, once we have found those customers, we have 46 energy advice centres up and down the country, which may be based in local authorities, may be based in stand alone areas, and they are literally going out knocking on doors in certain circumstances, working with installers, working with double-glazing organisations to identify consumers who have that need who have been found by those marketing and segmentation techniques so that we are talking to the people who need it. There is no point in knocking on a door and finding that actually they have done all this stuff; we obviously want to direct our resources as effectively as possible.

Q43 Sir Peter Soulsby: Can I take you to the part of your evidence where you tell us about the new initiative on sustainable energy networks and perhaps ask you to say a little bit more about those. You are telling us that they will become the key local delivery element of our carbon saving activities, et cetera. Can you say how they will be different from what you are doing at the moment?

Dr Eyre: Yes, and in fact it picks up very well on a point from the last question. One of the things we do try to do is analyse our own weaknesses in organisation and what we could do better. We have had an energy efficiency advice centre network for many years which, as we have emphasised, is cost-effective but we still want to do better. We found two weaknesses in it. Firstly, it was only talking to people about home energy efficiency, it was not talking to them about the new agenda of microgeneration, it was not talking to them about what they can do to reduce carbon emissions from their travel choices, and that is a missing piece of the jigsaw that we wish

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to fill. The second thing we found was that too often we were just giving a piece of advice and then leaving and not going back to the customer in some months time and saying, "Okay, six months ago you told us you were going to install some new glazing. Have you done it? Can we help you, advise you on the right sort?" So, it is an attempt to build a much better relationship with customers. Admittedly, that takes a little more resource. We are piloting this concept in three parts of the UK, in Northern Ireland, in the North East and in part of East Anglia. We are finding that the carbon emissions reductions we are getting in those areas are twice as big as in the other parts of the country; the cost-effectiveness is still very good; so we are convinced that this more holistic model, which also involves building a better relationship with the customers, is the way forward. We are in the process of putting that information in front of government in the hope that they will be prepared to support the roll out of this development across the UK. So, this is an idea that came out of the 2003 Energy White Paper, we have not rushed at it, we have piloted it, we have evaluated it, we are now convinced it is the right way to go forward.

Q44 Sir Peter Soulsby: I heard there your description of the gaps in what you are doing at the moment. What I did not understand from what you said there is quite how this new approach will fill those gaps. Can you explain?

Mr Sellwood: It goes to the heart of the two questions. One thing that we will be doing much more of is much more outreach activity. So, rather than waiting for customers to come to us, this will be a much more proactive means of actually reaching communities, reaching individual householders; so it literally will be working with local outreach groups, local faith groups the Women's Institute, you name it, getting the message across, and then picking off individual communities and householders and actually following them up literally on a six-month basis, because at the moment it is a one hit. We come along, say, "Do you want loft insulation? Yes, you do. Good." You have done loft insulation and then traditionally the relationship is ended. What we are trying to do is say, okay, you may not be able to afford to do all of these things at all once, but have you thought about the next step of cavity wall insulation, or microgeneration, or whatever it might be.

Q45 Sir Peter Soulsby: That sounds like something that is going to require a tremendous number of people. Do you have the resources to do that?

Mr Sellwood: Interestingly enough, it will not require very many more people at all, because what we are trying to do is leverage off the individual groups in the community. So, we will be using our staff to effectively leverage going along to a community, creating a situation where they are then taking the message back into their own community. We are trying to, in a sense, get more than matched funding. We are not talking about developing a network of hundreds of people—that is not what we

are about. In fact, we are not talking about expanding the number of centres at all; it is just about how effectively we use them.

Dr Eyre: There is also another element we also see can improve our cost-effectiveness going forward, which is that some people, not all but an increasing number, are looking to get information from the web rather than by phone, and that is a more cost-effective way for us to provide it. So we are doing more web-based activity.

Q46 Chairman: What would be the roll out cost to do this throughout England?

Mr Sellwood: We think probably about 15 million.

Q47 Chairman: In total?

Mr Sellwood: At the moment the network costs about 10 million annually. We think probably it would cost 25 million annually to roll this out nationally.

Q48 Chairman: So an extra 15 million?

Mr Sellwood: Yes, and to give it some perspective, that is to reach five million customers by the means that I have just described, and to save, remind me Nick, in terms of carbon.

Dr Eyre: We would look to be saving something like a million tonnes of carbon by 2010.

Q49 Chairman: Let us just be absolutely clear. You said there was a difference between, was it five million and—

Mr Sellwood: The advice network currently costs about 10 million annually, and what we are saying is that for £25 million annually you could get this deep service model rolled out nationally.

Q50 Chairman: So, for an extra 15 million, you could cover the whole of England?

Dr Eyre: The UK.

Q51 Chairman: The whole of the UK. If it is that good, why is not the Secretary of State for the Environment at the moment beating a way to your door with a cheque for 15 million quid?

Mr Sellwood: It is a bit like the question around: if cavity wall insulation is so good why are the consumers queuing up? Our frustration, I assure you, Chairman, is greater than yours. We are not suggesting it is perfect—I hope I did not give that impression—but we believe that this is a combination of solutions matched with a combination of audiences out there. For a relatively small amount of money we can deliver a very substantial carbon hit, and it is equally frustrating to us that at the moment we are not successfully getting that message across.

Q52 Chairman: If the nation values carbon at £80 a tonne, does that not, extrapolated by the number of tonnes that we have to save, represent a compelling case for this money to be made available?

Dr Eyre: We believe that, Chairman, and I can assure you that we will be putting that case very strongly to both Defra and to the Treasury.

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Chairman: I know there are appendices to the information you have sent us on this, but if you wanted to expand a little bit more about the rate of return on that I think we would find that very useful information.

Q53 Sir Peter Soulsby: I am sure we would. I note from the evidence that, as things stand at the moment, you are waiting for the pilot to be completed and then perhaps, if you convince the department, you are hoping to roll it out from April 2008. That is quite some way away and then there is the process of rolling it out beyond then. If it is so evidently a good thing, surely you want to be getting on with it.

Dr Eyre: Yes. There clearly are time constraints, but we would be happy to look at rolling it out somewhat earlier than that.

Q54 Sir Peter Soulsby: You drew attention to the lack of specific funding, the transport element in this. Would you like to expand on that? As I understand it you do not have any particular funding for that at the moment, and that is something you do feel would pay dividends if it were funded?

Mr Sellwood: Essentially, we have managed to persuade the DTI, Defra and DCLG that this initiative is a very cost-effective use of public money in terms of both carbon-saving and delivering on the Energy White Paper objectives. I have to say, we have been, to date, unsuccessful in persuading the Department for Transport that engaging with the consumer in this way represents a direction of travel that they necessarily wish to take.

Q55 Chairman: Or not take, as the case may be.

Mr Sellwood: Or not take. I can only give you my view of their view, but my view of their view would be that the two areas that they wish to concentrate on are technology and fuel development and mass market advertising around transport. To your colleague's earlier question, we have looked at mass marketing, we have been there, done that; it is not a very cost-effective way of reaching consumers; you have to get to them where they are. We are very disappointed, but we continue to work hard with the DFT to persuade them that this is the right way to go. However, we have a reserve position in that we have already suggested to Defra that, as the network is developed, people are already asking us for this information. If the Government is to present a credible face on the whole question of sustainable energy, including transport, perhaps Defra would like to fund it.

Chairman: Maybe Defra can arrange a public expenditure transfer from the Department for Transport so that they can fund that.

Q56 Lynne Jones: You have said that we could generate 30–40% of our energy needs through microgeneration by 2050. Should we be prioritising such developments now, given what you have said earlier about the importance of energy efficiency?

Dr Eyre: One slight correction, 30 to 40% of our electricity needs, not our energy needs. I think we should be prioritising, developing, demonstrating the technology. For some of these technologies it is too early for them to be rolled out as mass market technologies. Of the particularly important technologies, micro-scale combined heat and power, essentially a combined heat and power station scaled down to the level of the individual dwelling, is just beginning to enter the market. We need to see how well they work in real homes. They have been tested in laboratories, they work fine in laboratories, but do they when the kids kick them is the sort of question that needs to be addressed. The other technology we would have high hopes of is micro-wind turbines, which have already been referred to. They are certainly a very exciting technology. What we find we do not know, and it may be surprising to the Committee, we do not know how windy it is at rooftop height in this country—people have never gone around measuring wind speeds at that height—and the output of micro-wind turbines is very sensitive to wind speed; so there is some more work to be done before we can assess quite how effective these technologies will be in different locations, and they are likely to have very different effectiveness and cost-effectiveness in different locations. So, our assessment of 30 to 40% was based on best guesses, but best guesses are not good enough if you are going to put technology in somebody's home and give them a reasonable assurance about how much energy it will produce, that it will work when they need it. All those sorts of real issues need to be addressed. So, we are very much still saying, yes, basic energy efficiency technologies first, but also let us get on and demonstrate some of these new technologies so that there is another generation of technologies available when we have filled all the cavities and insulated all the lofts.

Q57 Lynne Jones: Would these kinds of developments depend on substantial government support, and is the Government going about it in the right way?

Mr Sellwood: I think some will. It is important to clarify that, although we talk about it, there is no such thing as the microgeneration market. There are a whole series of technologies that are at different levels of development and maturity. For instance, some of those, like solar PV, unless we see something dramatic, possibly from the other side of the world, will remain cost ineffective for many years to come without public subsidy. However, there are others like micro-CHP, potentially small wind, ground source heat pumps that already are just about near the commercial market. I think the answer to your question is that we have to be very selective about those technologies we continue to support. We operate a sort of market transformation curve, effectively, and the key judgment is when to advise government to stop supporting a technology with grants and reinvesting those funds in technologies that are further from market. Clearly, if you are in

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the industry, you may have a desire to see your technology continuing to receive subsidy beyond market entry, and it is part of our role to hopefully advise government when, as an independent organisation, those technologies should or should not be supported. So, yes, they should be supported where it is appropriate, but we should not be thinking that we have got to support some of those technologies for the next 20 years with public money, because the answer is we do not.

Q58 Lynne Jones: To what extent is factored into your assessment the importance of increasing volume, because obviously the cost of these technologies would dramatically be reduced if there is a demand there?

Mr Sellwood: Volume is important, but actually one of the key issues that perhaps does not get the airing that it deserves, which is probably as important and, in some technologies, more important, is the ability of the individual householder to get what we call export equivalence of energy. For instance, at the moment if you buy energy you might be paying nine or 10 pence a kilowatt. If you tried to export it, you would be lucky to get one or two pence. What we are saying is that if you as a consumer were guaranteed the same price in selling it as you were in buying it, that would absolutely dramatically improve the economic viability of some of these technologies.

Q59 Chairman: Just fill in why cannot that occur? One of the things that is a bit odd in a situation where electricity is a homogeneous commodity and you may have your electricity supplied by supplier A, how does supplier A get your electricity to knock it off your bill when it goes back into a great big pool?

Mr Sellwood: The answer is it is all technically possible, but we do not have a sort of feed-in tariff, for instance, like they do in Germany, so there is no real requirement for individual companies to deliver export equivalence because we have got a liberalised market. In Germany they say, if you encourage householders to implement microgeneration, you will give them—not only, interestingly enough, in Germany—export equivalence but actually a greater sum of money because you are actually, by receiving that generated electricity, not having to make investment in large-scale plant.

Q60 Chairman: Why is it not happening?

Mr Sellwood: Because at the end of the day the individual suppliers would see that at the moment they have got a great deal currently: because they are selling at 10 pence and they are buying at one.

Q61 Chairman: You have just described the commercial reality. You have not actually answered the question why or, turn it round the other way, what in policy terms has to be done to make it happen?

Mr Sellwood: It is exactly as I have described, and it is one of the recommendations we make in the Strategy Review we did for DTI, which is that if you want to seriously reduce the costs of the route to market, there are two things you need to do, one is to drive up the volume and the other is actually to guarantee export equivalence.

Q62 Chairman: If it is such a good deal, and it has worked effectively in Germany, why is not our DTI doing it? What is your assessment of their inability to transform a good idea into reality?

Dr Eyre: To be fair to the DTI, as part of their microgeneration strategy, they did essentially put electricity suppliers on one year's notice: "Come up with a scheme which is acceptable or we will look to change the regulations so that customers do get at least a fair price, something approaching the value of electricity for exports."

Q63 Chairman: Do you sense that the supply side is working to try and find a way round this problem?

Mr Sellwood: I think they are, for two reasons. Firstly, they are under threat that if they do not do something voluntarily to suit perhaps their commercial requirements it will be legislated and it might be a bit more painful; secondly, to the earlier questions, some of the suppliers, although obviously it is commercially confidential, we know, are working around this issue as part of their energy services package. Clearly, if you are looking to sell a micro CHP boiler at three thousand pounds, you are not going to sell it under the same sort of financial and business model that they are currently operating. So, they are using these sorts of things as a means of creating a package, and I think there will be, before the year end, one or two of the suppliers coming forward with proposals, but I think at the moment the best deal you can get is about three and a half pence from Powergen.

Q64 Lynne Jones: I find all the Government schemes very confusing. We have got the Low Carbon Buildings Programme, the Environmental Transformation Fund (that is on microgeneration) and then we have got energy efficiency funds. What could be done to cut through this confusion? I believe somehow the Government actually wants to confuse us because they can announce all these initiatives, 10 million a year, and they put extra money for microgeneration and take it from energy efficiency. How can we cut through all this so we can see clearly what is going on and whether there is a consistent plan that prioritises investment where it needs to be prioritised?

Mr Sellwood: There is no question—and I will ask Nick to add to this—that there is huge complexity. I would not, however, think that you could probably have a single suite of policies that would cover all of the ground, because the Energy Efficiency Commitment covers different things to that which the Microgeneration Strategy covers, but, having said that, there is, in our view, real opportunity to reduce the number of those initiatives. You refer to

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the Environmental Transformation Fund. It has been announced, but actually we do not know what it is. The reality is that a fund has been announced, we do not quite know what its output is going to deliver and we do not know how it is necessarily going to impact on existing policy instruments; so that is an example of where we could certainly see greater clarity. That is fair to say, is it not, in terms of the Environmental Fund?

Dr Eyre: Yes. I think it is probably helpful to distinguish between policy instruments that support established technologies and policy instruments for new technologies. We would see the Energy Efficiency Commitment being the policy that supports cost-effective energy efficiency in the household sector. The Renewables Obligation does the same for large-scale renewables, in theory for all renewables, but has not been very well designed for the micro-renewables. We think there is a weakness in policy for supporting micro renewables which we would like to see addressed by the sorts of means that Philip has been talking about through changing the tariffs, but there is also a need for grant support for the new up and coming technologies. I think we agree with you; there are too many bits and pieces of grant funds. There is the Low Carbon Buildings Programme One, the Low Carbon Buildings Programme Two, the separate schemes for biomass.

We are not saying that the same rate of support is needed for everything, but packaging these together in a more sensible way would mean that more than three people understood the full policy architecture.

Q65 David Lepper: You have just mentioned the Environmental Transformation Fund. It was launched, I think, earlier this year, but, am I right, it is not going to announce the full scope of its work until 2008? What do you believe is the reason for that long gap between fanfare launch, presumably, and knowing exactly what it is going to be about?

Mr Sellwood: All I can say about the fund is we understand that its goal is to support investment in low-carbon technology. We believe that a core part of that should be around energy efficiency. I can absolutely say to you with certainty, I have no idea what is in the Government's mind in terms of postponing its delivery as opposed to its launch to 2008. We are as much in the dark as you are.

Chairman: Gentlemen, thank you very much indeed. You have set our inquiry off, I think, in a very good way, you have given us a lot of stimulating things. There may well be some further questions that we would like to pursue with you. If, on reflection, there is anything else you would like to contribute, please do not hesitate to let us know in writing. Thank you very much for your contribution.

Supplementary memorandum submitted by the Energy Saving Trust (CIT 25a)

At our recent oral evidence session the Committee Chairman asked the following question:

Q52 Chairman: *I know there are appendices to the information you have sent us on this, but if you wanted to expand a little bit more about the rate of return on that I think we would find that very useful information.*

The following information may be helpful in this respect, although the information we provided in the appendix of our written submission remains the most up to date evaluation of the pilot.

- The pilots have so far demonstrated that this approach is an effective mechanism for achieving carbon savings through action by householders. The pilots have so far shown a 62% increase in carbon savings per customer against the baseline (the baseline being savings achieved by Energy Efficiency Advice Centres in the pilot areas before the pilots were established).
- In the second year of the pilots, the targets for customer numbers were increased almost threefold. This was to test the ability of the pilots to engage with citizens on the much larger scale envisaged. The targets for the pilots are the equivalent of reaching 3,000,000 households each year if SEN was operating across the whole of the United Kingdom. To date the pilots are actually exceeding their targets.
- If the current carbon savings per customer are maintained with the higher number of householders reached, the cost effectiveness would be expected to fall as low as £6.4/tC.
- The provision of advice across more than one sector (energy efficiency, domestic scale renewables and transport, as opposed to only energy efficiency with EEACs) has led to wider engagement on carbon savings by householders, with 24% of customers receiving additional advice outside their initial sector query.

Energy Saving Trust

November 2006

Further supplementary memorandum submitted by the Energy Saving Trust (CIT 25b)

The Energy Saving Trust provided oral evidence to the Committee on 25 October. This supplementary evidence is our response to specific questions raised by the Committee.

1. *Further to your answers on allowances for energy and carbon, please could you indicate whether the EST would prefer to see a new obligation on energy suppliers which capped the supply of energy or an obligation which capped the carbon emissions associated with the supply of energy.*

From the typical consumer's perspective there is probably not a great deal of difference. What is important is that action by individual citizens will be required and that a supplier obligation must focus on demand side solutions.

We believe the application of a carbon cap is most relevant to UK climate change objectives and will remain so under any post-Kyoto commitments. Therefore we favour an obligation that is carbon based as the "currency" of climate change and would help citizens link their energy usage to carbon emissions. Carbon emissions and energy demand are intrinsically linked; indeed the most cost effective means of reducing carbon dioxide emissions is through household energy efficiency measures to reduce energy demand in the first place.

2. *Further to your answers on the Sustainable Energy Network concept, please could you let the Committee have some more information on the "rate of return"—in terms of carbon and energy efficiency savings—on the investment in the SEN? Could you set out the case you will be putting to Defra and the Treasury.*

The Sustainable Energy Network (SEN) pilots have so far demonstrated that the SEN approach is an effective mechanism for achieving carbon savings through action by householders. Currently the pilots are delivering a 62% increase in carbon savings per customer against the baseline (the baseline being savings achieved by Energy Efficiency Advice Centres (EEACs) in the pilot areas before the pilots were established).

In the second year of the pilots, the targets for customer numbers are increased almost threefold to test the ability of the pilots to engage with citizens on the much larger scale envisaged. The targets for the pilots are the equivalent of reaching 3,000,000 households each year if SEN was implemented across the whole of the UK. To date the pilots are actually exceeding their targets.

Evaluation activity (first six months of 2005–06: April to September only)

- Lifetime carbon saving per customer through direct advice is **1.94 tC** (pilot target—1.63 tC).
- Cost effectiveness for the first year of the pilot is **£9.7/tC** against a pilot target of £10/tC lifetime at rollout.
- Increased customer action is confirmed by a corresponding increase in CWI installations within the pilot areas beyond national trends from market data.

If the current carbon savings per customer are maintained with the higher number of householders reached, the cost effectiveness would be expected to fall as low as **£6.4/tC**.

The provision of advice across more than one sector (energy efficiency, domestic scale renewables and transport, as opposed to only energy efficiency with the EEACs) has led to wider engagement on carbon savings by householders, with 24% of customers receiving additional advice outside their initial sector query.

OVERVIEW OF THE ENERGY SAVING TRUST SEN PROPOSAL TO DEFRA AND HM TREASURY

We have provided a high level overview of our current proposals in Appendix 1. Please note that these are still being developed and are therefore subject to potential change.

3. *Please could you let the Committee know how the EST plans to measure the impact of the "Save your 20%" campaign? What contribution do you hope the data gathered will make towards an evidence base on the efficacy of "soft" measures such as raising awareness and providing advice as ways of making significant carbon savings.*

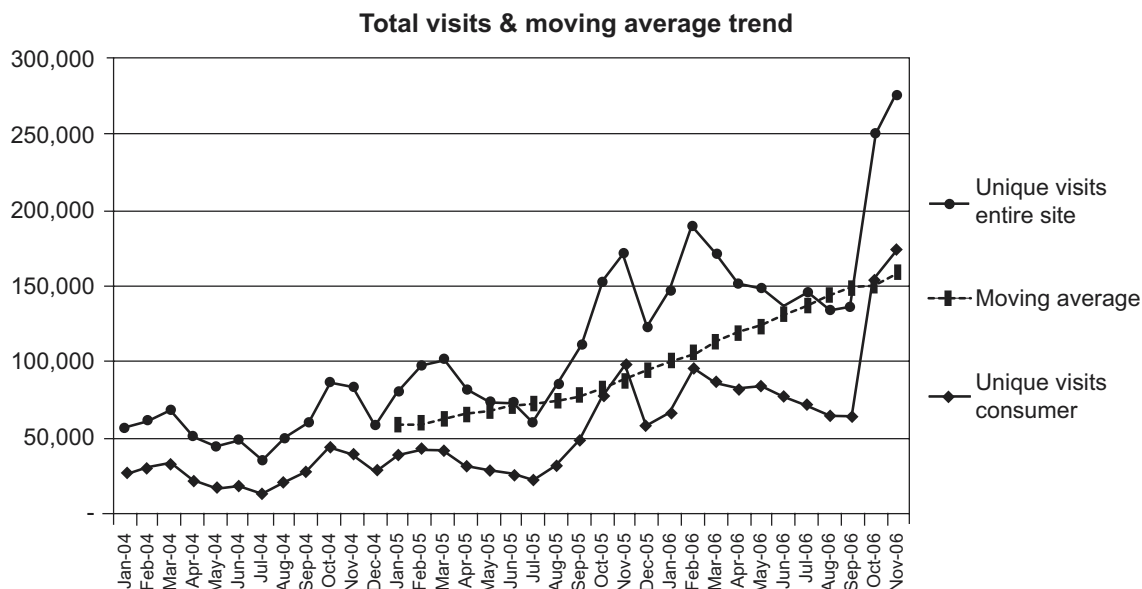
MEASURING THE IMPACT OF "SAVE YOUR 20%"

In January 2007 the Energy Saving Trust's evaluation department will commence measuring the impact of the "Save your 20%" (SY20%) campaign through quantitative research of a representative sample of the general public. This survey will seek to determine the energy saving actions taken by the general public in the period concerned and assess the influence of our advertising and public relations activity on the decision to undertake those actions. The method of survey and size of sample is yet to be determined but is informed in part by our previous qualitative and quantitative evaluation work of this audience undertaken. The collected data is assessed for carbon savings largely through reference with the standard carbon saving

factors used in the second Energy Efficiency Commitment (EEC2) period. The main exception is in the case of behavioural savings where factors have been generated from previous Energy Saving Trust research as behavioural measures are not included in EEC2.

The assessment of the effect of this awareness raising campaign on delivering carbon savings inherently relies on responses from the general public. We recognise that such a method has its limitations but we constantly seek to employ the best available methods to establish a reliable estimate of savings. We have recently concluded some qualitative research which will improve our techniques in this area and will be deployed when evaluating the impact of the SY20% campaign for 2006–07.

An indication of the impact of the campaign can be seen by the number of unique visits to the Energy Saving Trust main website and the Consumer Audience section which both experienced major increases during October and November as a result of the SY20% campaign and the associated Energy Saving Week commencing 23 October.



This is part of a clear upward trend illustrated by the increasing moving average. Clearly customers value these “soft” measures and believe they help save energy and hence carbon, otherwise they wouldn’t use the service in increasing numbers.

HISTORIC EVALUATION

It is possible, although not necessarily straightforward, to evaluate the savings resulting from “soft” measures, however it is clear that good advice ultimately leads to action. As an example, each year we evaluate the impact of our Energy Efficiency Advice Centre (EEAC) activity and our marketing activity. In terms of the impact of these activities three types of action are considered:

- Specific (installed) measures (excluding appliances).
- The purchase of energy efficient appliances.
- Behavioural measures (minor changes to common routines).

Over 2005–06 the EEACs achieved lifetime savings of 1.09mtC at a cost effectiveness of £6tC and the EEAC area marketing activity (including web and telephone hotline services) lifetime savings of 1.95mtC at a cost effectiveness of £3tC. This clearly demonstrates that “soft” measures deliver cost effective carbon savings.

Evaluation is not easy and there are difficulties in specifically attributing behavioural savings to particular advice especially where there are several sources of advice that could influence the consumer. Our experience suggests that the collection of evidence to support such savings needs to be done carefully and on a regular and on-going basis. An approach we have adopted accordingly.

As far as we are aware, no work has been undertaken to quantify the longevity of behavioural measures so we do not know for example if a particular piece of advice results in someone switching off the lights whenever they leave a room, whether this behaviour lasts for the rest of their life, or for a few years, or even for a few days. For this reason the carbon savings attributed to behavioural measures as a result of our activities are conservatively assumed to have a lifetime of one year.

In our opinion there is insufficient available evidence to warrant the use of longer lifetimes for such measures and as such we believe that there is a need for ongoing evaluation to assess the longevity of behaviour changes. In this respect, we note that the RESOLVE¹ project, funded by the ESRC as part of the Research Councils' Energy Programme, will include extended (longitudinal) case studies of real-life social change. We are however confident that "behavioural measures" can result in carbon savings and that the figures we have on the impact of "behavioural measures" are the best available.

We also look at a spread of measures on awareness, attitude and behaviour to assess the impact of the SY20% campaign from a marketing perspective (summarised in Appendix 2). This data is monitored across the year and is used to set objectives against the awareness and behaviour change sections for the following year.

Together the marketing analysis via our customer segmentation model and our detailed evaluation allows Energy Saving Trust to refine its energy efficiency product offerings to our target audiences increasing awareness to those that need it and facilitating action for those that are most likely to undertake it. Through adopting the Sustainable Energy Network approach we can then do likewise with renewable microgeneration and transport advice.

In summary, we believe our evaluation work provides a strong evidence base demonstrating that "soft measures" do deliver significant carbon savings even when based on conservative longevity assumptions. Further work is however required to assess the longevity of such measures to establish their true value.

APPENDIX 1

Overview of the Energy Saving Trust SEN proposal to Defra and HM Treasury

SUMMARY

The Energy Saving Trust is developing a comprehensive integrated proposal to complement the UK Government's policy interventions to address climate change that aims to create:

- Low Carbon Citizens (which we describe below).
- Low Carbon Cities.
- Low Carbon Communities.

It is intended that SEN will be the core delivery infrastructure underpinning this proposal.

RATIONALE

Energy use in the sectors where citizens are the main decision makers—homes and transport—is responsible for over half of the UK's carbon emissions. As a result of well known market failures and other barriers, there is significant potential for cost effective energy efficiency and resultant carbon savings in these areas. These barriers can only be addressed through citizen engagement, building on growing levels of awareness and concern about climate change. The Energy Saving Trust's proposal will embed low carbon behaviour in sustainable lifestyles.

At its heart will be an ambitious proposal—for the UK to be the first country in the world in which a large number of citizens commit to taking personal action to addressing climate change, supported by the Government. We believe that the outcomes will provide significant carbon saving benefits for the Government and the UK more broadly by creating a low carbon society through engaging, empowering and supporting citizens to change their behaviour both within their homes and as they travel. It is a wide-ranging programme of activity which utilises engagement routes including communities and local authorities, along with innovative Personal Carbon Commitments to put UK citizens on the path towards zero carbon.

LOW CARBON CITIZENS

If we are to achieve a low carbon society, then we need low carbon citizens—individuals investing in and changing their own behaviour in order to reduce their carbon footprint. Our proposal will have low carbon citizens as its foundation, not as an end point but as part of the transformation to a low carbon society. The centrepiece of leading citizens to low carbon lifestyles is to have them make a Personal Carbon Commitment, providing information and an incentive for individual action.

¹ RESOLVE is a five-year University of Surrey project led by Prof Tim Jackson that has just commenced that aims to develop a clear understanding of the links between lifestyle, societal values and the environment. Key themes include: quantifying the carbon (and other environmental) impacts of people's lifestyles; exploring the social and psychological influences on people's energy related behaviours and practices; developing socio-cultural understandings of modern lifestyles and values; and exploring the governance and policy implications of lifestyle change.

Each Personal Carbon Commitment will consist of:

- A personalised carbon footprint.
- A personalised list of carbon saving opportunities and actions.
- A commitment to a plan of action, which the Energy Saving Trust would then support.
- An opportunity to offset residual emissions through a robust and verifiable scheme.

Initially, it is intended that Personal Carbon Commitments will cover household energy consumption and transport, and provide recommendations on:

- Household energy efficiency measures.
- Household appliance use and habitual behavioural change.
- Microgeneration.
- Green Tariffs.
- Low carbon cars.
- Eco-driving.
- Increased vehicle occupancy.
- Low carbon transport modes (modal shift).

HIGH LEVEL OVERVIEW OF LOW CARBON CITIES AND LOW CARBON CITIZENS

Although outside the scope of the inquiry, we thought it would be helpful to provide a high level overview of our proposals for the two other parts of our package namely Low Carbon Cities and Low Carbon Citizens, which will also be supported by SEN.

Low Carbon Cities will be designed to support Low Carbon Citizens by providing leadership, profile and a focal point for action. It will build upon our previous work with local authorities to work with key cities to help them take a high profile leadership role in embedding low carbon behaviour into their operations and communities.

Behavioural research shows that friends and family are key agents in normalising action on carbon emissions reduction. Low Carbon Communities are therefore an essential part of embedding low carbon behaviour. Not only do they provide an effective support network for increasing sustainable behaviour amongst citizens, but this sector is also active in sustainable energy and transport in its own right. The Energy Saving Trust already runs the leading programme for action oriented work with communities, the Community Action for Energy programme and our proposals will build upon this activity accordingly. Low Carbon Communities will also form an integral part of Low Carbon Cities.

THE ROLE OF SEN

SEN will be the primary local delivery mechanism providing support locally for citizens, communities and cities. It will be underpinned by national activity to ensure that the appropriate infrastructure is in place for citizen engagement. In particular, we will focus the right messages at the right people—primarily those with higher carbon emissions—in order to move them to action, utilising our unique segmentation model. We will also develop a supporting system for Personal Carbon Commitments to ensure that they are not one-off actions but a continuous path to low carbon living with ongoing support from the Energy Saving Trust.

While the technical support and development of Personal Carbon Commitments will be undertaken nationally, up to 80% of Energy Saving Trust's direct engagement with customers has come through local activity and, even with the growing prominence of the internet, local engagement activity will be essential if we are to create Low Carbon Citizens. SEN will utilise local channels and partnerships to make contact and engage with citizens on behaviour change and will embed Personal Carbon Commitments and their key messages within the local supply chain, providing a constant reminder to citizens and ensuring that necessary products and services can meet demand. National engagement with large organisations and production of in store materials is important and can be supported by the SEN by reaching independent stores and, most importantly, the managers and shop-floor staff whose commitment, knowledge and enthusiasm can be the most effective tools in getting our key message across.

Proposed Roll-out of SEN

Following analysis and extensive consultation with stakeholders in the non-pilot regions, we have concluded that 22 separate regional operations are necessary to effectively deliver this proposal. Management structures and required sub-regional operations will be determined in accordance with regional conditions. The table below indicates the numbers of defined SEN funding streams in each English region and devolved country, and the expected numbers of distinct SEN management structures required.

<i>Region/Nation (Pilots in bold)</i>	<i>Current No EEACs</i>	<i>Proposed SEN Funding Streams</i>	<i>Predicted SEN Management Structures</i>
Scotland	8	3	1
North West	6	3	3
North East	—	1	1
Northern Ireland	—	1	1
Yorks & Humber	4	2	1
Wales	3	1	1
West Midlands	4	2	1
East Midlands	3	1	1
Eastern	2	2	2
South West	5	2	2
London	5	2	1
South East	6	2	2
Total	46	22	17

Rollout will commence with the proposed Low Carbon Cities where the bulk of UK households are and therefore where the larger citizen engagement and carbon saving opportunities exist. Detailed discussions with the GLA and stakeholders in Manchester have established that cities are likely to be in the strongest position for earlier delivery of SEN and to achieve the most substantive outcomes in the short term.

The process of rolling out will commence as soon sufficient funding is made available. Our experience from existing pilots is that six months is required to get a SEN in place. This timescale allows for a tender process (through OJEU as appropriate) and recruitment of staff, establishment of systems and other requirements. It is also necessary to step up the targets over the course of the first year of operation once the SEN has established partnership networks and put tactical activity in place to support and instigate the achievement of the higher targets.

The scale of customer numbers predicted to result from the fully rolled out network are detailed in the table below:

<i>Region/Nation (Pilots in bold)</i>	<i>Total Households</i>	<i>Customers Directly Advised</i>
Scotland	2,029,000	221,000
North West	1,027,300	289,000
North East	1,027,300	112,000
Northern Ireland	530,300	58,000
Yorks & Humber	1,839,000	200,000
Wales	1,111,600	121,000
West Midlands	1,986,500	216,000
East Midlands	1,681,000	183,000
Eastern	2,085,018	226,000
South West	1,860,000	202,000
London	2,673,900	291,000
South East	2,967,400	322,000
Total	22,451,918	2,440,000

CARBON SAVINGS FROM PCCs

A detailed assessment of the carbon savings that will result from the Personal Carbon Commitment initiative clearly requires a detailed work plan. However, we are confident we can make a reasonable assessment based on current knowledge and some fairly conservative assumptions.

The SEN pilot aims to reduce carbon emissions at approximately £10/tC, although as reported above in practice, the costs are slightly lower than the target. The SEN pilot is the model on which we propose to roll out the primary delivery network for Personal Carbon Commitments. As noted above, with learning from the pilot and increased economies of scale we are confident we can further improve cost effectiveness. Arguably there might be increased consumer resistance as we try to reach consumer groups less amenable to the carbon reduction message. However, with scale and increased involvement of community leaders (both in local Government and civil society) we are confident that word of mouth and the growth of “low carbon citizenship” will counteract this effect.

On the basis of our experience within the pilot, we are confident that the average carbon savings from each household to which we provide advice will be 2tC (over the lifetime of the actions) from household energy efficiency alone. Depending on the additional effectiveness of the commitment aspect of the Personal

Carbon Commitment we may be able to improve this figure for some households, but this assessment does not assume that will be achieved. On this basis, from home energy efficiency we expect the following deliverables:

- The total lifetime carbon emissions will be 20 MtC,
- The lifetime consumer benefits will be £9.5 billion,
- The carbon emissions savings will be 1 MtC in 2010, and
- The overall policy cost effectiveness is £12/tC for the whole initiative.

We project that increased work on transport issues will lead to savings that will exceed 0.4 MtC in 2010, with 1.6 MtC lifetime benefits, although the level of uncertainty attached to these benefits is somewhat higher than the benefits associated with the better established advice on home energy efficiency.

APPENDIX 2

Measures of awareness, attitude and behaviour employed to assess the impact of the SY20% campaign from a marketing perspective

Measure of Awareness (using both qualitative and quantitative research covering Pre, Mid and Post campaign)

- Awareness of Press, Magazine and TV advertising.
- Awareness of link between home energy use and climate change.
- Awareness of EST and SY 20% by customer segments and by region.
- Awareness of Energy Saving Recommended label.
- Total consumer contacts with EST.
- Unique visitors to EST and the various parts of the site; Energy Efficiency, Renewables and Transport, monthly and rolling.
- Commits to save 20% on and offline for EST and the advice network.
- Home Energy Checks on and offline for EST and the advice network.
- Grant Information Database checks.
- Low Carbon Building Program referrals.
- Calls to the hotline and advice network.

Measure of Attitudinal Macro Drivers through a quarterly attitude and awareness tracker

- Climate Change (awareness and belief of problem and its causes).
- Government Action (attitudes towards government intervention).
- Personal Responsibility (are people taking responsibility?).
- Cost Saving (degree to which is important v. being motivated for environmental or green reasons).

Measure of public attitudes to climate change using a macro climate behavioural barometer across six levels on public attitudes of whether consumers believe that climate change is an issue that affects them and if so are they willing to change and if so what are they doing about it

- Level 1 Don't believe—so not willing to change.
- Level 2 May believe—but not willing to change.
- Level 3 Believe—and thinking of changing.
- Level 4 Believe—and doing a few small things.
- Level 5 Believe—and doing a number of things.
- Level 6 Believe—and doing a lot of things.

Measure of Behavioural change at a specific action level for energy saving measures; ie at which one of six stages people are at on the journey to taking specific actions?

- Stage 1—Unaware of actions they could take to save energy eg cavity wall insulation.
- Stage 2—Pre-contemplation, aware of actions they could take to save energy but do not have any desire to do so.
- Stage 3—Contemplation, attitudinally ready to alter their energy saving behaviour, but not set a timeframe.

- Stage 4—Preparation, actively ready to make a change and have set a timeframe for change.
- Stage 5—Action, have made the change.

Energy Saving Trust

December 2006

Further supplementary memorandum submitted by the Energy Saving Trust (CIT 25c)

The Energy Saving Trust previously originally responded to the initial terms of reference for the inquiry and provided oral evidence to the Committee on 25 October. We are therefore pleased to provide a further response to the extended terms of reference.

6. To what extent is green taxation an effective driver of behavioural change

Effective green taxation can help change behaviours and reduce polluting activity, save energy resources, address social issues and help benefit the economy through increased demand for more sustainable products and services.

Green taxation is already widely accepted as an effective driver of behavioural change for instance in the OECD publication “Environmentally Related Taxes in OECD Countries Issues and Strategies”, 2001 and the HM Treasury publication “Tax and the environment: using economic instruments”, November 2002, which states that:

“Taxes and other economic instruments have a central role to play in this (*correcting market failures involving the environment process*). They can provide incentives for behaviour that protects or improves the environment, and deter actions that are damaging to the environment. For both consumers and business alike, economic instruments such as tax can enable environmental goals to be achieved at the lowest cost and in the most efficient way. By internalising environmental costs into prices, they help to signal the structural economic changes needed to move to a more sustainable economy. They can encourage innovation and the development of new technology. The revenue raised by environmental taxes can also be used to reduce the level of other taxes, which can help to reduce distortions in the economy, while raising the efficiency with which resources are used. Where there is a strong case, some or all of the revenue may also be used to reinforce the effectiveness of a tax measure by strengthening incentives for positive action, or mitigating adverse impacts.”

We therefore believe that a more illuminating question might be “*Why hasn’t green taxation been more widely used as an effective driver of behavioural change in the UK?*”

In its 1997 “Statement of Intent on environmental taxation”, HM Treasury committed itself to explore the scope for using the tax system to deliver environmental objectives and that over time will aim to reform the tax system to increase incentives to reduce environmental damage with the intention of shifting the burden of tax from “goods” to “bads”. Government should be congratulated for introducing such measures as emissions-based Vehicle Excise Duty (although charges for higher band cars has initially been set at far too low a level) and Enhanced Capital Allowances for micro-generation and energy saving equipment. However, despite several consultations, in our view HM Treasury has not utilised progressive environmental taxation policies as well as it might and this has contributed to the considerable shortfall in Government’s target to reduce carbon dioxide by 20% from 1990 levels by 2010. We believe that this is most apparent in the relation to UK citizen’s energy usage and associated emissions and that green taxation in this sector needs to be rectified as a priority.

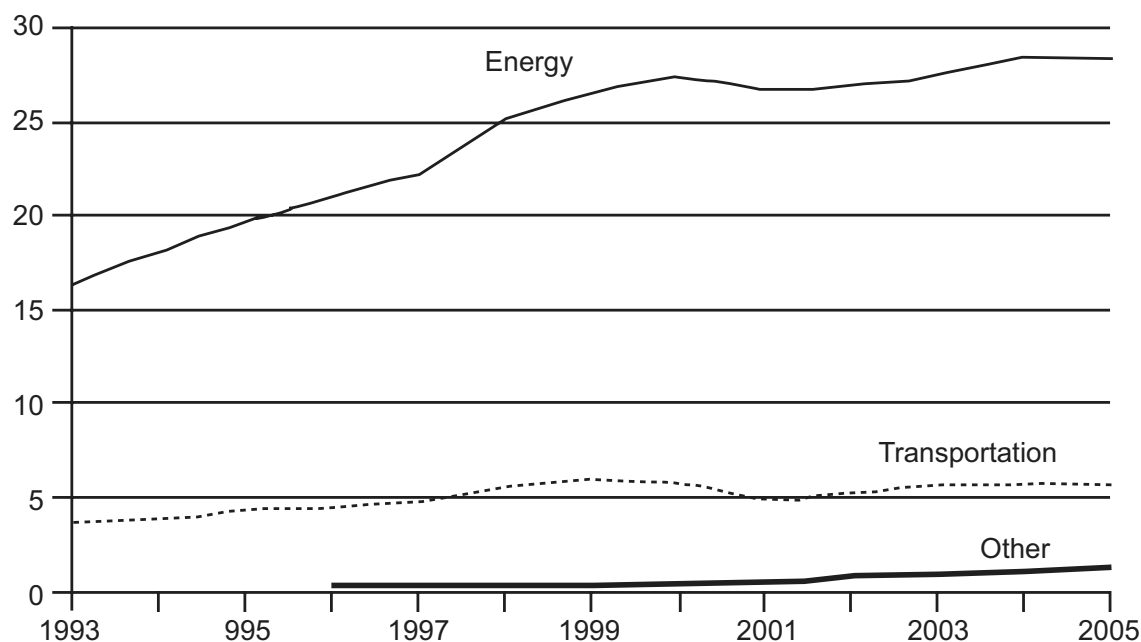
In order to be effective, green taxation needs to be primarily linked to achieving long-term environmental outcomes but should also be considered through fiscal measures aimed at a short term behavioural change as a pre-cursor to longer-term fundamental change. For instance capital grant programmes to help commercialise new technology such as the Low Carbon Buildings Programme to encourage wider take-up of micro-generation technologies and proposals for Council Tax rebates for the installation of energy efficiency measures to underpin higher Energy Efficiency Commitment targets and future obligations on either suppliers or individuals. In this respect, the recent proposal to introduce stamp duty exemptions for low carbon homes is welcome although it is not yet clear how much an incentive this will actually be.

In particular, UK citizens’ need to be provided with the right pricing signals to incentivise changes in purchasing behaviour through reduced VAT for the most energy efficient products and inefficiency charges on the worst performing products, for example tungsten light bulbs. It is also perverse that energy efficient DIY products are specifically excluded from receiving 5% VAT in the EU VAT directive whilst household energy usage is charged at a lower rate. Little use of such measures has been made by Government.

Government receipts from environmental taxes

With the recent evidence from the Stern Review, we believe HM Treasury now needs to review its environmental taxation policies and as a starting point return them to previously comparative levels.

£ billion



Source: Office for National Statistics

Total revenue received by the Government in 2005 from environmental taxation was £35 billion with environmental tax receipts, as a percentage of Gross Domestic Product (GDP), falling to 2.9% of GDP in 2005 compared with 3.6% in 1999. Similarly, environmental taxes as a percentage of total taxes and social contributions have fallen from 9.7% in 1999 to 7.7% in 2005. So clearly there is scope to raise environmental taxation on the “bads”. We therefore welcome the recent increase in fuel duty but believe the re-introduction of the fuel price escalator would provide a better long-term price signal.

Consideration also needs to be given to the use of revenues from environmental taxation. In general, we would advocate that revenues should be recycled to environmental-facing activities either through positive incentives for environmental “goods” including products, practices and infrastructure or environmental enforcement activities such as enforcing building regulation compliance for new homes (where over 50% fail air tightness requirements). For instance, revenues from re-introducing the fuel price escalator should be utilised to counter the regressive trend of higher public transport fares, which impact most on the poorest citizens, as car operating costs continue to fall.

The Energy Saving Trust would be pleased to provide details of its specific recommendations for household fiscal policy if that would be helpful.

Energy Saving Trust

January 2007

Memorandum submitted by the Local Government Association (CIT 01)

The Local Government Association represents local authorities in England and Wales, promoting the interests of around 500 authorities which represent around 50 million people and spend around £74 billion a year on local services.

The Government acknowledges that local authorities have specific potential to help deliver the step-change in reducing greenhouse gas emissions that national policies require. Recognising this, the LGA has a dedicated programme of work on sustainable energy and climate change, in partnership with the Energy Saving Trust. The LGA also supports local authorities in joining up their environmental work through its “greening communities” campaign.

SUMMARY OF KEY POINTS

1. Individual actions on climate change take place within the national, regional and local context influenced not only by formal policies such as the fiscal and legislative regime affecting consumer choices but also by our prevailing culture and ethos.

2. Local Authorities (LAs) have a pivotal role in action on climate change. Councils can plan, deliver, co-ordinate and enable the changes necessary to bring about a step-change in results and are a key linking organisation for many individual actions.

3. The LA role is wider than just cutting emissions from authorities' own estate and services—councils can have real impact on community/individual actions. There are three main strands for wider community work:

- providing routes for communication;
- providing routes for individuals to take action and joining together individual actions across a community; and
- structuring local communities to enable sustainable choices to be made more easily.

4. There are many exemplary councils exhibiting a vast range of good practice. Many more have made an initial political top level commitment—140 councils have now signed a Declaration on climate change such as the Nottingham Declaration—but councils want to do more.

5. To do this Local Authorities need the right back-up from central policies:

- a performance framework outcome that allows an appropriate focus on climate change;
- the duty to secure an area's environmental well-being;
- the details of the implementation of the Climate Change and Sustainable Energy Act duty carefully framed to enable local responses to government reports;
- long term, stable resources, including in-house officer resources; and
- data access to enable effective targetting of scarce council resources (eg home energy efficiency certificate information).

6. At any level of government, climate change action will only be really effective if it reinforces, and is reinforced by, society's broader aims and aspirations. The cross-cutting nature of climate change and the urgency of the need for action means we need co-ordinated interventions to achieve a step-change from all sections of society not just a reliance on individuals' ability to react meaningfully. Local authorities have been leading the way on climate change and will continue to be an increasingly important part of the picture.

INTRODUCTION

7. Defining our individual impacts on climate change is complex. Individuals have a multiplicity of roles and routes through which they interact with the environment. Any one individual's actions to reduce their greenhouse gas emissions could therefore take place in a variety of arenas, whether in the workplace, the market place, the transport system, the home or wider community.

8. Action to mitigate climate change will be prompted by a range of different drivers, all underpinned by the individual's broader take on their own role in society and how they see their own impacts on the local and global environment.

9. With around 25% of UK greenhouse gas emissions attributable to the transport end user, and 27% related to the domestic sector, a large proportion of our national emissions are under the direct influence of our choices and actions as individuals. However, there is a range of factors that will constrain or promote such action, including availability of information and ease of routes to take action, as well as perceptions of support for and belief in the efficacy of individual actions.

10. Structural factors such as legislative, regulatory and fiscal regimes provide the framework within which individuals exercise choices but cultural and societal factors are equally important.

11. There has been a concerted effort over recent years to stress the cumulative impact of individual actions in cutting greenhouse gas emissions. However, supporting individuals in taking this action is essential—not only in awareness raising, but in promoting and helping to sustain behaviour change including structuring our communities to make it as easy as possible for individuals to make sustainable choices. Local authorities have a pivotal role in this.

THE ROLE OF LOCAL GOVERNMENT

Closer to People and Places

12. Local authorities can plan, co-ordinate, enable and deliver the changes needed for sustainable energy in a way no other organisation can match. Local government is uniquely where responsibility to promote the well-being of an area now and for the future, delivery of key services, influence over how people live and work, enforcement powers, practical know-how and democratic legitimacy all come together.

13. The Government's "Climate Change: the UK programme 2006" report acknowledged that action by LAs "is likely to be critical to the achievement" of national climate change objectives since they are "uniquely placed to provide vision and leadership to local communities, raise awareness and help change behaviours". In addition it recognised that council powers and responsibilities on specific service delivery (eg planning, housing, local transport) and on delivering the social, economic and environmental well-being can provide a powerful role in influencing emissions of greenhouse gases in their areas.

An average county council produces at least 30,000 tonnes of CO₂ per annum from its corporate activities and its community generates some 10 million tonnes.

An average district council emits around 3,000 tonnes corporately and its local community emits around 300,000 tonnes.

14. The Government report recognises that some local authorities are already taking "exemplary action on climate change". There are examples across the country of councils making a real impact on emissions, not only in their own activities such as operating council buildings and service delivery, but also in their work in their communities. The LGA publication "Leading the Way" sets out how councils can take action, with case studies. <http://www.lga.gov.uk/Publication.asp?lSection=0&id=-A78309C9>

Example

Shropshire County Council have reduced CO₂ emissions from corporate buildings by 57%—from 29,650 tonnes CO₂ per annum in 1990 to 12,694 tonnes CO₂ per annum in 2005.

Example

Staffordshire County Council reduced its CO₂ emissions from most properties by around 44%—a reduction of 60,000 tonnes of CO₂ per annum by 2005 over 1990 levels.

Example

Middlesbrough launched its Climate Change Community Action Plan in November 2004 with a five year action plan including community agreed targets to reduce CO₂ emissions by at least 12.5% between 2000–10 (nearly 11,000 tonnes of CO₂ each year).

15. Around 140 councils in England and Wales have signed up to a climate change declaration, such as the Nottingham Declaration, committing their authority to take action on mitigating the effects of and adapting to climate change. The LGA is one of several partner organisations which has developed an online action pack to provide a free resource for councils to help them develop strategies and action plans for action in three main areas (a) the council's own buildings and fleet, (b) its service delivery and (c) the community it serves. There is a target for 200 councils to sign up to a declaration by the end of 2006.

16. A key aspect of local authority work is enabling citizens to make their maximum impact on emissions reductions. While council action is important for improving emissions from their service delivery and their own estate (ie council buildings such as civic offices, leisure centres, schools, council owned housing, community facilities and council transport) there is also an invaluable role for local authorities in affecting the greenhouse gas emissions of individuals in their area.

Example

Uttlesford District Council, which signed the Nottingham Declaration in February 2006, with Local Agenda 21 has developed and launched the “Sustainable Homes Network” to help householders find out more about renewable energy and environmental improvements for their homes.

17. The local authority role can be seen as three part—(a) communicating climate change messages, (b) providing a trusted route for taking action and joining together individual actions across a community and (c) putting in place structures and mechanisms for making individual choices to reduce emissions easier.

(a) Communicating and raising awareness of climate change

18. A large number of councils have well developed communications and advice work programmes including partnership work with Energy Efficiency Advice Centres and other agencies. Joining up with local energy agencies provides additional impetus for campaigns and synergies are frequently made with other council campaigns, linked to services such as housing, planning, education.

Example

Shropshire County Council supports the independent charitable company Marches Energy Agency which leads a range of community climate change projects including BC2AD (Bishops Castle2 Active Decarbonisation) scheme, Women’s Institute for Sustainable Energy and Congregations for a Low Carbon Future; each working with a geographical community or community of interest to reduce carbon emissions.

19. A number of local authorities are involved with projects successful in bidding for funds under Defra’s Climate Challenge Fund aimed at communicating messages to communities and individuals on climate change.

Example

The Nottinghamshire and Derbyshire Local Authorities’ Energy Partnership formed 10 years ago by all 19 councils in these two counties received funding for a project to raise awareness amongst the general public, targetting residents, local authority staff, schools and community groups. The communications programme will use a mix of media, including local radio, LA newspapers and websites and a touring campaign vehicle.

(b) Providing a route, community focus and support network for individuals’ action

20. Research indicates that in the UK there is a high awareness (around 90%) and relatively little disagreement about the basic facts of climate change but that awareness of its urgency and scale is much lower at no more than 15%. Recognition of urgency and scale is a defining feature of “champions” who engage more directly with the climate change agenda. LAs can play a key role in helping them to take effective action but, as David and Susan Ballard in their reports for Hampshire County Council note, higher “awareness of the systemic structure” is needed. (*note 1)

21. The Ballard report also argues that “a key barrier to awareness is that people believe that climate change is so huge an issue that there is nothing meaningful that they can do about it”. Councils can help by providing meaningful channels or “agency” for individuals to take effective action. Councils can also help by providing “association” so that people can work with others as there is strong evidence that change efforts are more effective, and last longer, where people work together.

Example

Hampshire County Council is leading in the Interreg European ESPACE project. The council is working to provide a corporate climate action plan to prioritise its own activities as well as linking more effectively with residents to take action themselves. The development of actions is based on innovative behaviour change principles and will include schools projects.

22. Local authorities, through their established links with wide sections of the community can provide a vital link to engage with local residents in areas that people care about—schools, leisure facilities, local industry, and other key areas of people’s lives. Councils can also tailor actions to local circumstances and dovetail with other projects and agendas (such as alleviation of fuel poverty, regeneration, transport planning). Schools in particular have potential for behaviour change work through their direct activities in educating children but also in disseminating information to the community and as a base for community action, being of the right size and place in the community potentially to have a significant effect on the wider cultural assumptions of the community.

Example

Oxfordshire County Council has a programme run by contractors to provide energy education in around 55 LEA schools, seeking to reduce the use of energy in schools. As well as monitoring consumption and setting targets to reduce usage, the pupil led programme engages all members of the school and others in the surrounding community.

23. Local authorities can also provide trusted routes for external partners to access individuals, for example energy suppliers have extensive links with councils in delivering their Energy Efficiency Commitment (EEC) programmes. It is vital that suppliers' work under EEC is additional to local authority work and that councils are integrated into schemes where possible, to build on the synergies available to councils. There is also a need for predictability in supplier spend to avoid a damaging stop/start approach.

24. To maximise the synergies in local communities it is vital that all aspects of society, not just local, regional and central government work together, but also the voluntary sector, community groups and businesses. Local Public Service Agreements and Local Area Agreements (LAA) have potential to pool activity, including budgets, around common aims to achieve outcomes that cut across sectors. Climate change is a key area for LAA work with a large potential still to be tapped.

Example

Shropshire County Council is developing a low carbon communities LPSA aimed at achieving carbon reductions in 3,000 households as well as businesses and other organisations across three communities. It includes a target of 5.88% carbon reduction over three years with formulation of a strategy for a 60% reduction by 2050.

(c) Structuring local communities and providing mechanisms for facilitating individual choices to reduce emissions

25. Local government has the power to shape local communities and make it easier for individuals to make sustainable choices. A council's planning, regeneration and transport roles can all impact effectively on climate change by structuring communities so that it is easier to make low carbon choices. The LGA set out an illustrative vision for "Anytown 2025" as part of its Leading the Way document. This illustrates how policies and actions at a local level can enable us to live well in 20 years time with significantly less use of environmentally damaging energy and with much reduced vulnerability to climate change.
<http://www.lga.gov.uk/Publication.asp?lSection=0&id=-A78309C9>

26. For example land use policies can be introduced that encourage balanced communities where employment, education and other amenities are closer to where people live; local sustainable food policies can help match gardeners with potential gardening space or promote markets for local produce; council backed energy service companies can make greener energy purchasing a more favourable option for domestic customers.

PLANNING

27. The planning system can be a powerful driver for new developments, with for example planning driving higher standards of sustainable building and promoting renewables and microgeneration.

Example

The London Borough of Enfield has a sustainable building project aimed at using the planning process to ensure that the principles of environmental sustainability are incorporated in the design and construction process at every stage.

Example

The London Borough of Merton requires all new industrial, warehousing, office and live/work units outside conservation areas and above a certain size to incorporate renewable energy production equipment to produce at least 10% of predicted energy requirements.

28. The LGA with partners has published a report on Planning Policies for Sustainable Building. This recommends a set of model policies which the Partners believe all authorities could adopt. These set ambitious but achievable standards on carbon, water, materials, waste, recycling, biodiversity etc.

TRANSPORT

29. Surface transport is responsible for over a quarter of UK CO₂ emissions and at local level this is an important area for action by individuals which can be heavily influenced by structural issues. Reducing carbon emissions from transport can best be achieved by using both technological and behavioural approaches. Improved provision of alternatives to private car use as well as promotion of low carbon fuels for surface transport needs to take place in the context of communities designed to minimise the need for transport.

30. Successful LAs have incorporated transport policies within wider carbon or energy strategies—taking advantages of linkages both within council service delivery and working with partners to deliver reductions in emissions. Behavioural changes can be encouraged by:

- promotion of public transport;
- walking and cycling promotion;
- travel plans for employees;
- sustainable land use planning policies (eg use of section 106 agreements);
- promotion of biofuels (eg biodiesel).

Example

In Shropshire the Marches Energy Agency in partnership with the county council has set up a network of 5% biodiesel filling stations and supported the introduction of the first 100% biodiesel for sale to the public from a garage forecourt in Bishop's Castle as part of its aims of reducing the community's carbon emissions.

31. Price signals have a key role to play. Motoring costs in UK have remained constant in real terms since 1974 and have therefore halved in relation to incomes, while public transport costs have risen almost as fast as incomes. Untaxed aviation and no frills airlines have made flying cheaper than ever before. These price relationships are a result of political decisions about taxes and subsidies for different transport modes.

Example

In the first year of its operation the Central London Congestion Charge delivered a 30% reduction in congestion within the charging zone alongside a 19% reduction in traffic-related CO₂ emissions

VALUING CARBON

32. The Government is considering extending the UK emissions trading scheme to cover some councils. Kirklees council is currently participating in the voluntary UK scheme and supports the role of council carbon trading at council and community level. There is evidence that schemes can change individuals' views on carbon emissions and it is a logical extension of the "polluter pays" principle. With only limited LA experience of emissions trading schemes there would be significant need for council training. Extension to a personal carbon trading scheme/personal carbon allowances is worthy of detailed consideration but there needs to be a staged process for debate to bring along public support for such a scheme.

Example

Kirklees council signed up to the UK emissions trading scheme and legally binding targets for council emissions, aimed at reductions of 1000 tonnes CO₂ equivalent over five years.

THE ROLE OF NATIONAL GOVERNMENT

What does local government need to support its work on climate change?

33. There is ongoing review of the future form and functions of local government. The LGA has set out its contribution to the debate on how to meet the challenges of today and tomorrow, including climate change, in its "Closer to People and Places" report published in May 2006. (<http://www.lga.gov.uk/Publication.asp?lSection=0&id=-A783A761>)

(a) National outcomes : local action

34. The LGA argues for agreement between national and local government on 30 national outcomes which local government will take responsibility to deliver. This would allow an appropriate focus on climate change. In addition it argues for the current well-being power to be replaced with a "duty" to secure the social, economic and environmental well-being of an area, coupled with the powers and levers to give effect to this.

35. As the Government's climate change programme 2006 report recognises, some councils are already taking "exemplary action on climate change" but government wants to incentivise more authorities to "reach the level of the best". To this end government "will consider how to ensure that the local government performance framework will include an appropriate focus of action on climate change". This outcomes focus is welcome and LGA are working with government departments to develop proposals in detail. As a starting point we need clarity on methodologies for assessing emissions baselines, agreement on what councils' sphere of influence/control actually is and on what programmes have the best impact on carbon emissions.

(b) National duty : local implementation

36. The Government's report also focuses on the duty set out in the Climate Change and Sustainable Energy Act— "government will publish a report on ways in which local authorities can reduce greenhouse gas emissions and alleviate fuel poverty . . . local authorities will have to have regard to this report in carrying out their functions." The LGA supported this duty as a means of providing a stronger driver for council action, while enabling local flexibility on delivery. Taken in the context of a local focus for a national outcome on climate change this could be a powerful framework to incentivise council action however the details of reports need to be carefully framed to reap the benefits of applying local solutions. Additionally the wider duty which LGA is arguing for on securing the environmental well-being of an area would allow further joined up action across environmental issues.

(c) Resources

37. Councils currently access resources for climate change work in a variety of ways, but local authorities consistently raise the lack of a long term funding system and the stop start nature of project based funding as a barrier. Pots of money provided by government schemes are welcome but there is no certainty over continued long term funding and councils can find it hard to access funds provided by a variety of bodies. This is a particular barrier for smaller authorities and those not yet particularly active on climate change. In-house officer resources are needed to join up council work.

38. It will be important, as the Government states, to review existing requirements on and guidance to LAs (with a realignment of existing resources away from process towards outcomes—carbon savings), delivered in a way most appropriate for a local area—so that focus on climate change in the performance framework does not represent a new unfunded burden and there is greater flexibility to deliver on national priorities in the most effective way for that locality.

(d) Data

39. The provision of energy efficiency information by home owners selling/renting their properties will be a useful factor in influencing individual purchasing and renting decisions. It would be doubly effective if the data to be compiled in these reports were accessible, with appropriate safeguards, to local councils to enable them to target scarce resources more accurately on the least energy efficient households. Current government policy is to exclude local authorities from access to the relevant Register but it is hoped that this position can be kept under review.

THE ROLE OF SOCIETY

40. Action by any level of government, whether national, regional or local will only be as effective as the wider societal framework within which it is set. Societal norms and cultural issues will have a strong effect on individual actions. Local councils' work on climate change will be enhanced greatly by sustained awareness raising and by policy initiatives to help shape public perceptions, as well as increased use of market mechanisms and improved regulatory standards (eg for domestic appliances). Refocusing individual agendas around the needs of local communities and wider society will help to achieve the levels of changes needed more effectively.

41. At any level of government, climate change action will only be really effective if it reinforces, and is reinforced by, society's broader aims and aspirations. The cross-cutting nature of climate change and the urgency of the need for action means we need co-ordinated interventions to achieve a step-change from all sections of society not just a reliance on individuals' ability to react meaningfully. Local authorities have been leading the way on climate change and will continue to be an increasingly important part of the picture.

- *note 1—Extracts from "How can local authorities stimulate and support behavioural change in response to climate change" (David and Susan Ballard, Alexander Ballard Associates, report for Hampshire County Council July 2005).

Local Government Association

August 2006

Witnesses: **Councillor Paula Baker**, LGA Environment Board Member, **Councillor Tony Newman**, LGA Environment Board Member, and **Ms Christine Seaward**, Environment Futures Manager, Hampshire County Council, Local Government Association, gave evidence.

Q66 Chairman: Can I now welcome as witnesses representatives of the Local Government Association. Before introducing them, may I apologise for the delay in bringing you on, but I saw you in the audience enjoying the last evidence session, so I hope you do not feel your time has been wasted and we did have a division which slightly slowed thing up. We have Councillor Tony Newman from the Local Government Association, who is an Environment Board Member, Councillor Paula Baker, who is also an Environment Board Member, and from Hampshire County Council the Environment Futures Manager, Christine Seaward. For the record, Councillors Baker and Newman, which are your respective local authorities?

Cllr Newman: The London Borough of Croydon.

Cllr Baker: Basingstoke and Deane Borough Council.

Q67 Chairman: You are very welcome indeed. You have probably got a flavour already of the type of area of our inquiry. We are looking very practically at matters that can take forward the people that you and we represent in Parliament and the Local Authority areas to become more involved in this whole area of carbon and energy saving. The Government is very fond of making lots of great declaratory statements about this whole area and your evidence attests to lots of good messages and requirements for local government to take various aspects of energy saving into account in terms of your policies, but do you really think that Government are absolutely serious about the role that they want local authorities to play and, in that context, do you see any signs that Government are giving you adequate resources to play that role or that part?

Cllr Baker: First of all, thank you for the opportunity to come here this afternoon. Clearly, as I hope you will see from our evidence, we feel that local government takes a really serious view of the issue and the part that local government can play in trying to deal with mitigation and adaptation to climate change, but, as we have indicated, we do feel that we would very much welcome a clear statement of the trajectory that we should be moving in from the Government and, as always with local government, talking about issues such as this, we would also welcome greater and more consistent resourcing. I think this picks up on some of the issues that you were just hearing evidence from the Energy Saving Trust about. We have a multiplicity of different levers in play that, particularly for smaller councils, makes it very difficult for them. The highest part of their expenditure is on their staff costs and they really need to have certainty and sufficient resources to have a dedicated officer resource to be able to make the most opportunity and to recognise the various opportunities that there are to use some of the schemes that have been coming forward and continue to come forward.

Q68 Chairman: I notice in your evidence you give examples of a number of authorities who, if you like, are seen as the market leaders in this field. I suppose, inevitably, Woking has to be amongst the most prominent. Hampshire, indeed, has done good work and there are others that are listed here. It is very impressive. The question I kept asking myself (bearing in mind there is a range of large to small authorities in this examples) was: why is it that some have been able to resource going out ahead of others when there is an underpinning flavour through this of lots of good intention but, for the reasons that you have mentioned, Councillor Baker, perhaps a reluctance to engage? What motivates the market leaders?

Cllr Baker: Leadership. I think a lot has depended on where there are key individuals in local authorities who take the issue of being of high importance and have had the ability to lead their communities: because inevitably the priorities within different councils are different and are led by their local communities.

Cllr Newman: If I could add to that, in recent years, as this whole area has rightly shot up the agenda, local authorities, through the Local Government Association, are doing a lot more work now pulling together that best practice so that we do not have to rely on every single councillor in the land, however large or small, having the expertise but are bringing it together, using the LGA and other mechanisms, in terms of best practice, in terms of getting the council to sign up to things like The Nottingham Declaration and others, so that councils can share that best practice and perhaps can accelerate the process in those councils that have not embraced the agenda. So it is not just an issue of resource; councils do recognise we can do more collectively.

Q69 Chairman: One hundred and forty councils, am I right in saying, have signed up to The Nottingham Declaration?

Cllr Newman: Yes.

Q70 Chairman: Who monitors what they do, having signed up? You mention the more involved role of the LGA. Do you have any kind of feedback arrangement to know, having signed their piece of paper, what they then do?

Cllr Baker: Hampshire have signed up.

Ms Seaward: Yes. I think in the first round of The Nottingham Declaration it is correct to say that there was no formal audit of what people were doing. It was very much up to the commitment of the individual organisations to ensure that actually what they promised to do they actually did do. I know in Hampshire we have set that up ourselves and we are monitoring it and making sure that we are delivering it. I am sure that the second round of The Nottingham Declaration has addressed itself to those issues, because it is perhaps easy sometimes to

say that you are going to do something, have the intention to do something and then not be able to follow through.

Q71 Chairman: You mentioned that the LGA were monitoring and collecting examples of good practice. How do local authorities access that? Is it on some kind of web-based system for open access or do you have a publication?

Cllr Baker: That is available, but also we have recently launched a *Planning Policies for Sustainable Buildings* guide—that is a paper document—and we have a pack of information called the *Greener Communities Pack*, and one of the strands within that relates to energy and climate change, and within that there is a whole suite of documents relating to different areas. So, that is the kind of work. We have conferences and we have also just announced that we are establishing a new independent commission to boost local action on climate change which will be gathering information about best practice and also looking at barriers and disseminating good practice and, hopefully, shaping future policy development.

Q72 Chairman: That is something that you are doing as an association, but, going back to the point you were making with particular reference to the smaller scale local authorities, can you give us some examples of where funding issues conflict, if you like, with the good intentions? Clearly, you cannot achieve what some authorities have already achieved without some use of their resources. Can you give us a flavour of the kind of programmes that have been followed and how much they cost authorities?

Cllr Baker: Some are able to invest and to recycle the money, but that relies on having that initial investment to make. I believe Leicester is doing that with offering loans for solar panels, interest-free loans, and, as they get the return, that is used to offer further loans. So, there are schemes so that the money can be recycled to overcome the lack of resource issue.

Q73 Chairman: The thing that I was grasping at was that throughout the evidence you discussed the interrelationship between government identifying the crucial and central role of local government in helping to deliver a climate change agenda locally and the problems that authorities, particularly the smaller ones, face in responding to that, because at the moment it is not a statutory requirement to do it, if I have understood things correctly, but it does require something. You mentioned ‘officer time’ for example. Do you have one specific—

Cllr Baker: I cannot off the top of my head, but we could probably come back to you with that from evidence that we have from local authorities who may have submitted bids that have been unsuccessful, and that may be the kind of information that you are looking for, where councils wanted to do a piece of work but actually did not have the funding available to do it.

Q74 Chairman: What I think we would find particularly interesting is to find out what are the barriers between responding to the rhetoric and actually delivering a locally based programme, because on the one hand you have helpfully given examples of local authorities who have reordered their priorities to deliver a range of energy saving programmes within their borough, but clearly there are a number, again, as you indicated to me, who signed up to The Nottingham Declaration in a spirit and frenzy of good intention but who are now struggling to say, “What shall we do?” In my own borough of Fylde, I have been trying to run an initiative with the ambitious strap-line of making us the most energy efficient borough in the country and I found it singularly difficult to get this baby off the ground, partly for the reason, Councillor Baker, you indicated, that our authority is restricted in how much resource it has to be able to help us with the administration of the initiative. There are no lack of supporters. We are making progress because we have now got monies from various public bodies and private bodies to get it off the ground, but I have noted how difficult it is to actually do it, and that is the kind of first-hand experience that we could do with feedback on so that that, when we write our report, we can highlight to government where improvements need to be made so that we can liberate local authorities to play a full part in this exercise. That is what we are after.

Ms Seaward: I was going to say something from Hampshire’s experience. What has made a difference for us is when we have had external funding to support work that we have wanted to do, and we have been quite successful in doing it that.

Q75 Chairman: Where has that money come from?

Ms Seaward: Usually from European funded programmes, and we have had some money from government on one particular project that we are running.

Q76 Chairman: I believe in Hampshire you have got some officer time which can be put to the rather complex business of filling out the forms and getting the project under way?

Ms Seaward: We have some, but it is very limited. What we are pleased with is that we have support to do that because it brings benefit further down the line. Certainly with The Nottingham Declaration we looked at what we had committed to deliver and actually, from the resources that we had in-house at the time, it was very obvious that we were not going to be able to deliver the full range, so we put that into an external funded bid. That is where you get a pioneer, that is where an authority can step out and be a pioneer, but what I think you are considering is, beyond the pioneers, how do we get the rest who are not able to attract external funding because they are not doing a pioneering activity, they are doing something themselves.

Q77 Chairman: For example, Defra, in a great blaze of publicity, earlier this year launched a six-million-pound information fund and, by the time those who

had heard about it got their act together, all the money had gone. It sounded to me as if they knew at the beginning who was going to get it, advertised the fund and then dished it out. I do not know whether you have monitored the way that these initiatives operate. Do you think that they have been fairly administered, giving people a chance to prepare their projects, or has there been an element of a predetermined agenda that you might have found?

Cllr Baker: In a sense I would not want to comment on a predetermined agenda, but certainly there are limitations for small councils being able to divert the officer time to put forward a credible bid for that kind of funding stream, and that is one of the things that can hold the council back.

Q78 David Lepper: Just a little question, Chairman, on perhaps a different kind of frustration that some local authorities might feel. I gather, for instance, that Cambridge City Council wanted to write into its local plan a requirement in terms of minimising energy consumption, maximising energy efficiency, and so on, that went beyond the Building Regulations and was criticised by the Government inspector for trying to do so. Is that a common experience of local authorities, where there is an aspiration, leaving aside the issue of resources, at the local level that comes up against a bureaucratic obstacle?

Cllr Baker: Some local authorities have been successful in getting policies in, for example, to require a percentage of renewable energy on new developments. There is a very grey area between planning policy and building regulations which is referred to at some point in this document for exactly the reason that you have just raised. I do not know whether you would like to speak about your own borough's experience.

Cllr Newman: Yes, there are individual planning inspectors out there, but, as this becomes good practice—briefly to talk about Croydon—it is now a requirement for any residential development over 10 units that at least 10% of the energy that is used will be renewable, and there is a will to do that. It is not a party political issue in Croydon, it is a cross-party view, and that is very much now part of the local planning policies. I know, coincidentally perhaps, the neighbouring borough of Merton, ahead of Croydon, did that around industrial units over a certain size and expected a certain amount of energy to be renewable. As this becomes practice, as it becomes written into local planning policies across the country, it will be more difficult for perhaps individual planning inspectors up and down the country to take differing views, but we are in that grey area at the moment because a lot of this is relatively new.

Q79 David Lepper: You have both said this grey and difficult, and yet planning, as your evidence attests to, is a potentially very valuable tool in building in, particularly for new premises, some energy saving potential. Is Government aware of this problem? Is it taking any action to resolve these difficulties that you are aware of?

Cllr Newman: My own experience is that Government are aware that the planning process needs to be refined to reflect the priorities that we are now talking about. Some of the planning regulations do not. There is an awareness there that this needs to be done. I think it is the role of the LGA and other local government associations, encouraged by the likes of yourselves and other perhaps, to drive this forward so it does become rapidly the way to do things and not a block to doing things.

Q80 David Lepper: There is lots of awareness but no action. Is that fair summary?

Cllr Newman: No, I think there is some action, but they could be doing with some more action.

Q81 Sir Peter Soulsby: Councillor Baker, when you were answering earlier about what has held councils back from dealing with this, you identified the need for there to be dedicated officer resources. Can you tell us something about how the Local Government Association is set up and what dedicated resources you have got to deal with these issues?

Cllr Baker: We are a membership authority representing local councils and are funded through their membership subscriptions to us. We have recently reviewed our staffing structure to try and ensure that we can always deliver the most that we can for our member authorities. We have an officer corps, but it has to be quite restrained, and one of the reasons it is restrained is to ensure that we have available to us sufficient resources to be able to commission one-off pieces of work for our respected leaders in particular policy spheres, as we feel that that is a good and useful resource for our member authorities. We also work in partnership with people such as the Energy Saving Trust, who help us to resource our officer corps.

Q82 Sir Peter Soulsby: I take it from what you are saying that at this present time you no longer have people who are specifically dedicated to these sorts of issues? Is that what you are saying?

Cllr Baker: No, we do have a team of officers who are covering the work of the Environment Board. It is smaller than it used to be, because that is the way that the LGA has chosen to work for the future. You may be aware of the report on transport, the Travers Report, that we published earlier this year. We see the way forward as being able to commission individual pieces of work like that.

Q83 Sir Peter Soulsby: Perhaps my point is that not having people officer support, people who are dedicated to this sort of work, must significantly limit the extent to which the Local Government Association is able to exchange and promote good practice?

Cllr Baker: I was not perhaps making myself very clear. We do have an officer corps that supports the whole of the areas of work that the Environment Board covers, which therefore includes climate change, but when we are producing pieces of substantial work such as this one, then we do work

very strongly with people, in this case WRAP, the Planning Advisory Service, the Planning Officers Society, the Sustainability Forum.

Q84 Sir Peter Soulsby: What about the member structure? Do you have a group of members who specifically focus on these climate change issues?

Cllr Baker: Yes, two of whom are here before you.

Cllr Newman: The member structures in the LGA were slimmed down a couple of years ago. I am not an expert on the internal workings of the LGA. There were about 16 committees, I think. There are now far less focused boards of which the Environment Board has specifically been brought together because this is one of the key areas, although it does continue to cover other areas like housing, but then they tend to feed into the work of the Environment Board anyway.

Q85 Sir Peter Soulsby: This comes within the work of the Environment Board?

Cllr Newman: Yes, the Environment Board covers issues such as housing, which obviously does have a key role to play.

Q86 Sir Peter Soulsby: Can I ask you about the background to The Nottingham Declaration. Was that something that the LGA initiated or was that something done by Nottingham or some other local authorities?

Cllr Baker: Nottingham were the clear leaders. Again, I will turn to Christine for her experience of Nottingham.

Ms Seaward: I am actually not an expert on The Nottingham Declaration, but I know that it was an initiative that was set up and led by Nottingham and that it was presented to a board, a forum of local authorities. It now is actively working beyond the original format. You can find out more information through the website. There is a core of officers working on it at Nottingham, but I have a feeling that in the beginning there was only one. Perhaps we ought to get you some more information on that.

Chairman: We would be particularly interested. If you look at the Declaration, what it asks local authorities to do, I think we would be interested in some feedback on this question of how far down the track they have got in the section which says, "We commit our council from", to find out what they had actually done. If they had signed it and found it difficult to make progress, then it would be helpful to know why. As we have seen, some have made remarkable progress. What we are trying to establish is what are the barriers to progress and, equally, what has worked. So, if you have a team of people who are looking at this area, perhaps this is helpful, in this evidence session, to get a clearer idea of what we are after. We would be very grateful for some supplementary evidence.

Q87 Sir Peter Soulsby: Following the issue of what actually happens after these things are signed. It does occur to me that there is one outside body that does come in and look at that as part of the comprehensive performance assessment of local

authorities. To what extent have the LGA been involved in trying to ensure that local authorities' performance, either against the Declaration or more generally, on issues of climate change are a part of that comprehensive performance assessment?

Cllr Baker: Certainly one of the concerns that we have is to ensure that climate change and the environment in general is central to the performance framework that we have to report to. A concern we have had with the early rounds of local area agreements, where we felt that that was not happening. We have been working, as has the LGA overall, not simply from the Environment Board, with Government to look at a slimmed down number of targets that local councils should be reporting on, and we are concerned to ensure that climate change and any environmental issues are within that.

Cllr Newman: We certainly also have been involved in some initial discussions with the Audit Commission that this needed to be slightly more sophisticated than it was when it started. If you take something like recycling, that is a much harder to achieve target if you are talking about an inner-city area compared to perhaps a rural area, and work has been done to try and get a greater understanding of the challenges. I am using that as just one example. You cannot just have a flat national target that reflects what is happening, because you can have a local authority in a city area working very hard in terms of what it is doing in terms of recycling, but if you are collecting that recycling from 15 tower blocks that is different from what it is in a rural area. That work has been useful, but the Audit Commission and others need to do more to understand that you cannot just have some very broad targets in this area.

Q88 Sir Peter Soulsby: Seeking to ensure the inclusion of appropriate challenging targets for local authorities, is this a matter where it is for Government to put the pressure on or for the Audit Commission to be persuaded that the targets ought to be modified?

Cllr Newman: The Government have put pressure on in a sense through the landfill tax. That is a big impact on local authorities and the penalties there if recycling is not dramatically increased. The Audit Commission, I think, have a role in this, but I think local authorities also. What the LGA has been seeking to do is to ensure that local authorities working together and using best practice, through the many examples you have got there, is the preferred way forward and also local authorities perhaps increasingly working together in terms of resources. I know that in London we are looking at a number of boroughs working together to collect waste and recycling. On that area you were touching on earlier, if it is too expensive to do something across one local authority area, if you can get two or three local authorities working together, perhaps on a waste contract, you can drive down the cost of that contract and, therefore, include the collection of recycling on other things you may not previously have been able to look at. When you talk about

barriers, sometimes that requires the will not to just be in one local authority but to be in a series of neighbouring local authorities so that the political will, in every sense of the word, is there, perhaps even for local authorities of different party political persuasions to work together because they will get a better deal for people locally.

Cllr Baker: But the Local Government Association is working with Government to try and reduce the number of targets that we have to meet because, clearly, within any local authority there is a wish and a drive to ensure that they do their best to meet Government targets. What we would seek to do is to have a much smaller suite of perhaps 30 key outcomes set before us so that local councils can be much more responsive to their local communities.

Q89 Sir Peter Soulsby: Amongst those, are you pressing for there to be targets that specifically relate to the issues we are talking about today: climate change issues?

Cllr Baker: We have said that we would welcome having not just a power to ensure the environmental well-being of the area but, indeed, to take a duty, and we would like that duty also to be on those partners that we work with in our local area.

Q90 Chairman: Can I go back to something you touched on a moment ago, which was the Climate Change Fund. Are you able to give us any feedback as to the number of local authorities who have benefited from this? Was it easy to access the funding? What kind of programmes have qualified for help?

Cllr Baker: I would need to check whether I have got that information. I have got a couple of examples that I could give you, Nottinghamshire and Derbyshire, who were successful, and another London Borough not that far away from you, which was the London Borough of Bromley. It is easier for us to have information about those who were successful and what they have been proposing to do. Nottinghamshire and Derbyshire have said that they found that the process was clear and straightforward and the guidance was well thought out and comprehensive. So, although they said it was a complex bid to put together, the clarity of the guidance helped and, of course, they were successful with their bid.

Q91 Chairman: Do you have any details of what they were bidding for? What have they actually used the money for? What was the size of the grant that they got?

Cllr Baker: I do not think I have got the size of the grant. It is a communications grant for targeting householders, school children and staff from the local authorities and large companies.

Q92 Chairman: Would it put you to an enormous amount of trouble to go back to your respective authorities who have been successful and ask them—I think it would be helpful for us to know—how much money they got, what they planned to do with it and whether they are able, even at

this relatively early stage, to give any kind of commentary on successes and failure in implementing the programmes that they bid for, because it may be that some have very targeted ideas, for example, to deal with fuel deprivation, fuel poverty issues, others might have different aspirations, but it would be helpful for us to know?

Cllr Baker: Indeed. We would be very happy to gather that information for you, Chairman. Some of these schemes have not yet started. Although they have the money, they may not be starting until next year.

Q93 Chairman: So there is a delay in the money reaching them then?

Cllr Baker: There may be a delay in us being able to give you the information.

Q94 Chairman: Whilst I am on an information quest, let me pick out from the evidence that you kindly supplied one or two things. Whilst we have Chris Seaward here, perhaps in a second you could say a word or two about this Interreg European ESPACE project, because that adds a new dimension of a local authority working within a European context to find a way of funding a programme. I will come back to that, but I notice that you next mention in your evidence that Oxfordshire County Council has a programme run by contractors to provide energy education in around 55 local authority schools seeking to reduce the use of energy in schools. Again, it would be very useful to have some commentary on exactly what the contractors provided and whether, again, there is any monitoring as to how successful this type of programme had been in terms of delivering the objectives set for it. Christine Seaward, perhaps you could just say a word or two about the Hampshire experience with this European programme?

Ms Seaward: We are leading a partnership of four or five different countries, partners from different countries, Holland, Belgium, Germany and the UK, so it is countries within north-west Europe. We also have an extended partnership which goes beyond that. It is looking specifically at the adaptation issues for planning policy and we are trying to develop some outputs from the project that are going to be practical outputs. What can we do that is the right thing to do in an adaptation policy response?

Q95 Chairman: Can you give a for instance?

Ms Seaward: I can give you a for instance from the Hampshire work which is quoted in the report, and that is the work we have been doing on behaviour change. There are two main tools that we have developed as part of the project, and that is one of them, and it is looking really at the difference between communications and behaviour change and what the link is particularly with climate change. For example, there may be an assumption—I would suggest that there is an assumption—that more information equals a change of behaviour. We have unpacked those issues for our own needs and shared

those amongst the partnership, and actually that is not the case. Greater awareness does not necessarily lead to change; in fact sometimes it leads to denial.

Q96 Chairman: Have you discovered what does lead to change as a result of this work?

Ms Seaward: Yes. I think there is a package, and this is informing the way that we are developing our own climate change policy for the council. Yes, you need some awareness. We know that about 90% of people in the country are product aware; they know what climate change is. What we need to get to is a deeper level of awareness of what climate change requires us as individuals to do. That is possibly at about 15%. So, we need to find something that we can meaningfully do as individuals, not just be aware of—

Q97 Chairman: How do you define this nirvana of perfection and communication?

Ms Seaward: Well, it is actually quite simple because you have an awareness, you then need to have what they call association: you need to work with other people who share the problem that you have got, and then you need to have something meaningful that you can do together.

Q98 Chairman: Are you going to translate that very clear statement of the intertwining of the problem and the solution into a tangible programme?

Ms Seaward: Yes.

Q99 Chairman: Do you know what that programme will look like?

Ms Seaward: Yes.

Q100 Chairman: Could you tell us, share it with us?

Ms Seaward: For us at Hampshire it will be an action plan, but it will be built up from those people who are working around the county council coming together and realising they have a shared problem. So, they talk each other and develop issues around climate change that are not necessarily just environmental, perhaps they are economic or social issues.

Q101 Chairman: This is within the local authority network?

Ms Seaward: Yes, within the county council we have run a workshop for officers who are involved, and out of that we are getting together a list of meaningful actions that we can take together, and, because people are talking about it, not in theory but in practice, what will come out at the end is an action plan that people will actually do.

Q102 Chairman: But this action plan does not exist at the moment?

Ms Seaward: No.

Q103 Chairman: If you could help us perhaps to get a bit more of a practical feel of some of the issues that are being debated, that would be helpful: because, if I think if I have understood you correctly, this is a matter that is being discussed amongst

representatives of authorities, local authorities with which you deal, but it has not yet got down to the level of the citizens in Hampshire, or maybe I have misunderstood.

Ms Seaward: No, you are right. We not yet got to the level of dealing directly with citizens, although one of the models that would perhaps be helpful to explain is our sustainable schools forum.

Q104 Chairman: Yes, do tell us about that.

Ms Seaward: We are working with schools who have come forward to us (they are volunteer schools) on sustainability issues, and we have set up what is called a Sustainable Schools Forum, which then becomes a forum for them to take action either as individuals or together. They share information, they talk to each other about what has been successful, what has not been successful, and then they can go away either knowing where to get additional support to take action or with some actions that they had not even thought that they might do.

Q105 Chairman: This is designed to reduce a school's level of energy consumption?

Ms Seaward: It is. There are two elements to it. One is to look at the school itself and how it is consuming energy, and the other is to look at how the school can outreach into the community, so how they become champions for energy efficiency.

Q106 Lynne Jones: A lot of what you have just been talking about seems to replicate what the Energy Saving Trust were doing. Do you want to comment? Obviously you have got to do that at the end of the process (you have got to do the work within your organisation) but all the background sounds just to be replicating what they were talking about?

Ms Seaward: I do not work directly with the Energy Saving Trust—that is not a “get out” but it is a get out, because I do not know exactly how they work—but we are certainly looking at a slightly different model as to how to communicate with people in a meaningful way, because of the whole issue: increased awareness does not equate to action.

Q107 Lynne Jones: That is what they were talking about, and they then went on to talk about the incentive schemes. Perhaps you would like to comment on what they were talking about, the Council Tax rebate, I think, at Braintree? Does the LGA have a view on these? Are there any other incentives that you can introduce and do you need any additional powers that you think you might need to be more active in these areas?

Cllr Baker: We certainly support households getting a discount for introducing energy saving measures. We have some concerns about using the Council Tax as a way of delivering that, partly because it removes, as it were, the link between the discount and the energy issue and, perhaps, because it may blur the direct relationship between the Council Tax level and the services that the council is providing, but we will be gathering information from the councils who have chosen to take that on board to

see what lessons we can learn and how successful they feel it can be, but sometimes we do need to cover in different ways areas that other agencies such as the Energy Saving Trust were covering. For example, my own authority took a very typical home in a very typical Basingstoke street and they used it as a demonstration project to improve the energy efficiency of this individual house and got good publicity for what they had done and exactly how much it was saving before opening the house for six months as a public exhibition and encouraging people, particularly in the almost identical houses round and about, to come in and see what the changes were and how well they worked, how much it had cost and how much it was then going to save. There was no way we could afford to keep that as a permanent demonstration site, so, after the public exhibition period, the home was added to the housing association we had been working with and it simply went back into the pool of housing stock within the area.

Q108 Lynne Jones: How did you know what the impact of that was? How many people adopted the ideas?

Cllr Baker: That is difficult to measure because the uptake of additional energy saving measures are not necessarily reported to the local council. So, householders up and down the street could all have been taking many of those measures on board, or not, but not telling us. We would like to be in the loop of information, for example, for the future on home energy ratings. At the moment local councils are not seen as being bodies who would have access to that data, but for the purposes of targeting examples and encouraging people, it would be extremely helpful if we were in that, and that is something we would welcome.

Q109 Lynne Jones: Can I ask Councillor Newman about your policy on sustainable buildings' planning requirements. Why are conservation areas excluded from the requirements?

Cllr Newman: In terms of where the planning law is, which I am not an expert on, it has been introduced on new-build.

Q110 Lynne Jones: Why not in conservation areas?

Cllr Newman: You have got information that I have not got, if you are talking about Croydon, or are you talking in general terms?

Q111 Lynne Jones: It says Merton.

Cllr Newman: Yes, Merton.

Q112 Lynne Jones: "In all new industrial warehousing, office and live work units outside conservation areas"¹?

Cllr Newman: I cannot actually answer that, unless the answer is they are not putting those units in conservation areas, but that may not be the answer.

Q113 Lynne Jones: You do not know whether it is a requirement in Croydon?

Cllr Newman: No, we would need to get back to you on that. I know the requirement in Croydon is on new-build wherever it occurs.

Lynne Jones: In terms of other information, would it be possible to get more information about Kirklees Council involvement in emissions trading schemes? Also, you have mentioned the *Planning Policies for Sustainable Buildings*, if we could have a copy of that document?

Chairman: One final question from David before the bell goes.

David Lepper: The issue that Lynne has raised is one I have asked ministers on a number of occasions and am told it is something that they are looking at and hoping to make an announcement about, but when I do not know. Could we just clarify a little more the relationship between the Energy Saving Trust and its work with local authorities? They have told us that they do work with local authorities. We have heard that this afternoon from you as well, help-lines, local support teams, and so on. Is the relationship one that exists at the national level between the Energy Saving Trust and the LGA and information ideas permeate through, or is it more likely that the Energy Saving Trust will work with individual local authorities?

Chairman: You have got that question in mind. Sir Peter wants to ask another question. I am going to ask you to take them together in the remaining four minutes before the bell goes, probably at six.

Q114 Sir Peter Soulsby: I would like to come back to my earlier questions. I would just like to know, in the view of the Local Government Association, whose responsibility it is to identify good practice amongst local authorities in the field of climate change, to disseminate that good practice and to promote that good practice. Whose role is it?

Cllr Baker: It is something that the Local Government Association is certainly doing, because we do see that as a good role for us to take. I am not quite sure what you might be getting at there. As far as working with the Energy Saving Trust, yes, that can be at local council level, and the way it happens at local council level can vary in different areas. I know that is probably not as clear and helpful as you would like.

Q115 David Lepper: At national level between the Trust and your association is there any direct liaison?

Cllr Baker: Yes, we have good national liaison with the Energy Saving Trust and do a joint working programme between us.

Q116 Sir Peter Soulsby: You say that the identification, the promotion, the dissemination of good practice is something the LGA does, yet you have told us earlier on that you do not have any

¹ Ev 38, para 27.

25 October 2006 Councillor Paula Baker, Councillor Tony Newman and Ms Christine Seaward

resources dedicated to that, that it is part of other work that is done. Can you give us a flavour of precisely what is done by the LGA in the identification, the promotion and the dissemination of good practice?

Cllr Baker: The website, the planning policies, the sustainable housing, the new independent commission that we have just launched are very current, very recent examples of ways that we have been disseminating good practice to local councils.

Cllr Newman: Certainly the view of the LGA is that that is the way to go and the Audit Commission and others should be there with the stick if somebody is not doing the best practice, and getting that

information out to every local authority in the country is the way that it goes. There is a lot of good practice out there; it is about sharing it.

Chairman: On that very positive note, I will draw this session to a close with thanks to all three of you for your contribution, and thank you in advance for the further information that you are going to be kind enough to provide us with. As I said to our previous witnesses, you cannot undo that which you have said but if, in addition to the specific items that we have requested some further help with, if there is anything else you wish to send us on this subject, then we would be delighted to see it. Thank you very much for your contribution.

Supplementary memorandum submitted by the Local Government Association (CIT 01a)

Thank you for your letter dated 9 November requesting further details on a number of points raised during and after the session with the Environment, Food and Rural Affairs Select Committee on 25 October.

I am able to add further information on your specific points as follows:

1. *Background information on the development of the Nottingham Declaration and in particular the numbers of staff who worked on it, when it was established and who work on it now? What actions have councils taken since signing up to the Declaration?*

The Nottingham Declaration was instigated by Nottingham City Council in October 2000 at a Climate Change conference in the city for 200 leaders, chief executives and senior managers from local government. A voluntary pledge by councils to address the issue of climate change, it was updated and relaunched in December 2005 at a second National Councils' Climate Conference in Nottingham to spur further action by local authorities. The process of revising and re-launching the declaration was undertaken by a steering group that includes all the main national partners concerned with the different aspects of climate change as they affect local government—namely LGA, IDEa, Nottingham City Council, ICLEI (the worldwide association of local governments concerned with sustainability), the Environment Agency, the Carbon Trust, the Energy Saving Trust and the UK Climate Impacts Programme (UKCIP).

The development of the Declaration, including preparation of the online toolkit (the Nottingham Declaration Action Pack) to provide joined up resources for councils wishing to take action and promotion of a campaign to get 200 signatories by the beginning of 2007, has therefore been the result of partnership work, with the range of organisations providing resourcing, both financial and in kind. It has achieved its objectives by launching the action pack in July 2006 and by generating a large number of additional signatories. We should be in a position to celebrate 200 signatories by the end of this year (up from 100 in December 2005). Staff numbers working on the project at any one time have varied over the project phases with each organisation putting in resources as required (for example around 20 worked on the launch of the action pack). In addition to pooling staff and knowledge, partners contributed over £35,000 towards action pack and marketing costs for the relaunched Declaration.

Ministers and government departments have supported the Nottingham Declaration and welcomed its development and the partner organisations see value in continuing to focus council action through this “brand” which has high levels of recognition both within councils and more widely. The next phase is to look at targets for further signatories and to assess necessary resources for supporting council action through this process. While the partnership approach has generated the benefits of flexibility, buy-in from a range of organisations and a sense of ownership of the issue by the local government community, it is time to consider how the Declaration and its associated resources should be supported into the future. The steering group will be assessing this and how links can be made to related initiatives such as the Beacon scheme support for councils funded by Defra and DCLG, and in particular the voluntary benchmarking tool that is being developed under the Round 6 Sustainable Energy Beacon scheme to enable councils to assess their performance and progress against milestones aligned to the Nottingham Declaration.

In signing up, councils pledge to develop action plans within two years and it is expected that councils will report on progress to their local communities. The process does not currently involve reporting to any kind of central body or in-built monitoring of progress. The partners are currently focusing resources around generating buy-in from non signatory councils, providing resources for councils with a flexible set of options for development and linking a benchmarking tool for voluntary self-assessment of progress. This benchmarking tool is currently being piloted with Beacon councils and will be launched in June 2007. Many of the huge range of council actions on tackling climate change will have been generated in response to

Declaration commitments but there is no requirement for signatories to report centrally on actions, since it is expected that local reporting to their communities will be the focus for councils, who are accountable to their electorate.

In addition to voluntary approaches, DCLG made a commitment in the Local Government White Paper published in October “Strong and Prosperous Communities” to develop a new performance framework for councils with a streamlined set of performance indicators. We support the proposed inclusion of an outcome on climate change and the LGA will be working with government on developing the details of this. The inclusion of an outcome on climate change as one of a much reduced set of performance markers will focus council action and help to embed climate change as a “golden thread” across all areas of council work. The outcome will, we hope, provide an indication of progress on climate change actions which the Nottingham Declaration process can help support.

2. What kind of programmes have qualified for help from the Climate Challenge Fund? How many local authorities have benefited?

3. How much climate challenge funding did successful local authorities receive and what plans did they make for it? Are you aware of particular successes or failures for those plans?

The Climate Challenge Fund, run by Defra, invited applications from community projects using the full range of media to reach new audiences and communities. A large number of councils submitted bids and 12 were successful in bids for projects under their direct leadership, as listed at Appendix A.

The successful projects cover a range of approaches focused around communications, including one based around communicating with football fans with Ipswich Town FC, several around survey and residents’ communications work (eg London Borough of Bromley) and some around young people and schools’ work (eg Royal Borough of Kensington and Chelsea). The individual amounts for each bid varied and we do not collate records on the bid amounts since this data is held by Defra.

Most projects have been in the planning stage since learning of the success of their bids so will not yet be in a position to report successes or failures. For example the Nottinghamshire and Derbyshire LAEP project is due to be launched with a campaign of communications in January 2007, to run to the end of February 2008. The target audiences for their project are householders, school children and staff from local authorities and large companies in the two counties. The campaign will promote its messages through local radio, staff and external publications from the councils and companies, the local press and visits to urban and rural sites by the campaign vehicle.

4. Please could the committee have some more detail on the programme run by contractors to provide energy in Oxfordshire school. What did the contractors provide? What sort of monitoring is being carried out?

The Schools’ Energy Project is funded by Oxfordshire County Council and delivered in Oxfordshire LEA schools by consultants Atkins. The project has worked with around 20 schools a year over the last three years to educate the whole school about energy efficiency primarily through behaviour change. This is achieved through curriculum linked energy activities and school/community energy days as well as, since this year, aiding schools to work through the BRE run Sustainable Learning Certificate. This work has helped schools reduce their consumption by as much as 25% and has resulted in Oxfordshire providing the first two schools in the country to achieve level 2 certification. A further five schools in the county are expected to achieve this level by March 2007. The council reports that the main barriers to progress in this area is gaining enough teacher time, particularly in terms of engaging head teacher support, and in funding the project where there is no direct council control over schools’ delegated budgets. Funding at council level is also under pressure which means, despite the environmental benefits which can be translated more widely (eg in the home environment) it is difficult for the council to justify spending money on the project.

5. To what extent could council tax rebates be linked to the installation of energy saving or micro-generation technologies? Please could you provide further detail on the Braintree scheme? What other kinds of financial incentives can local authorities offer to households/what are the limits on local authority powers to offer such incentives?

Braintree council inform us that its scheme has generated an increased number of referrals for cavity wall insulation. Braintree will be continuing with the scheme, which was proposed to the council by British Gas in 2004, so long as energy supplier funding continues to be provided. An extra £50 per installation of cavity wall insulation is paid by the company and matched by the council with a contribution of £50. The scheme has generated considerable public interest and the first target of 500 properties was reached in about 18 months. Braintree considers this is due to the national publicity for a novel scheme and the link to the council tax. However they report problems such as installer problems on invoicing, surveying and installation and an increase in installation costs, as well as some conflict over the fact that only retrospective cavity wall insulation was eligible for the scheme. In the future it is proposed to extend the scheme to loft insulation and potentially to renewables.

The LGA has not specifically supported the use of council tax discounts as a route for incentivising uptake of energy efficiency measures. While we think it is helpful for councils to promote incentives, such as supplier discounts on insulation, and welcome the work of many councils in helping to market such schemes (eg through promotional material sent out with council tax bills) we identified some issues around marketing the scheme as a “council tax discount”.

One of the 34 councils currently participating in the “discount schemes” contacted the LGA stating:

“Contrary to [a recent parliamentary] written answer, South Cambridgeshire District Council is not participating in a council tax rebate scheme to promote energy efficiency. We do, however, promote the British Gas £50 cash back scheme for cavity wall insulation, in the form of a letter accompanying annual council tax bills. Under the scheme property owners that use a British Gas approved supplier to insulate their home receive £50 cash back.

Prior to participation we gave careful consideration to the ‘council tax discount’ angle that was being favoured by British Gas and concluded that we were not comfortable with the concept although we were keen to promote energy efficiency. We therefore agreed to incorporate a promotional letter with annual bills which informed residents about the availability of the scheme. The letter was carefully worded to avoid reference to council tax discounts as this was most certainly not something that the council offered. Residents taking up the offer received a cheque for £50 entirely funded by British Gas.”

In Braintree the council tax team was used to credit the account, in the second authority the council tax team had nothing to do with the scheme. A £50 cheque was raised and sent to the relevant household. It is understandable that British Gas would want to describe a loft insulation scheme which offers a reduction in a household’s council tax bill as a rebate. It is an attractive proposition but it is not a council tax rebate and should not be described as such. A gas company offers a financial reward which is paid to the householder with the local authority being the intermediary.

I should also add that a review of planning consent for certain applications has taken place which could assist in streamlining the installation of householder micro-generation equipment, but in cases where planning consent is required councils do not have the discretion to waive planning application fees which are centrally set by government.

On the question of incentives we note that Sir Michael Lyons is due to present the findings of his inquiry to Ministers later this month and we await with interest what he might have to say on this subject.

6. *Please could you provide clarification on the applicability of (Croydon’s) local authority sustainability requirements to conservation areas (Q109 re why are conservation areas excluded from the requirements?)*

Croydon Council is committed to ensuring that new development achieves high sustainability standards—for example EcoHomes Excellent (or in unusual cases EcoHomes very good) is the expected standard for new residential development and BREEAM Excellent is the standard expected for non-residential new development. Croydon Council has no specific policies which enable developments in conservation areas to evade sustainable building requirements but the council will work with developers to ensure the technologies used are the most appropriate for conservation areas.

7. *Please could you provide some more detail on the involvement of Kirklees Council in the UK Emissions Trading Scheme?*

In 2001 Kirklees council had a number of reasons for participating in the UK Emissions Trading scheme (UKETS) including:

- *Financial;* The Government released funding to assist the participating organisations over five years to reduce their climate change emissions—the council match funded government money.
- *Organisational strategy;* gains from “learning by doing” in advance of any mandatory emissions trading schemes to allow the authority to build up an expertise in an emerging market. Additionally, the scheme focused corporate attention on management of energy, resulting in an estimated saving of up to 5% of consumption over the five years through good housekeeping.
- *The Council’s reputation;* Kirklees Council has a national and international reputation as one of the lead Councils in the country on energy and environmental work. Participation in the scheme assisted maintaining its reputation as an innovative Council in a widely publicised scheme.

The Council bid 1,000tCO₂e over the five years and received an incentive payment of around £52,000.

Training and research was required including adapting the energy monitoring software used by the Council and the process of participating in the scheme was somewhat more complicated and time consuming than expected largely due to genuine difficulty in officers’ and elected members’ understanding of the concept and reasons for joining an emission trading scheme, including whether the Council had powers to act. Ongoing understanding in the Council is now slightly better however, but different problems have arisen with the provision of data from the utilities and their understanding at Utility account manager level of emission trading and the crucial pivotal role they have in the annual verification of the scheme.

The main benefit to the Council in participating in the scheme is that the council has now achieved CO₂ savings with certified evidence to support this and continued to build upon its national recognition as a lead local authority through participation in the ETS. In addition the ETS is an excellent driver and tool to implement many energy saving schemes and initiatives towards greenhouse gas reduction, including ensuring that processes are put in place to obtain more accurate and timing meter readings from the utilities.

Colleagues at Kirklees council would be happy to provide more detail on their participation in the scheme if this is required.

I hope this additional information is helpful.

Cllr Paula Baker

Deputy Chair, LGA Environment Board

December 2006

APPENDIX A

Councils successful in Climate Challenge Fund*

Defra announced the details of 53 successful projects in June 2006 and a further 28 in September 2006. These included projects involving councils in a partnership (eg Derby 7cs) and specific council led projects from:

- Bradford City Council
- Ipswich Borough Council
- Kingston-upon-Hull City Council
- London Borough of Bromley
- London Borough of Lewisham
- London Borough of Sutton
- Nottingham and Derbyshire Local Authority Energy Partnership
- Royal Borough of Kensington and Chelsea
- Somerset County Council
- Shropshire County Council
- Stoke on Trent Council
- Sunderland City Council

**Source:* Defra website www.climatechallenge.gov.uk

Local Government Association

December 2006

Wednesday 1 November 2006

Members present:

Mr Michael Jack, in the Chair

Mr David Drew
James Duddridge
Lynne Jones
David Lepper

Mrs Madeleine Moon
Sir Peter Soulsby
Mr Shailesh Vara
Mr Roger Williams

In the absence of the Chairman, Mr David Drew was called to the Chair.

Memorandum submitted by Global Action Plan (CIT 07)

EXECUTIVE SUMMARY

Global Action Plan is a charity that has 14 years of experience of encouraging people to change behaviour. The charity currently runs three distinct programmes; Environment Champions, EcoTeams and Action at School.

To date these programmes have concentrated mainly on reducing waste where they have achieved significant results. Increasingly they are now focusing on climate change. Our results to date in this area are:

- Environment Champions has influenced 54,000 employees in 62 organisations. 924 volunteer employees have measured the environmental impact of their organisation and run campaigns to create change. Through Environment Champions, 14 organisations have cut energy use by an average of 12.07%.
- Through EcoTeams, 385 volunteers have been trained to help groups of households in their community to reduce their environmental impact. In total, 4,385 people have participated. These households have reduced their electricity consumption by an average of 6.86%.
- Action at School has been run in 164 schools. 3,361 pupils have volunteered to lead the project and have helped to influence the behaviour of 138,000 pupils. Through Action at School, nine schools have reduced their energy use by an average of 12%.

Global Action Plan believes that the programmes are successful for four main reasons:

1. They use facilitated groups.
2. They use jargon-free and imaginative communication.
3. They encourage people to measure the changes that they are making and use this measurement to provide positive feedback and encouragement.
4. They recognise that encouraging behaviour change requires support over time.

If Government wishes to encourage people to change behaviour it needs to:

- Invest in behaviour change projects. Currently, large scale investment is made in awareness raising campaigns which do not contain the elements that are essential to change behaviour.
- Use periods of environmental stress such as drought, heatwaves or flooding to promote the importance of behaviour change. Global Action Plan believes it is important to use these high profile environmental problems to urge people to take practical action in social groups.
- Invest in research that explores how data can be most effectively collected from households and that measures the long-term and wider social and educational benefits of behaviour change projects. Global Action Plan has found it hard to measure these wider impacts even though anecdotal evidence suggests that they are significant.
- Incorporate behaviour change targets and initiatives into schools and other educational establishments as part of the Education for Sustainable Development Strategy.
- Provide leadership by running behaviour change projects within their central estate and to include behaviour change targets in their wider policies such as the Central Procurement Strategy.
- Illustrate the importance and impact of individual choice by phasing out environmentally damaging products such as inefficient lightbulbs and by penalising lifestyle choices that harm the environment.

1. INTRODUCTION

Global Action Plan is a charity that encourages people to change their behaviour to protect the environment. Through our activities we have discovered that:

- Behaviour change projects can achieve significant environmental savings and social benefits providing that they are carefully structured, professionally run and properly resourced.
- Collecting data and evidence from these projects is complex, fraught with uncertainty and requires resourcing.
- Government funding is usually directed to awareness raising campaigns for which little or no evidence of effectiveness is sought, rather than towards behaviour change initiatives where evidence is demanded.

2. GLOBAL ACTION PLAN AND ITS PROGRAMMES

Global Action Plan was founded in the US in 1989 and is now established in 14 countries. Based on the knowledge accumulated over this period we believe that effective behaviour change programmes need to combine:

1. Structured information provision.
2. A facilitator-led group process offering participants the chance to discuss the information presented.
3. Feedback on how the changes being made succeed in reducing environmental impacts.

Global Action Plan UK has three programmes containing these elements.

2.1 *Action at School*

Schools participating in Action at School decide which environmental issue they intend to cover such as waste, energy, water or transport. A “Lead Teacher” is selected who works with Global Action Plan to draw together an “Action Team” of roughly 20 pupils who volunteer to participate.

A Global Action Plan facilitator runs a training day with the Lead Teacher and Action Team. This training outlines issues surrounding the school’s selected environmental issue and highlights the sorts of behavioural solutions available to it. Pupils then perform an environmental audit.

Following the audit, the Action Team creates a strategy to reduce the school’s impacts. This strategy usually has two parts, the first detailing structural issues that require action and the second outlining a campaign to encourage other pupils and teachers to change their behaviour. Most schools organise a launch event at which the Action Team let the rest of the school know what is planned and why it is important to change their behaviours.

At the end of the campaign, a second audit is undertaken in which the team is able to see how their strategy has made a difference. After this audit, the students are given a certificate endorsed by UNEP. The whole process takes two or three terms.

2.2 *The Environment Champions Programme*

Environment Champions focuses on one or two areas of environmental impact, such as waste and/or energy. A team of volunteer “Environment Champions” consisting of up to about 20 employees who ideally represent all parts of the organisation and with varying degrees of seniority is established. The team is then facilitated through an initial training session in which they meet, learn the aims of the programme and carry out an initial audit of the organisation’s environmental impacts in the chosen area.

The facilitator then compiles an audit report detailing the organisation’s environmental impacts. The team is reconvened to design a strategy to reduce impacts. The strategy generally has two elements. The first establishes the structural changes required such as installing low-energy light bulbs, etc. The second involves planning a communications campaign to the rest of the employees. Campaigns have historically involved face-to-face communication, displays and events, email and intranet messages and putting up posters.

At the end of the campaign a second audit is performed and the facilitator compiles a report detailing the changes made and the environmental savings achieved. The team then meets again to celebrate their success and plan the next steps.

2.3 *The EcoTeams Programme*

EcoTeams helps households to change their environmental behaviour. Teams of six to eight people are recruited. The teams meet every month for four months. Each meeting concentrates on a different lifestyle area. The first meeting is an introductory session, the second focuses on waste and shopping, the third concentrates on energy and transport issues and the fourth looks at water and household chemicals.

In each meeting, participants are led through a series of discussions on the local and global issues surrounding each theme and discuss a number of proposed behavioural changes to address the issues. In between each meeting, participants are encouraged to record their household’s waste, recycling, electricity, gas and water usage and send the data to Global Action Plan where savings are calculated. At the end of the

programme, participants are given a report on their progress and the environmental savings their behaviour changes have achieved. They are also given the option of a “next steps” meeting to discuss their achievements and follow-up the process however they choose. The meetings are overseen by a facilitator.

3. THE EVIDENCE BASE

3.1 *Action at School*

Action at School has operated in 164 schools from across the country. In total 3,361 pupils have been facilitated through the training process, with a further 138,117 influenced by the programme. The vast majority of schools have sought to reduce their waste. This is mainly due to the availability of funding in this area. Other schools have used Action at School to reduce their energy use, water consumption and environmental impact of transport.

The waste figures illustrate the potential of Action at School for changing behaviour. On average 42.65% of waste is saved with a maximum saving of 83.00% and a minimum of 2.10%. Less data is available for the other issues covered by Action at School, however the following headline results have been achieved to date:

- For nine energy programmes an average saving of 12% was achieved with a maximum saving of 34%.
- For two transport programmes there was an average 5% increase in walking, a 5% increase in public transport use, and a 3% decrease in car use.

3.2 *Environment Champions*

A total of 62 organisations have participated, or are participating, in Environment Champions. These organisations come from across the UK, represent both businesses and local authority/civil service organisations and range in size from 22 to 6,442 employees. In total, 924 people have been through the Environment Champions process and this has impacted upon more than 54,000 people.

Through Environment Champions 51 organisations have sought to address waste issues and 29 have examined their energy use. Data was available for 14 energy programmes in which an average saving of 12.07% was achieved.

3.3 *The EcoTeams Programme*

The EcoTeams project has been taken by roughly 385 different teams, made up of around 2,300 people and thus impacting upon about 4,830 people in total. The programme has achieved average waste savings of 19.66% and an average reduction in electricity consumption by 6.86% which translates into an absolute saving of 713.85kWh per person per year. These electricity savings have not yet been seasonally adjusted by Global Action Plan but we feel that they are valid because, unlike gas, electricity is not predominantly used for heating.

4. DISCUSSION—WHY DO THE PROGRAMMES WORK?

There are four key factors contributing to the success of the programmes:

4.1 *Groups*

Perhaps the most distinctive feature is the use of groups to encourage people to make behavioural changes. In a group setting, particularly one that is supported by a facilitator, participants are encouraged to question their habits and lifestyle practices in a supportive environment with others who are going through a similar process.

Groups create a new social network for their members from which support and encouragement can be drawn. Group members feel less isolated in making changes as they can see that others are facing similar challenges and going through the same process at the same time.

Groups also help to overcome issues of “trust” in sustainable lifestyles initiatives. Rather than simply being told what to do by a distant authority, participants share thoughts and question issues with their peers, whose judgements being based on personal experience often carry more weight.

4.2 *Effective communications*

Communications are entirely tailored to the specific needs of the individual participants or to the organisation. Group discussions allow team members to understand sustainable lifestyles issues in relation to their own circumstances. In this respect, the messages could not be communicated in a more local and relevant fashion.

Global Action Plan's programmes avoid the use of jargon and break down communications into meaningful and manageable chunks as they permit participants to understand and question the messages in their own words. If any confusion does arise, a facilitator is on hand to clarify issues.

Communication is always positive and practical. Facilitators actively encourage participants and never criticise any opinions or actions that are shared. This ensures that team members do not feel guilty about their actions.

4.3 Measurement and Feedback

By measuring and experiencing at first-hand the environmental impacts their lifestyles or organisations have, team members are more easily able to understand the need for changes to be made. The measurement process acts as a continual source of motivation for the groups.

By receiving feedback on the savings they have made, participants gain a greater sense of efficacy. Alongside the other members of their team, they are able to see that individuals can make a difference if they all act together.

4.4 Process

The programmes recognise that behavioural change does not occur overnight, but requires continued support over time. By providing team members with this support throughout the duration of their programmes, Global Action Plan's facilitators ensure not only that changes occur, but that they are likely to endure.

5. GLOBAL ACTION PLAN'S CALL FOR ACTION

The evidence illustrates that substantial savings are achieved by the programmes. These behavioural changes are often to daily habits which are recognised as amongst the hardest to "unfreeze". There is a real opportunity to fight climate change by extending these types of programmes to a wider audience. In order to do this new thinking and policies are needed.

5.1 Greater investment in behaviour change projects is required

There is a disconnection between what Government and its agencies say they want to happen and what they are willing to invest in. Government seems to be comfortable making large scale investment in media advertising campaigns that are designed to increase awareness but are not willing to invest in programmes that are designed to change behaviour. There is a growing level of academic evidence that increased awareness does not translate into changes of behaviour.

If Government is serious in its desire to encourage people to change behaviour it needs to invest specifically in behaviour change programmes. This investment is essential because by their nature these programmes are time-consuming and labour-intensive.

The type of grants available has a significant impact on the environmental issues that are covered by projects. The predominance of schools concentrating on waste issues is entirely due to the level of funding available for this topic. If the Government wishes to get schools to concentrate on other issues such as energy they need to make funding available.

The longer a project runs in an area the easier it is to find people who are willing to volunteer for the programmes and even to train as facilitators. The recruitment and training of these volunteers build stronger communities and increases the impact of the programmes. Long-term funding is essential to enable the programmes to become established within the community.

5.2 Periods of environmental stress should be used to promote the importance of behaviour change

The strains that we are placing on our environment are becoming ever more apparent notably with climate change. There is a danger that coverage of these issues will make people feel that they are too large for them to personally address. Global Action Plan believes that these environmental pressures should be used to encourage people to take practical action in social groups.

This level of encouragement will help to reduce the major challenge of persuading people to participate in a project that involves them meeting with people from their community.

In addition to this overall "call for action" more sophisticated approaches are needed to encourage people to participate. These approaches need to concentrate on areas where people are already in social groups or where there is a cohesive sense of community.

5.3 More investment is needed in collecting data from behaviour change programmes

Policy makers state that they are not willing to invest in behaviour change programmes because there is insufficient evidence about their effectiveness. To secure this evidence investment is required in three distinct areas:

5.3.1 Collecting data from participants

Global Action Plan is one of the few organisations that collects hard data on the impacts of behaviour changes. In all programmes, participants are shown how to measure and record their results. Global Action Plan believes that this process is important but it does have weaknesses. These include:

- Many people do not know how to measure their electricity or gas meters or even where they are on occasion. This can lead to the wrong measurements being taken or none being received.
- The accuracy of readings vary. For example, office employees may not be able to accurately weigh the waste from all of the office's bins.
- Circumstances change between audits. For instance relatives might be visiting or businesses may change rapidly with more staff or through relocation.

More resources are required to improve this data collection—possibly through SMART metering.

5.3.2 Assessing the wider impacts of the programmes

Anecdotal evidence from all of Global Action Plan's programmes indicates that they have a wider range of benefits than just environmental savings. Due to no resources being available, Global Action Plan cannot collect and measure these wider impacts and the full benefits of the programmes are not captured.

5.3.3 Assessing the long-term impact

Dutch evidence suggests that the behavioural changes achieved by EcoTeams last for up to two years after the programme has ended. No UK based data is available to assess the longevity of the programme's impacts. Anecdotal evidence does suggest, however, that UK EcoTeams have continued to meet after the formal programme has ended. Further research is required to capture the full extent of the long-term changes of the programmes.

5.4 Behaviour change targets should be incorporated into schools and other educational establishments

Action at School demonstrates that behaviour change projects within schools have an environmental, financial and educational benefit. By incorporating behaviour change programmes into their strategic thinking DfES and DEFRA can achieve many of their stated targets.

5.5 Government should show leadership by running behaviour change programmes within their central estate and incorporate them into their wider strategies

Government has increasingly recognised the leadership role it can play in promoting sustainable development. It has set targets for making its buildings carbon neutral and has initiated a sustainable procurement strategy. These initiatives could be greatly reinforced by setting targets for running behaviour change programmes with its employees and giving Managers the space and time to implement these programmes effectively.

5.6 Government and industry should illustrate the impact of individual choice by phasing out environmentally damaging products and penalising environmentally harmful lifestyle choices

Global Action Plan believes that people will respond positively to signals from Government and industry that demonstrate the importance of buying products and making choices that do are less environmentally damaging. Phasing out inefficient lightbulbs, making people pay more tax on inefficient cars would send a clear message to consumers.

Global Action Plan

August 2006

Memorandum submitted by the Centre for Sustainable Energy (CSE) (CIT 15)

1. The Centre for Sustainable Energy (CSE) welcomes the Environment, Food and Rural Affairs Committee's focus on the role of individual and community action to secure carbon emission reductions.

2. As a Bristol-based national charity with more than 26 years' experience of developing, delivering and evaluating initiatives intended to secure household energy savings through individual and collective action, we draw on detailed understanding of what does and, more importantly, what doesn't, work in this field. This is documented in detail at <http://www.cse.org.uk/pdf/pub1038.pdf> and more widely on our website at www.cse.org.uk (see also Appendix for details about CSE). We also run the Community Action for Energy Programme for the Energy Saving Trust which engages with its 2,500 members across the UK to stimulate interest, understanding and action on sustainable energy amongst community organisations.

3. For this evidence we have focused on three particular issues in relation to stimulating individual and community action to cut carbon emissions which we believe are being overlooked or undervalued by national policy-makers and programme funders (particularly Defra and the Energy Saving Trust):

- (a) Energy education can hit home (now!). Children are a proven route to securing immediate and lasting energy-saving behaviour at home.
- (b) There is a simplistic approach to understanding individual energy consuming behaviour and what influences it. This leads to poorly structured policies and programmes and ineptly framed communications.
- (c) A lack of robust evidence to demonstrate the value of activity which supports individuals, families and communities to change behaviours. This leads to low political status for such activity and, more importantly, limited and piecemeal funding.

We address each of these below, drawing on our own experience, research activity and analysis.

ENERGY EDUCATION CAN HIT HOME (NOW!). CHILDREN ARE A PROVEN ROUTE TO SECURING IMMEDIATE AND LASTING ENERGY-SAVING BEHAVIOUR AT HOME

4. Education is often considered to be a long-term way to change attitudes, understanding and behaviour by reaching out to the "citizens of tomorrow". It is seen by, amongst others, the Energy Saving Trust and Defra as making only a "soft" contribution to sustainable energy objectives, delivering intangible benefits some time in the future. As a result it is overlooked in considering initiatives to deliver change now.

5. Our experience is that this perspective could not be further from the truth. With effective and supported curriculum-linked energy education programmes, children as young as eight or nine years old can become effective energy advisers for their own families.

6. Our Energy Matters programme was delivered to some 18,000 pupils across 500 schools between 2000 and 2003.¹ It was a programme designed to provide resources teachers wanted to use because they were curriculum linked and educationally robust and which required only limited support and input from us to help familiarise the teachers with the programme.

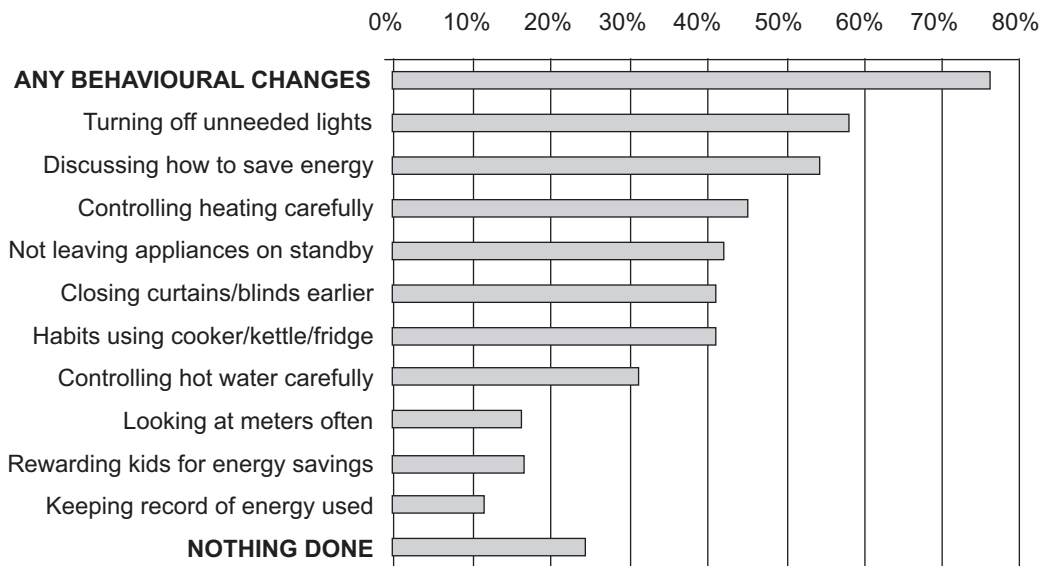
7. Independently-led evaluation of the programme in 2003 found that energy-saving behaviour improved in 76% of the families of pupils in classes where the programme was taught. In some cases, the evaluation was seeking feedback from families some two years after their child had experienced Energy Matters in class—it was clearly still resonating within the home, as the following quotes from parents demonstrate

"[Our son] was very good at explaining how energy efficiency could save us money and make our home more comfortable . . . the information he brought home was very concise and backed up. It made us think about these things."

"It's made me more aware and to think more about saving energy and the ways I can save energy. We have energy-saving light bulbs and we are replacing our radiators and we are going to put on thermostats."

8. These results are better than those achieved by professional energy advisers—and, unlike people getting professional energy advice, these pupils and their families had not chosen to participate in the programme (see <http://www.cse.org.uk/pdf/pub1025.pdf> for a summary of this evaluation). The evaluation also found impacts on school energy performance.

¹ Energy Matters resources covered Home Energy, Sustainable Energy and School Energy. Activities link to a wide range of National Curriculum subjects, including Education for Sustainable Development, Literacy, Numeracy, PSHE and Citizenship.

BEHAVIOURAL CHANGES since Energy Matters*Base: All households 140=100%*

9. This demonstrates that there is real potency in high-quality energy education as a means to influence energy-saving behaviour in the home on an extensive scale. And on that basis it should be considered alongside energy advice and energy efficiency marketing activity when considering programme and funding priorities.

10. We offer a note of caution. Such impact—and an associated impact on energy use in the school—will not be achieved without up-to-date curriculum-linked resources, training and ongoing support for teachers.

11. The success of Energy Matters and our other education programmes has been, according to the teachers delivering them, largely down to the fact that teachers felt trained and supported in the delivery of high-quality resources.

12. This impact will also not be achieved if the children are treated as the passive recipients of an energy-saving message communicated through a quick talk at an assembly or tutor group. It is not about “getting the message taken home” with children as a conduit for leaflets and information.

13. Time and again we have found that energy education is most effective (and gains most support from teachers) when it treats children as environmental decision-makers in their own right, able to assess information, weigh up evidence, draw conclusions and identify appropriate actions. That way, the children genuinely relate to the issues, build their own understanding and engage with others.

14. We also have anecdotal evidence that especially older children are the main personal energy consumers within the home. While this has not been evaluated in the same way that Energy Matters was, there is evidence from CSE’s education programmes working with older children, such as the Climate Change Challenge (see <http://www.cse.org.uk/pdf/sof1094.pdf>), that older children can achieve similarly dramatic and positive changes in their energy using behaviour.

15. The implications of this are that programme funders such as Defra, DfES and the Energy Saving Trust must recognise the immediate positive environmental benefit of energy education and reflect on the need for effective programmes to be up-to-date and supported. They should not assume that quality delivery will result simply from some generic curriculum commitment to education for sustainable development.

16. In addition, policy-makers should give cross-curricular themes like sustainable energy much stronger emphasis in the National Curriculum. They should acknowledge the potency of high quality energy education as a means to influence energy-saving behaviour in the home on an extensive scale.

17. Such education programmes should therefore be evaluated alongside energy advice and energy efficiency marketing activity when considering programme and funding priorities.

THERE IS INADEQUATE UNDERSTANDING OF WHAT DRIVES ENERGY “CONSUMERS”

18. The barriers to the take-up of energy saving measures are widely documented. But the usual analysis of these barriers simply as “market failures” or the result of “hidden costs” is crude and unhelpful; it misrepresents the perspectives of consumers and can therefore misdirect or oversimplify policy.

19. The “usual analysis” derives from an econometric model of energy consumption which assumes at its heart a single, all-encompassing (albeit failing) market for energy or energy services which is populated by a class of conscious energy consumers. This does not tally with any normal consumer’s perspective or experience, whether a domestic or commercial or public sector consumer (but particularly domestic).

20. The “normal” consumer would see—if they consciously bothered to look—that they are acting in separate and distinct markets for buildings (at the estate agents), electrical appliances (on the shop floor of Currys), light bulbs (in the aisle at Tesco), heating systems (when their boiler breaks down and they reach for Yellow Pages), patio heaters and domestic air-conditioning (in the “aspirational” section of the DIY store), gas, oil, electricity (when someone turns up on their doorstep offering a cut price deal) etc.

21. And these markets each—and separately—create their own strong influences on consumer choices (eg price and location in the housing market) which will often drown out energy-related considerations in all but the most energy-conscious consumer.

22. Nevertheless, the notion of an “energy consumer” does help to reveal the full range of activities and markets which need to be addressed to achieve the transformation to a low carbon economy (buildings, planning, energy using equipment, energy production, distribution and retail, etc). Yet policy, regulatory activity and consumer protection focus disproportionately on transactions in the gas and electricity markets.

23. The notion on an “energy consumer” also encourages lazy, self-serving language amongst policy-makers and policy-shapers (indeed, the notion of an “energy consumer” is just such an example of a concept most people would not recognise as referring to themselves!).

24. The sustainable energy sector uses its own language and forgets that the vast majority of people just don’t “get” what seems obvious to us. Or, if they do get it, they’re simply not that interested. For most people, “energy” is something you get from Mars Bars and “climate” is something that you can control in a luxury car.

25. For example, energy experts see a simple economic calculation showing that the cost of energy-saving measures is more than paid for by the money saved on fuel bills. Yet, for most householders, spending a few hundred pounds on cavity wall insulation does not seem like a high-return investment. It’s money that could otherwise be spent on a new DVD recorder, a deposit for a holiday or fixing the car. True, cavity wall insulation would save them money—but actually only the cost of half a pint of beer a week on their fuel bills.

26. So, shouldn’t we give the public more of a reason to act and create a greater sense of urgency? The response of most energy experts would be to turn to their own motivations and the underlying policy drivers—like climate change. If only we could get the public more concerned about climate change, the argument goes. Yet the surveys indicate that most people are already concerned about climate change; but they still don’t act.²

27. It doesn’t follow that just because there is a clear and concerning reason why society and policy-makers need to act (eg to curb climate change), that the same reason will necessarily also provide the motivation for individual action—particularly when that individual action involves changing basic habits, investing in largely invisible “home improvements” and engaging with an energy supplier and contractor market which has done its best through dodgy sales tactics to undermine public trust and confidence.

28. Part of the solution lies in how we try to reach people; we need to “go with the grain” of people’s lives through working with existing community organisations and networks to engage people rather than expect them to “come to us”. But it also means starting from where people are already “at” rather than trying to get them to think like us or assuming they share our motivations.

29. Focus group research we undertook for Ofgem in 2004 sheds some light on real consumer attitudes (see <http://www.cse.org.uk/pdf/pub1033.pdf>). Aside from demonstrating that energy consumption is not that big a deal for householders (and that climate change is not a strong motivator for action), it also found:

- sound knowledge of energy-saving techniques for their homes;
- deep cynicism about energy suppliers promoting energy saving (even though suppliers are now the main purveyors of energy-saving measures); and
- no awareness of the Energy Efficiency Commitment (EEC) and the energy-saving obligations it places on suppliers.

30. Householders generally don’t need more information about what to do to save energy (they already know). What they are interested in is better consumption feedback on their bills (so they can easily see the impact of their actions) and reassurance that the energy-saving deals on offer are genuine and robust. And their distrust of energy suppliers as purveyors of energy saving needs to be dispelled through direct official information and communications about the energy efficiency obligations that suppliers have to consumers.

31. However, such communications need to become more sophisticated in their appreciation of their “audience” than they have typically been to date. Rather than learn lessons from market research, social psychology and other disciplines, which reveal differences between individuals and their motivations, the

² Perhaps in the same way that smokers know it’s bad for their health but persist in smoking.

energy advice sector generally resorts to an unsophisticated “segmentation” between “fuel poor” and “able to pay” or “fuel rich”. This results in communications and programmes which treat 90% of energy consumers as the same simply because they can afford their fuel bills.

32. There needs to be a better understanding of the key drivers for people’s energy using behaviour and how it relates to their purchasing and lifestyle choices—and to understand differences which might indicate what will trigger change amongst different types of people. The new ESRC funded research programme, RESOLVE, being undertaken by the University of Surrey, may start to provide an evidence base and theoretical framework for doing this. In the mean time, we should at least apply the knowledge that already exists and give householders the information and reassurance they say they need rather the information which we think they should have.

A LACK OF ROBUST EVIDENCE LEAVES VITAL INITIATIVES UNDER-VALUED AND UNDER-FUNDED

33. A key failing of the 14 years since the Energy Saving Trust was established—and of Defra as its principal funder—is that it has not invested in establishing an academically robust body of evidence that demonstrates the energy and carbon saving benefits of providing individuals with advice, supporting community organisations, and encouraging local authorities to improve their performance.

34. Clearly, some of the energy savings which are achieved can also be seen as the result of householders “taking up” initiatives such as the Energy Efficiency Commitment (EEC), new appliance standards, better building regulations, grants for solar hot water systems etc. There is therefore a danger of “double-counting” the energy savings which may have been stimulated by advice but acted upon through EEC or another “measures delivery” policy instrument. However, this “danger” has acted as a barrier to determining clearly:

- (a) the extent to which advice and community engagement are NECESSARY components of the householder’s decision to act; and
- (b) the impact advice and community engagement has on the cost and effectiveness of the other policy instruments.

35. It seems intuitively the case that providing advice, stimulating community interest, engaging people to “switch them on” to the value of energy efficiency and/or renewable energy projects, is creating a market in which the “measures delivery” policy instruments like EEC can be more effective. But the research has not been done to a robust, peer-reviewed standard to prove this.

36. As a result of this gap in the evidence, the role of these “soft measures” are not given any credit for carbon savings. The credit is “given” to the harder measures like EEC, grants programmes, appliance standards etc. And because “soft measures” are not credited with carbon savings, they end up being the “poor relation” when it comes to funding and policy priorities since funding is now driven by simplistic considerations of the tonnes of carbon emission reductions delivered for each pound spend.

37. The likely impact of this inadequate funding for advice and community engagement is that:

- EEC and other programmes are more difficult and more expensive to achieve;
- public understanding of the rationale for action by government is weaker; and
- public engagement with the issues and the potential for action remains feeble.

38. It should be a priority to building this robust evidence base to show how important “soft measures” are and to expose the impact they have on the cost and effectiveness of other “harder” policy instruments. Only then will genuine priority be given to engaging individuals and communities in delivering a sustainable energy future as the core objective of government policy and funding.

Chief Executive
Centre for Sustainable Energy

September 2006

APPENDIX

ABOUT THE CENTRE FOR SUSTAINABLE ENERGY

The Centre for Sustainable Energy (CSE) is a charity and company limited by guarantee that started life in 1979 as the Urban Centre for Appropriate Technology. Based in Bristol, we have 34 staff and student placements and a turnover of £1.3 million earned from 60–70 projects funded variously by government agencies, local authorities, charitable foundations and private business.

Our mission as a charity is to advance sustainable energy policy and practice, engaging people and communities in meeting real needs for environmentally sound and affordable energy services. We believe this mission is best achieved through a combination of:

- innovative local energy efficiency and renewable energy projects—mainly in the Bristol and Somerset area;
- activities to empower and support effective action by others across the UK; and

- research and analysis to use our experience “on the ground” to influence policy and practice at local, regional and national level.

We focus, possibly uniquely amongst UK charities, on both the social and environmental aspects of energy. Sustainable energy is not just about cutting the pollution which damages future generations. It is also about ensuring that people today can meet their basic needs for affordable warmth.

Our local activity means we are delivering sustainable energy solutions directly to people—and it provides a “test bed” for new ideas and approaches. It also grounds in real experience our activities to support the work of others and our research and policy analysis.

Empowering others through education, training, advice and support unleashes their potential to become sustainable energy activists in their own families, communities and organisations. This extends our reach, embedding sustainable energy in the learning of thousands of school children and the work of hundreds of organisations.

We believe we must follow through our own direct experiences “on the ground” with effort to change policy and practices more widely, regionally and nationally. That way the exceptional and innovative—sustained features of our work—can transform the mainstream and make a genuinely sustainable energy future a reality.

Over the last 26 years, CSE has developed several nationally significant initiatives, many of them innovative and ahead of their time.

- We established the first phone and software-based energy efficiency advice service, which became the model for the national network of 52 Energy Efficiency Advice Centres. Our own advice centre continues to reach more than 18,000 householders in the Bristol and Somerset area each year.
- Our major energy education programmes like Energy Matters have reached tens of thousands of school children and proved that children are effective energy advisers for their families.
- CSE’s training modules have built awareness of energy issues and capacity, engaging with some 10,000 experts and non-experts over the years.
- Working with the University of Bristol, we developed the Fuel Poverty Indicator, a unique tool to enable local targeting to tackle fuel poverty and now widely used by local authorities and regional government.
- Our innovative processes for engaging stakeholders in the development of policy, strategies and action plans are securing new support for sustainable energy, and renewable energy in particular.
- CSE’s research is improving understanding of consumer experiences of energy markets and the need for stronger protection of their interests.

Centre for Sustainable Energy

September 2006

Witnesses: **Mr Trewin Restorick**, Director, Global Action Plan, and **Mr Simon Roberts**, Chief Executive, Centre for Sustainable Energy, gave evidence.

Q117 Mr Drew: I know Mr Roberts is on his way, so do not feel as though you are quite on your own, Mr Restorick. He will be with us shortly. I do not know how long he is delayed, but I gather he is in transit, and Mr Sorrell, who was going to give evidence in the second session, is not very well, so we are a bit down today. You know the tenor of the evidence that we are seeking today. Michael Jack is the Chairman. He gives his apologies. He is battling for us in a different field. To begin, I think what we would like is for you to say exactly what the Global Action Plan is in terms of the organisation and then I will go straight into some questions.

Mr Restorick: Thank you for the invitation to talk here. My name is Trewin Restorick. I am the Director of Global Action Plan. We are a charity. We were set up in this country in 1993 and we are actually part of an international organisation operating in 17 different countries. The aim of the charity when it was set up was to encourage individuals to live more sustainable lifestyles, so we concentrate specifically on helping people to reduce the amount of rubbish they throw away, to cut

energy use, to use transport more wisely, to reduce water consumption. The way we do that is that we run fairly specific programmes with different audiences. We work an awful lot with very large companies and local authorities, working with them to help their employees create environmental change in the workplace, that is companies such as Scottish Power, E.ON, Britannia Building Society, fairly large well-known organisations. We work with predominantly secondary schools, trying to involve students from all sectors of the school in change within the school and in their local community and we also work with households through a programme called eco-teams, getting groups of households together and encouraging them to promote environmental change as well. The charity is fairly small, the turn-over this year will be about 1.5 million, and we employ 45 people in the United Kingdom.

Q118 Mr Drew: That is very useful. Can we move on to look at the difference that you think you are making and the ways in which things could be

ratcheted up. What are the big changes that you see happening and what are the big changes that need to happen in this area?

Mr Restorick: I think what we have discovered through the programmes we have run is that there are certainly businesses and schools which are communities where both the business corporately and the school as an entity want to see change happen, and where those organisations give space and time to people to create the changes within the organisation, people are able to make environmental savings, typically anywhere between 10 to 15% of reduction of energy use and carbon emissions, and the changes they are making are incredibly simple changes, they are normal behaviour changes, those that we hear promoted by government on many occasions—turning things off rather than on stand-by, not leaving computer screens on, turning lights off, those simple behaviour changes—but we also see that businesses and schools also make structural changes. For example, when people measure how much energy a school is using, they suddenly realise that at night they are lighting up the entire school to run the after-school clubs because the teachers traditionally hold the after-school clubs in the classroom they are based in, whereas if they thought of it from an energy perspective, they would actually move all those into one building so they only have to heat and light one building. People are prepared and able to make changes fairly easily when they actually look at the thing from an energy and carbon perspective.

Q119 Mr Drew: Should there be a national strategy, and, if there is going to be a national strategy, who should evolve that and should that evolution include NGOs like your own NGO as part of the decision-making process, or is that something that you would be wary about getting involved with?

Mr Restorick: Personally, I think government is very willing to invest very large sums of money, it seems to us, in television awareness campaigns. The Energy Saving Trust and Carbon Trust, you see very large spends of money on programmes to promote awareness change. When you actually ask those agencies how has that actually changed behaviour, you get very a poor, if any, response at all. There seems to be a willingness to spend money to encourage people to become more aware, but that does not necessarily change behaviour, so we think that there is definitely scope to promote actual behaviour change. The question of who to do that comes down to a question of who do people trust. We are very aware that government and people are worried about the whole nanny state, the intrusion of government into people's lifestyles. When we work with businesses and households they seem quite open to listening to an environmental charity because they know we are coming with an agenda which is about environmental improvement and they seem much more receptive to the message than perhaps they would if it was a "thou shalt" campaign running down from government. We feel that NGOs

have a crucial role to play in environmental change, provided that they are backed up by structural and policy leads by government.

Q120 Mr Drew: Before I bring in Mr Lepper, may I welcome Mr Roberts. I know you were slightly delayed. It would be helpful to us if you would explain who your organisation is and then I will ask David Lepper to ask a question.

Mr Roberts: My name is Simon Roberts. I am Chief Executive of the Centre for Sustainable Energy. It is a charity company limited by guarantee. It is based in Bristol, as it has been since 1979 when it was originally formed. We have got 34 staff and student placements and we work across a range of issues delivering energy advice and projects directly to the locality in the Bristol and Somerset area. We are also working with other organisations around the country helping them apply the understanding of how to engage people with issues around energy saving and renewables. We do a lot of training of people, both council members, local authorities and other community organisations, to help stimulate their activity. We also undertake a lot of policy work and research analysis. I have just come from Ofgem, where we have recently been appointed as the external evaluator for the energy demand reduction pilot, or Smart Metering pilot, that they are just about to kick off. We have been evaluating 22 different bids from different people about how to do that.

Q121 David Lepper: I will ask something I was going to ask later on, but, in view of what Mr Restorick has just said (and you will have heard it, Mr Roberts) about media advertising campaigns run by the Government, do you feel they are actually pointless or is it a question of refocusing the spending on that kind of media campaign, or should the money, as you seemed to be suggesting, be transferred to other ways of trying to change people's behaviour?

Mr Restorick: I think we all know how limited government resources are. It is a question of where government puts its effort. From our perspective, government's efforts, we feel, should be concentrated on making it easier for people to do the right things. For example, there are 50 odd million people in this country. Campaigns to promote them to turn their televisions off rather than leave them on stand-by are fairly hard work. There are probably about eight or nine manufacturers of television sets. Government efforts could better be directed to encouraging those television companies, or forcing those television companies, not to have that wasteful facility there in the first place. We would like to see a government effort in that direction, but there is definitely a role. You cannot legislate on people's lifestyles on all the aspects of where their lifestyles impact upon climate change, you have to win their hearts and minds, and I really do not think government media campaigns or even government "Thou shalt do this or do that" will work in encouraging people to change their behaviour. I am not aware of any successful government behaviour

1 November 2006 Mr Trewin Restorick and Mr Simon Roberts

change initiative which has not been based on a fear: "If you do not put your seatbelts on this will happen. If you do not do that, this will happen."

Q122 David Lepper: Can I ask if Mr Roberts agrees with that?

Mr Roberts: I do. What tends to happen is that they end up spending a small amount of money buying rather cheap TV slots, which generally means not a lot of people see them but at least they can turn up on a reel for the minister to look at. I think there is a sense of wanting to be seen to be doing something rather than actually doing something which is controlled; thoughtful interventions to stimulate a change in people's behaviours and attitudes. I think there is an assumption that you achieve that through advertising, and so they put some money into it, and then very little assessment of whether that has actually been achieved from the advertising that has been done, which is what Trewin was saying as I was coming in. In relation to that as well, bearing in mind how little they actually spend, the likelihood of it really having an impact is very limited and the messages they tend to put across are ill-thought through. I think would be the best way to describe them. Take the latest one that is coming out about "Save your 20%": for most adults in this country the idea of percentages sends them into a cold shiver, because they remember them from school, they cannot quite work out what it was and most people do not have a very good sense of what 20% is, so there is an immediate turn-off effect in relation to that, and I do not think there has been enough thought about what you are trying to tap into and how you stimulate change in behaviour and attitude. As Trewin said, there is a lot of evidence around that working through communities with the grain of people's lives, with existing communication structures that they trust and believe in rather than waiting to come up on television. Most people these days, with 38 channels, or whatever it is, to choose from, are very adept at avoiding advertising and particularly adept at avoiding government advertising.

Q123 Mr Drew: Mr Roberts, you have just come from Ofgem, as you say. In your critique, you were not really that well disposed towards some aspects of the Government's approach to this area, particularly what you see as an obsession with the gas and electricity industries. Would you like to just explain why you think the Government is wrong in this particular approach that it takes and what you would prefer to see instead?

Mr Roberts: I do not think it is a problem having an obsession with the gas and electricity industry. Maybe what they are obsessing about in the gas and electricity industry is the way they have structured, for example, the role of the regulator, where they have introduced a sustainable development duty. They have introduced a need to protect the interests of consumers but actually have not defined what those interests are. If you ask most consumers, they would have a significant interest in the protection of the environment, in the provision of affordable

warmth for the population, and so forth. I do not think it is a problem that they are looking at the electricity and gas market. I think what we have been saying in our evidence is that the focus on energy supply only captures a very small aspect of what it is that creates energy demand and creates carbon emissions in this country. You have got the built infrastructure, the appliances we are all using and the behaviour of the people who are using them to factor in as well. Yet, we have got a regulatory structure and a governmental, departmental structure which tends to focus very much on the regulation of markets for electricity and gas. And, as anyone sitting in front of you will say, it is the old adage: people do not want electricity and gas, they want the services that can be provided by feeding them through those very appliances and heating systems and built infrastructure. What I would say in relation to the regulatory focus, it historically, and I think still, has a tendency to focus on consumer interests as defined by the price they pay and as defined by the ease with which they can switch supplier, and I think those are minor concerns, the second in particular being a relatively minor concern for most households because half of them have not switched at all, and the first of which is a concern but there is only a limited amount of impact that the regulator seems to be able to have over that anyway. I think giving them a much wider brief, defining sustainable development more clearly for them, defining consumer interests in relation to sustainable development, what it means to protect the future consumer's interest, for example, to include very much more strongly a push on reducing carbon emissions, for example, would make a lot of sense. I do not think it is new legislation, I just think within the environmental and social guidance they [the Government] could provide much clearer guidance of what they mean by "consumer interests". It is the Government's role to do that, I think, not necessarily the regulators.

Q124 Mr Drew: Clarify in my mind at least, are you seeking use of market-based solutions but, obviously, looking across the terrain believing that government is, as you say, too interested in the regulatory process with gas and electricity, or do you see a role for direct government intervention in terms of at least some rationing of those resources.

Mr Roberts: I do not think there is a market in this country that is not regulated in some way by government. It is just a question of where you decide to draw the ring round it. Market mechanisms have their role, but I think there is too little attention to the potential to regulate inefficient appliances and wasteful appliances out of the market. We spent a lot of time regulating dangerous items out of the market. I cannot buy a television without a plug on it, even though I know how to wire a plug, but I can buy one which has a stand-by consumption which is 40% of its on-consumption. It seems to me that the fact that you have to leave it to the market in one case but we regulate very carefully on health and safety in another is something which needs to change. If you start to look at the latest findings in

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relation to climate change, it is probably the most serious health and safety issue we have got facing us and it would be nice to see some of the attention that has gone into regulating dangerous products out of the market in other fields to come into the appliance market and really force out things. We are about to introduce a ban on smoking in pubs. More or less every pub in the country, I suspect, is about to buy a whole series of patio heaters to heat the outside so that smokers can carry on smoking outside. We should be acting now; otherwise something which has a very positive public health benefit will end up with an unintended, potentially quite negative environmental benefit. We have a market in electricity and gas, so we 'leave it to the market' without actually recognising all these other tools and levers that Government has got. I think that was the Chief Executive of the National Consumer Council who said of climate change that this is a significant problem, and we should throw the kitchen sink at it and use every single policy tool and lever we have got. In some cases you regulate, you provide a market mechanism within that regulation and you ban the most inefficient products in the first place.

Q125 Mrs Moon: How you do all of this without impacting on those who are the most vulnerable is one of the things that concerns me. Those who are buying a new television set, if you had your mechanism that stopped it having a stand-by, you could get to those, but the majority of people would still have their television set with a stand-by capacity, and you have to reach them too, you have to get across to them. I know when I talk to school kids and I suggest that one of the things they can do is, the next time they need to pop into town to do something, they can ask mum and dad not to take them in the car, they react with absolute horror. One of the things that I think Global Action Plan has suggested is that we use some of the major incidents that happen, some of the major droughts and storms and hurricane weather and floods, whatever, to get the message across. Equally, others are saying, "Hang on, that is alarmist and it leaves people feeling disempowered. In the face of flood, what does my turning the light off mean? In the face of a drought, what is the point?" What evidence is there for your argument that the alarmist approach will actually get across to people? I remember, I am old enough to remember sadly, the AIDS advertising. Do you remember the big black monolith that was going to fall on you if you did not use a condom? It worked for a very short period and then it went out of people's heads. What way can we do it?

Mr Restorick: It is probably the way our evidence is written, but we were trying to suggest the opposite. I am very concerned about the way the whole debate on climate change is being framed at the moment. We have seen unprecedented media coverage, the majority of which shows you melting ice-caps and disaster all around. For the average person, that just overwhelms them. The production of the Stern Report was surrounded by a plethora of new stories about green taxes. So, for the average punter out there, on the one hand they are seeing world disaster

and on the other hand they are seeing, "And the way we get out of it is we are going to charge you taxes for things we are not taxing you at the moment"—two messages which are going to put everybody off. If you are talking about any sort of process to get people engaged, that is the total opposite. What we were trying to say, though, is that those major disasters such as flooding and drought, et cetera, are in the news all the time and actually what you need to do is to give people some hope and a route from seeing that happen through to something practical and positive. What we were trying to suggest is that if the Government, for example, were to say, "We have hundreds of thousands of employees. We are going to run behaviour change initiatives within our government departments. We are going to insist as part of curriculum activities that schools have a process of engaging with their students in change", so that those structures are there, so that when there is a disaster or when there is a problem, you can say, "This is why you should be getting involved in your local community initiative", or, "This is why in your Women's Institute group you should be addressing these issues. These are the things you can do and here is the route to help you do that", so that people do not feel disempowered and turned off from all those things that you mention. My fear at the moment is that people increasingly are going to be disengaged. We were saying in our evidence that you need to be aware that that is what is happening and think about ways that you can break down that disconnect between global problems and what you can do as a person.

Q126 Mrs Moon: Yet, at the same time, the minute government suggests it might do something like that (and I think of the example of the story that went out that there were going to be additional taxes depending on how much rubbish you had in your bin), you then get the horror stories, you get the allegations of "nanny state" and you get, "It is all a con anyway." How do we get that balance? Last night a colleague was telling me of a primary school in her constituency where the pupils were desperate to recycle paper in the school and also the plastic drinks bottles that they have on their desks, but the local authority will not collect them, they will not recycle them. I have got publicans in my constituency who are desperate to recycle their bottles from their pubs, but there is a charge from the local authority to recycle their bottles, whereas, as a council taxpayer, I get mine taken away for free. They also pay council tax, but they are expected to pay to have their bottles taken away. It is that joined up thinking that we seem to be unable to reach. How can you help us get there?

Mr Restorick: I think there are two elements to that question. The first one is the "nanny state, Government interfering in my life" question. I would answer that by putting an alternative approach to you. Say there is this global disaster and the Government, instead of spending 10 million pounds on X advertising campaign, has actually said to, say, the Women's Institute groups who we are working with at the moment, "There is £10,000 for

you to invest in your groups to address these issues.” So, the advertising campaign says, “If you are a member of the Women’s Institute, use this money to create a group locally to address that issue positively.” That is the way that government can help people to create change. In terms of your second issue, that is the question about what is government’s role in ensuring that they make it as easy as possible for people to do the right things, you picked up the issue of schools. The legislation on schools is ridiculous in that some local authorities treat schools as businesses, others treat them as households. That is one small example. I could list about 60 or 70 examples where there are anomalies in the way that policy has been set out which actually makes it very, very difficult for people to do the right things, and, when you make it difficult for people to do the right things, they eventually give up.

Mrs Moon: Chairman, would you authorise us to have sight of some of those 60 or 70 examples?

Q127 Mr Drew: It would be very useful to see that. In passing, I went to an event last night and was talking to a representative of the waste industry, and this was a gentleman who is French but who works both in France and in this country. Madeleine was there as well. He made the observation that in France he knows what will be collected, wherever he is, which plastics are recyclable. In this country, wherever he goes, there is a different level of consistency, sometimes it is collected sometimes it is not, sometimes this is collected sometimes not. Why is that?

Mr Restorick: Exactly.

Q128 Mr Drew: You say it is the case, is it the British psyche?

Mr Restorick: No, it is in the way that different local authorities have decided to introduce facilities in the area. Some have been doing this for years and years, have incredibly advanced systems, have good deals with their waste contractors, have excellent systems in place. Others are Johnny come Latelys and they are scrabbling around. It is not just that there are differences between different local authorities, but they have different legislation for homes and schools and businesses, so even in one place you do not know what you should be putting into what container. There is inconsistency even within a locality, but it is the way that the responsibility for that has been passed down totally to the local authorities, and each local authority has put different energies and different interpretations into what they think should be happening.

Mr Roberts: Can I comment on this point about how we get the message across. I think we are in a very difficult situation. I think there has been a failure so far to find the right formulation of the way to express this issue to people so they can understand what it is we are trying to deal with. We have been starting to get to it in the sense of an increasing emphasis from government on the need for everyone to act, a sense of collective endeavour. This has been increasing though it tends to be talked to in terms of every individual must act rather than communities must

act together and thinking about ways in which you can stimulate that, such as the initiative we run called Community Action for Energy. That is on the one side. But I also have a sense that in order to do that you have got to frame it in a certain way rather than it feeling like we are all on the Titanic, which is how it presents. As Trewin was mentioning earlier, the kind of doom and gloom mongers (someone described them recently as the climate pornographers), the kind of awful picture we are going to have of this world that is not worth living in. The danger of that is, if you think you are on the Titanic, you have got two options: go to the life rafts or go to the bar, and an awful lot of people would choose to go to the bar because you might as well enjoy it while you can because, it does not matter what we do, there are not enough life rafts anyway. That is how a lot of that image comes across. I think it would be time well spent to think about how to formulate the importance and value of collective action, because if individuals are asked whether their actions make any difference, they say, “No.” They are actually right; an individual’s action makes almost no difference at all. It is only when it is combined with others—which is better when it is within a community setting because then they understand other people are doing it—that it does make any difference. So, people are right to think that changing their light bulb to a compact florescent will not stop Bangladesh from getting inundated—that is a correct decision—but if everyone was doing it, it starts to have an effect. On the one side we need to get across how that collective endeavour makes a contribution to a global problem, but the other side you get is, “But we cannot act unless everyone acts. We have got to have China and India coming on board”, and that is one of the main spin problems I had with the Stern Report on Monday. Whilst it is a fantastic bit of work, it also carried a symbol, “We have all got to be acting”, which immediately undermined any sense it is worth us doing anything in the meantime. I think we have got to find a formulation which allows us to get the sense of why it is important for the UK to act, why within that the UK needs individuals acting collectively and everyone taking their responsibility from regional government, local government down to individuals and communities, and why it is important for the UK to act within a global setting where we have got to set the pace for everyone else to come along and where potentially we can gain some benefit from doing that by being in the lead. At the moment it is bit all over the place and, depending on whose report comes out, it goes one way or the other. The politicians, the leadership, which we fail to see quite often because people flip as soon as they get some negative publicity about doing this, that or the other, they go, “Well, when we said that we did not think we would. We would not ban patio heaters. Why would we want to do that?” You need to see a bit of leadership and see past the Daily Mail headlines into something which is actually about providing real people with some guidance and leadership in how they need to be taking their lives forward in what is going to be a very different world. I was talking to

someone the other day after the Stern Report came out. In effect, we are in a situation here where the burglar is already in the house. The choice we have got is whether they just nick the TV or wreck the whole place. That is the kind of scale of choice we have got now. We have got problems already. That image alone starts to make you think, "We should get the burglar out of the house", or, "We cannot do anything about it, we should just give up." We have got to find a formulation with government, other agencies like Global Action Plan, like CSE and others, spending a bit of time thinking about how you get that across, how you formulate it, how you spin the words and make the stories work as each report comes out, each finding comes out, so that it reinforces that sense of collective endeavour, reinforces the need for UK leadership for real reasons rather than just for political, vanity reasons is all going to be important. I do not think we have got there yet and I think government would do well to spend some time thinking that through and standing a little aside from their own egos and views in relation to this to try and come up with a formulation which sustains, irrespective of who is there, who is making the speech, who is carrying the message, because it is something that goes beyond individual politicians or individual parties.

Q129 Sir Peter Soulsby: I think that has been very interesting in terms of discussion, given what the messages are and the impact that they have. Can I ask you about some of the measures that might be necessary to make some of the really big changes in people's behaviour, to really get people prepared to abandon the car and use public transport or to invest in microgeneration in their property or make some other big-scale investment in energy saving in their property. What is needed in terms of government action or government policy change in order to bring about those big changes? Is it predominantly changes in the tax regime, public standards, bans? What is needed in order to bring about those big changes?

Mr Roberts: I come back to my throwing the kitchen sink at it. I am not sure it is big changes, I think it is an awful lot of small changes, and that is part of the problem that we have. Actually seeing individual things going on, the little bits of change, it is not a question of not ever driving your car again, it might be a question of taking 30%, 40% fewer trips by car in a week, or something like that, and there are a number of schemes around, the kind of work that Trewin's organisation does, the kind of work we have been doing as well, where you actually work with people, engage with community organisations and so forth, to get them to set their own goals for what they are going to achieve and work with each other to see how they can learn from each other, gain from each other's experience and take forward different things, but also to give people a range of choices. We might talk about vulnerable rural households, for example, where reliance on a car is very different from what it might be in an urban setting. You have to tailor it, which means that you have to get it down to the local community level. But

I do think we need something where the Government sees its responsibility and acts upon it to provide for taking action to be as straightforward as possible. Asking people to make choices in showrooms about how energy-efficient the appliances they are going to buy are seems to be a rather wasteful way to do it when there are two of us saying you can get the manufacturers to do it in the factory. You have got six energy suppliers who have already transformed the energy insulation market in this country through the Energy Efficiency Commitment, but we have a government that seems rather feeble in terms of the kind of targets it is setting in relation to the Energy Efficiency Commitment such that 60% of the second round of the Energy Efficiency Commitment, which was going to be a three-year programme, was achieved in the first year. So, somewhere they got the numbers wrong in terms of how far you could push it, how much you could do. You have got to put in place a whole range of different areas to make it as easy as possible for people to take this action. But I think that when it comes down to it, unless you, in effect, engage those people with the grain of their lives, through schools, through community organisations, through the places where they are already having conversations with each other, then you are not going to get those kinds of changes, and you need to have resource going into stimulating that kind of activity, soft resources I am going to call it, people actually going out and having those conversations, kicking those conversations off.

Mr Restorick: From our perspective people are massively confused. They know that their lifestyle has some impact on carbon emissions and they know that they should be trying to reduce those carbon emissions, but where do they put their emphasis? You see stories about wind turbines, stories about solar panels, and people are baffled and there is a plethora of government agencies out there offering advice, there is a plethora of local authorities, there is a plethora of NGOs offering advice. Is there any consistency? No. What we have found is that when you go into a household and do a full carbon audit on the household and you say to the household, "Your household produces eight tonnes of carbon, you produce three tonnes through your heating and these are the four things you could do to cut your heating. If you invested in this renewable technology, which is the right one for your area, it would cost you this much and you would get the money back at this point", if people had that simple, tailored advice, one piece of trusted, audited information on their homes, then they are likely to take action. We have done these audits for journalists all over the place and they are shocked when they find out. To give one example, we went to one home and they had energy efficient light bulbs everywhere. They thought they were the greenest house in the country, I think. For some bizarre reason, they left the immersion heater on all the time because they thought it used more energy than if they turned it on and off. Actually they were using more carbon than a typical household, but they thought they were doing the right thing. They had no

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idea at all, and it was only when we went in and said, “We are going to audit your carbon and go through your lifestyle choices”, that they actually clicked. All they had to do was switch one switch and then they did become an incredibly green house. Legislation, government advertising, whatever, would not have got that piece of information across to those people.

Q130 Sir Peter Soulsby: That is fascinating, because I am sure that description of people’s confusion is pretty accurate. What can the Government do to bring some more clarity into this and to make it easier for people to understand what really works and what really is worth doing?

Mr Roberts: To start off they could fund the provision of advice better. We scramble around for funding for our energy advice service. We get some of it from the Energy Saving Trust, we get some of it from some local authorities, we piece together a mosaic of funding for other schemes to operate in the locality, but none of it pays to develop the kind of relationship you need to have with the householder to give them some information, give them a bit of advice, maybe visit their home if they need it, but then follow it up. It is all a kind of one-night-stand type of activity at the moment. You need to develop long-term relationships to get these things working because you are talking about changing people’s habits, not simply making them do one thing and then forget about it again. I think there is a major issue around the level of funding being provided and the expectation created through those funding streams of what the funding is for, which is effectively to give some advice out and let it go. As we said in our evidence, the fact that as yet we do not have a robust set of evidence carefully researched, robust academic evidence of the impact of that kind of soft activity on carbon emissions, means that the officials find it much harder to justify funding for it compared with something hard. We have seen the Low Carbon Buildings Programme, a grant programme for grants for micro-renewables in people’s homes and community buildings. It is entirely capital grant, there is no spend for advice to go alongside it, and yet most of those people will be doing things which are probably not most suitable for them and where they would actually benefit significantly from having someone out there in their communities or working with their communities to stimulate better understanding and potentially organise more community based initiatives so that you get costs down, share experience, build supplier bases on a more localised basis and make sure you have got high quality installations and high quality utilisation of those installations once they are. At the moment we focus only on giving grants out, or measly funding for the provision of advice and the soft community initiative engagement type of activities, which, I think, when it comes to it, is actually where most of this stuff will get driven from.

Mr Restorick: Can I add two quick things on that. The first thing is it is not necessarily about more money. If you look at the whole plethora of advice available to households, you have got things like the WRAP scheme where local authorities are bidding

to have door knockers go and knock on doors and talk to households about their waste. If you talk to the water companies, a lot of the water companies are investing in people to go out and talk about using water better. The poor householder is getting four knocks on the door from different agencies saying, “Have you thought about this, have you thought about that.” They must be completely confused. Why can we not just pool all that resource and say, “Here is somebody who can talk to you about how you can make your home more comfortable, do less damage to the environment”? It may well be that waste is a minor part of their issue and it could be energy that is really important to them, rather than these different agencies. Just to back up Simon’s point about the fact that there is a total lack of evidence to support this, that is completely true in this country.

Q131 Sir Peter Soulsby: I wonder about the role of utilities here and whether you are able to suggest whether there are ways in which regulations can be designed to encourage energy services rather than energy supply. Is there something specific there that the Government can do?

Mr Roberts: I think the Energy Efficiency Commitment is having an interesting effect on energy suppliers. I think it could be tightened up a lot and pushed a lot harder. I think the Holy Grail, as I described it recently, of energy services is something else. The issue is how you get households to think about the whole life cost of their energy use and the energy service they want, and I am not sure that one can move very fast from a point where, effectively, you have got energy companies selling a commodity to a point where they are genuine energy services companies. I think there are an awful lot of steps in between, and I think the next stage will be to give the Energy Efficiency Commitment a significant ratchet up so that they have to start thinking about how their business model works in a world where demand is starting to reduce and, rather than tell them that is what they have got to do, create a situation where that is what is going on by simply pushing harder and harder on the number of energy efficiency measures they have got to install. Then they will start to be looking much more carefully, as one or two of them already are, at how their business starts to look. Maybe they should be starting to make more profit out of the energy efficiency activity to make up for the profit they are losing on the reduced sales, but at the moment we have not got there yet. I think we have seen a couple of times with the Energy Efficiency Commitment, “protest” would be strong a word, but the bleating of the energy supply companies, and “it is all very difficult getting people to take this stuff up—we really should not have too high targets”—and when it comes to it they find it incredibly easy to meet their targets. They cut programmes at one week’s notice, we found in the Avon area, simply because they have already made targets and do not need to carry them on. And that contrast in what they are saying on the one hand and what seems to be going on in practice on the

other needs to be addressed by basically tightening the ratchet much harder and starting to change the world in which they operate.

Q132 Lynne Jones: My point is on the energy services model too, because in reality, if people are going to greatly improve the energy efficiency of their home or the use of low carbon fuels, then it will require quite substantial investment, and, unless that money is going to come from the Government, we need to find a mechanism that will enable people to afford that investment. Of course, the energy services model would allow that to take place because people will be charged, basically, on their fuel bill. They will be charged a higher price for their fuel as a means of paying off in instalments the energy efficiency installations. That is what they are doing in California, both in terms of, say, photovoltaic installation on a street by street basis in low-income household areas and also in businesses. Is that a model we could adopt here? We heard last week from the Energy Saving Trust that, because of our competitive supply market, it is not feasible. Is it something we should abandon, or should we try and go down that route, which would mean that customers would be tied into a particular supplier until, in effect, they had paid off the cost of their installations?

Mr Roberts: I think the neat little financial model that justifies the ESCO approach is not quite as tidy in practice. You have to factor in the cost of the capital to the investor, i.e. the energy supply company, and then suddenly the costs that they need to pass on maybe do not make it look quite so interesting to householders. You can overstate the amount of money that people need to spend to get the first 30 to 40% savings from their home. Cavity wall insulation—most people would not bother borrowing the money, because it is £200, £250 quid. They would pay for it on a credit card. They can get it from their energy supplier.

Q133 Lynne Jones: A lot of houses do not have cavity wall insulation?

Mr Roberts: In the South West, for example, we have done some analysis for the Regional Assembly and Government Office of the English House Condition Survey data for the South West. Forty-three per cent of the houses in the South West, which is an area with a lot of solid walls and rural properties, 43% of the properties in the South West households have cavities that have not been filled. That is getting on for half of the properties have cavities that could be filled. So, yes, there is a cohort of housing which is solid wall, difficult to deal with and where the focus may be on the heating system, the appliances and the lighting system, which is increasing the bulk of what people are spending their time on and buying and where the demand increase is coming from, but we should be getting on and doing those simple things. I do not believe you need an ESCO model to do that. The fact we have a competitive market, you would have thought, would mean that those companies would be very interested in it if they felt there was actually a market for it, and

the fact that they have not, I think, should tell us something. I do not think most households would buy it. I do not have a vehicle maintenance service contract. I have a car and I have to take it to a garage when I want it fixed, no-one provides me with mobility services, and I think we take the same approach to energy services. For us, as energy people, if we think about it, we might put it all in the same part of our brain. For most people they have a house, they have the DIY they do on the house and then they have a builder who comes and does it properly. They have appliances that they buy in B&Q, in Tesco or in Comet or wherever. They then have little things—disposable light bulbs. They are all separate aspects. What we are saying to people is we are going to treat all those as one part, the same part of your brain, and all your behaviour and the way you manage your heating system, we are going to say you should give all that over to one company. It feels to me like it is an idea too far, bearing in mind where we are at the moment. I can see in 30 years' time that might be how the whole thing operates, but at the moment we cannot even get it going in business where there are not those kinds of constraints, so I think there is a basic thing about whether that is the right model. I think we should be looking much more at how you stimulate better understanding amongst householders, make them more aware of the fact that energy suppliers are offering you cavity wall insulation at a discounted rate, not because there is a catch, but because they have been told by government to do it, which most people do not understand. They think, "Why on earth am I being offered this at £150, I thought it cost £1,500 and these energy suppliers are offering it to me, so they are cutting their nose to spite their face—there must be a catch!" They need to understand that better and they need better advice and guidance on an on-going basis, which, as Trewin has been saying, is best provided through the kind of relationships they have already got in their communities through organisations working at the ground level building up that support and understanding there. I do not think we need to hold on to this idea that it will only work if we can get ESCOs working.

Q134 Lynne Jones: It is not just advice and guidance. Most people want somebody to do it for them. They do not want the hassle of working out what they should get, what is the best buy and who is going to do it for them. That end of it also needs to be in the package.

Mr Roberts: I think you can do it. Here is an insulation contractor who is well tried and tested, and the energy suppliers in a way have that potential to provide that service and actually have done that in the way they have managed EEC. Their focus on customer service has, I think, really brought up the quality of customer service within the insulation market over the last five years or so as the Energy Efficiency Commitment has moved through, because they are bothered, and they are going to get the complaints, and insulation is the kind of "hairy arsed" end of the building trade. It is not high-skilled work. It is not turning up every day, you are only

going in for a morning maybe, so your concern about that consumer is very limited. Most of the work is being done on grants, so the consumer is not necessarily even paying for it. What the insulation industry has had to do as a result of EEC is up its standards of customer care, so you have got something now which does feel like that. It is just that most people do not understand why the energy suppliers are offering it to them and they do not trust them as purveyors of energy saving. That is very simple to address. Let us just have clear information provided by the suppliers and the Government that the energy suppliers have targets to meet in terms of insulation, that is why they are offering it to you, and that is why you can trust them. They will make sure, because of their need to maintain that customer relationship, that you will get a decent job done.

Mr Drew: I am going to ask Roger Williams to ask a bit more about independent advice.

Q135 Mr Williams: We are talking about, either by regulation or by encouragement, limiting people's, whether individuals or families, right to order their lives in the way they want to because we believe that the situation we face is so serious. You have been talking about energy supplies. The real problem, though, is that the customers do not seem to have trust in energy suppliers. They might have trust in NGOs and charities and various organisations, and yet actually suppliers are the people who engage most often with these individuals and families either through their bill or through other things. What can be done to build up trust, and trust is what is needed, between the consumer and the energy supplier?

Mr Restorick: I think it is about transparency about why they are doing what they are doing. I should think most people in the UK have got no idea about the Energy Efficiency Commitment, they have got no idea there is this requirement of energy companies to do what they are doing, and, therefore, as Simon said, they mistrust the message. I think there is a real opportunity. I thought there was an interesting statement in the Energy White Paper about the idea of having carbon trading between the utilities. That to me seems a fantastic way to use the competitive market that we have got to gradually ratchet up the cost of carbon and limit the amount of carbon that the companies can have per customer, and then you actually get trading between the energy companies, so it is actually in their real interests to push efficiency and it becomes a competitive advantage for them to do it. That to me seems to be using the market mechanism in a really constructive way to get the message across, and, if you link that market driver with a transparency so people know that if electricity companies are selling energy efficiency it is because they are trying make more money or they have to because otherwise they are going to have to spend more money, they will understand why they are doing it. Then, all this sort of mistrust which floats around all the utilities, you can see it with the water companies and metering, people are incredibly sceptical: "You are just going to stick a meter in and then you will ratchet up the cost", and the same thing is true for the electricity

companies. You need that transparency, but I think there is a mechanism there that could force rapid change in the energy utility side.

Q136 Mr Williams: Do you think that customers and consumers understand the obligations that energy suppliers have in this field and could there be a way of making that more transparent? Would that help improve the trust situation?

Mr Restorick: No and yes.

Mr Roberts: We did work for Ofgem a few years back looking at improving customer feedback on bills, which in theory is coming, according to the Energy Review. I am awaiting no doubt the three levels of consultation we will go through before we have it. But what we found in the focus groups was that no-one at all in any of the groups (and we ran seven round the country) had any idea that energy suppliers were told they had to do this, in effect, and, when they were told, they said, "Oh, that explains it. I will check out the little envelope stuff that is in with my bill next time", and I think that tells a huge story. I have yet to hear a government minister making noise about what they are doing on climate change saying, "And we have told the energy companies they have got to do this." There is a sense of big business-type partnership with government that somehow we have all got to be quiet about it and let them pretend they are doing it out of the goodness of their heart or some corporate social responsibility doctrine, whereas actually they are doing it because otherwise they are going to get fined 10% of their turnover if they fail to meet their targets. Government does not have to say they are doing it because otherwise they are going to fine them heavily, they just need to say they have set obligations on them so that they are part of the solution as well. I do not hear that. I hear government saying, "We are doing everything we can. Can we have individuals helping too, please", because somehow in the past individuals did not need to help, but when the Climate Change Programme Review came out that was very much the attitude that you got from government, the sentiment that was expressed, and I think they need to be much clearer about what they have done, how they have aligned other aspects of the economy like the energy market with carbon emission reduction so that people can see what their efforts do and how their actions fit in with what else is being proposed. At the moment they cannot and so they just see themselves acting in isolation without having an impact.

Mr Restorick: There was research that was done comparing residents' behaviour in Eindhoven and Nottingham, two very socially economically similar cities. The people in the Netherlands were prepared to take more environmental action than the people in Nottingham were, and when asked why, one of the predominant factors was that people in the Netherlands felt that they were part of what the researchers called a social contract, which was, "We understand we as residents being asked to do this and we know that business is doing this and local government is doing this and national government is

doing this.” In other words, “We are part of a bigger picture.” When residents in Nottingham were asked the same question, it was just after water privatisation, their response was, “Why on earth should I save water; it is just making X and X fat-cats even fatter”, and the whole social contract did not exist, and it was a massive difference between the two cities.

Q137 Mr Williams: The Energy Retail Association say they would welcome NGOs taking a lead in working with energy suppliers in trying to break down these barriers and make the market work better. Is that a role that you would relish?

Mr Restorick: As a humble NGO, you have to be aware of the constraints that we operate within. Government funding for NGOs on energy is minimal. There is the climate change initiative, which was this year. That is the only specific fund for NGOs to do any work on climate change. There is no other fund. There is one other fund called the Environmental Action Fund from Defra which partly touches on energy, but we have no other access to funding. Simon and I, running two very similar NGOs, have to operate as basically small business people as well as charities. We have to earn contract income all the time from businesses, local authorities and other organisations. We are running around in circles to meet all this increasing demand on us, to deal with the resources we have, to meet all the charitable obligations that we have. It is an incredibly complex business that we are in. We would love to have the capacity and space to say, “Yes, we can take a strategic leadership role in this. Yes, we know that we are trusted, for whatever historic reasons, more than others.” We can see all the positives for us being a central element in this partnership and actually perhaps even fronting it because the public trust NGOs, but we have not got the resource or the capacity to enable us to take that role.

Q138 Mr Williams: If you had the resource and the capacity, how would such partnerships work?

Mr Roberts: To give an example, we have run an insulation scheme, basically, with seven local authorities in Somerset called Somerset Warm & Well, which is targeted on the vulnerable households and what are unsophisticatedly called “able to pay households” (unsophisticated market segmentation), basically where we have worked with a contractor, an energy supplier and local authorities to pool pots of money from the energy supplier in terms of Energy Efficiency Commitment money, local authority housing improvement type grants and Warm Front as well—the Government scheme. So, basically a surveyor can walk down a street and have something to offer everybody down that street. They can knock on doors and basically offer anything. In terms of demand, they do not need to do that because there is enough work coming through in terms of the amount of grant available and the size of the Energy Efficiency Commitment funding we get to keep them busy as they are, they do not have to generate new income because we are

getting referrals through. That also provides a mechanism whereby we hold the hand of that householder through the process; so the supplier is quite invisible to them, they are a provider of cash. They are also a provider of cash who has not been terribly reliable, because when they hit target numbers they back away and say, “We do not need to do it any more”, and so you get this very stop-start approach to funding which then threatens the local authority funding. They think, “Can we put this in? Can we rely on this?” So, we end up chasing around trying to find it. The income we earn from that is effectively a small referral fee for making it work, so we have to tap it into other things. As I say, we have got a turnover of about 1.4 million this year. That is from about 60 or 70 different projects with different funders, some whom are common to different projects but they are all separate contracts and grants, which we have had to piece together to create what we hope to do in the Avon and Somerset area where we operate direct advice delivery, something which from the consumer’s point of view looks like a single project but actually you might have 16 different funding streams going into it.

Q139 Lynne Jones: Why do we need NGOs? Does it not make it more confusing having all these different participants?

Mr Restorick: For a couple of reasons. First of all, for companies. They operate across local authority boundaries, so it is quite difficult for a company operating nationally or regionally to deal with many different local authorities. The second reason why is that for most people their relationship with their local authority is they are the people who pick up the rubbish, they clean the streets, they provide services, and quite a lot of people think they do not do that very well. So there is equal scepticism: “Why on earth is the local authority suddenly asking me about energy efficiency and stuff as there is a company?” So, there is distrust there.

Q140 Lynne Jones: I would disagree with that because I had a case recently where somebody contacted me because she was very sceptical about being offered something for nothing. When she knew the local authority were involved, all of a sudden that was okay.

Mr Roberts: For example, we have seven local authorities involved in this scheme precisely for that reason, that their endorsement (in those seven local authorities; it would not be universal) does give that sense of comfort. However, they do not run it, they provide some funding into it, but they need someone else to put it together because it is not a core service for local authorities. I can provide for the Committee, if you are interested, some work that we did for Defra for the Climate Change Programme on the potential role of local authorities in increasing carbon reductions because what we found is that there are these pockets of best practice around but in nearly every case it is the result of a wilful individual having worked for 10 years to get things done in those local authorities. You have probably had some of them in front of you at some point in the past or

you will in the future. Those are paraded in front of every other local authority as best practice and yet it is never really shown how they got, over 10 years, to the point they are at now. Also there is no particular reason why local authorities should do anything in relation to carbon emissions reduction or energy efficiency at the moment. It does not appear in their Comprehensive Performance Assessment. One of the results of that work that went into the Climate Change Programme review is the Government have committed to introducing climate change into the Comprehensive Performance Assessment, or what follows it. And the Local Government White Paper has 21 references, I am reliably informed, to climate change in it and a whole appendix specifically in relation to it because I think there is a recognition that there are things that local authorities do anyway which could be done much better which would have a more positive carbon impact. A lot of that would be about building partnerships with other organisations already operating and enabling them to get on and do it, with local authority backing, not necessarily the local authority doing it directly themselves.

Mr Restorick: We too have many schemes where we are the public face but on the materials that go out there are the local authorities' details there and the utilities' details there.

Mr Drew: I think Mr Lepper has some questions on education.

Q141 David Lepper: In view of what you have just been saying about the local authorities, do you have a view about how well or not the Local Government Association plays a part in ensuring that there is an involvement by local authorities in the kind of work that we have been talking about?

Mr Roberts: In doing the work for Defra we had some involvement with the Local Government Association. We found that there was a significant level of interest at officer level and by some of the executive members, but I think there is also a slight sense of, "It is a new burden, how can we possibly take on something extra?" rather than thinking about how climate change is a factor which runs right across their existing burdens and they need to be thinking about how they integrate carbon management into those existing activities rather than necessarily thinking about it as something to add on. I think they suffer slightly—without wanting to be too critical—from the same kind of sentiment that government programmes suffer from. They point to best practice and give the impression that that is widespread and actually it is not, and most local authorities in relation to carbon management are quite poor.

Mr Drew: I am going to finish with education because if we are going to make any inroads in the future it is going to have to be through education. James Duddridge?

Q142 James Duddridge: I have a couple of questions for you, Mr Roberts, and I believe my colleague Mr Vara has some questions related to the Global Action Plan. Turning to education matters and your

Energy Matters programme which was introduced to schools, can you talk us through how it was introduced, what resistance there was, and how you overcame any resistance to the programme within the schools?

Mr Roberts: It was run between 2000 and 2003 and it was introduced partly through local education authorities and the science co-ordinators or in some cases the energy managers. We tended to work on a county-wide basis and in the case of London there were the inner London education authorities in some of the boroughs there. Basically it was introduced as something where we would run an INSET training day for teachers so that they could come along and find out how the resources worked, and we then provided a resource that they could turn to for support which was effectively leaving them to get on and run the programme in the school with the resources that we had provided as well. There were not that many obstacles. It was initially finding that first contact who thought, "Oh yes, I can see why that is relevant, I can see which curriculum boxes it ticks, and therefore I can see why it would be a good thing for us to do." Once the teachers got their hands on resources and realised how it worked as a mechanism both to teach various aspects of numeracy, literacy, science and citizenship but also to develop the relationship between the school and the home through the way the children went home and involved their families in the advice and behaviour change. I think it sold itself after that and we ended up with 500 schools, mainly in Kent, the West Midlands and London, of all different kinds from inner city London quite deprived areas right through to leafy suburbs in the West Midlands where you got very similar results across it: a lot of teacher support for the way the resources worked, and very strong participation by the pupils. Something which according to the evaluation seems to have stuck in the sense that a) it is something that children to continue to remember some time afterwards (which if you have got school-aged children you know is not something that happens that often with things they do at school) but b) it was something that transferred back in the home where those children were continuing to be energy advisers in the home. That strikes me as a huge impact. But it is very difficult to persuade someone that it is worth doing now because it is seen as education and it is all about the future.

Q143 James Duddridge: In the evidence you have provided there was very clear evidence that the children took the ideas home. How long-lived was that impact and what evidence have you got to say that the change in the parental household was longer term rather than simply changing behaviour short term?

Mr Roberts: When the evaluation was done, some of it would have been two years after the programme had run through the school, which caused all kinds of interesting problems of making sure you were contacting people who had been through it and stuff, but we found that there was still a memory of it and in some cases it was still going on in the house. I

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think in a lot of these cases you are talking about changing habits. If you turn your thermostat down that tends to stick, although someone else in the household might go and turn it up again, and things like tucking curtains behind radiators, switching lights off in unused rooms, turning the television off standby, they are the kinds of things which once you start doing them, they just become how you operate in your household. While there is not a longitudinal study, which again comes back to the fact that the evidence base needs to be strengthened, the evidence from that work is that in some cases two years on the parents still remember the kid coming home from school talking about it and recognises the fact that those children were still involved and engaged with it. Compared with trends we see in other areas where people say that teenage children leave lights on everywhere, these were people talking about the fact their children had become responsible energy users and they were having an influence across the household.

Q144 James Duddridge: It sounds like longer term you want the programme to be improved, to get some metrics longer term; is that fair?

Mr Roberts: Yes.

Q145 Lynne Jones: Were there any big impacts? Obviously switching off lights is the sort of thing you have measured but did any of the households go out and buy new condensing boilers or insulate, things that took a bit more effort from the parent as opposed to the children?

Mr Roberts: The resources were not used on that aspect of change because they were focused on things that the children themselves could influence, but there is some evidence of insulation take-up as well, and I will check the figures and provide them to the Committee.

Mr Drew: Please do.

Q146 Mr Vara: Staying with the theme of education, I understand that Global Action Plan had an Action at School programme carried out in some 164 schools. I understand that the results were that there was a reduction in energy use in nine schools by an average of 12% with a maximum of 34%. Of those 164 schools, how many, so far as you are aware, focused on saving energy rather than reducing waste?

Mr Restorick: There is a balance because some did transport and some did water as well, but of the 140-odd who did waste the sole reason they did waste was that the Government supported them with a Landfill Tax Credits scheme a while ago which meant that there was a huge amount of resource available for secondary school education. What we did is we then spoke to some Ofsted inspectors who said a lot of the educational programmes out there are not aimed at secondary schools because secondary schools are perceived as hard nuts to crack, so we worked with Ofsted inspectors to create a process within the secondary schools. The Action at School model in secondary schools worked phenomenally well on waste. We managed to get a

tiny bit of funding from other sources to do energy and found that it worked incredibly well with energy. Since we wrote this report, one particularly enlightened county council, Devon County Council, has said, "These schools are actually saving the cost of the programme within anywhere between one term and two terms so we are going to provide the schools with interest-free energy loans." Because of the way funding works, the local authority gives the money to the school, the school gives the money to us, we then implement the programme within the school, and then the school pays back out of the savings it is making. We have now run this particular scheme in 20 schools. Already the first five that have gone through it have paid back their loan anywhere between one term and one and a half terms and the local authorities now are recycling that loan to the other schools in their area. What has been particularly interesting about this scheme is obviously the school is saving money and, for a school, that is particularly important because although they have large budgets most of it is tied up in teacher costs, so any free money they have goes up into curriculum resources and it is incredibly important money for the schools. The process we have does two other things. Obviously it encourages children and students to change their behaviour but it also enables students to take a leadership role within their schools so the students actually go and measure the energy use within their schools. They find out how much the school is using when it is supposedly shut at night and during the daytime. They convert those energy figures into carbon dioxide emissions. They then can show the school, "This school produces this many balloons worth of carbon dioxide." It can visualise carbon dioxide. We have an energy bike which is like a gymnasium bike which we take to the schools and students pedal it and it is attached to different electrical appliances, so the students can see how much energy it takes to power an energy-efficient light bulb and then when we change the bike over to the inefficient lightbulb they suddenly realise how much energy it takes them to do that. They realise that when they leave their mobile phone charger plugged in even when it is not charging the phone it is taking up energy to use. They realise how much energy it takes to pedal a computer monitor or TV screen when they have left it on and they really struggle to power that, so they get a real physical connection to climate change. The programme has massive wider social and financial implications. Yet try and talk to DfES about making this an integral part of the school curriculum, try and talk to them about actually setting targets for reducing the carbon footprint of our school estate and education institutions, it is like bashing your head against the biggest brick wall in the world, it is impossible, and yet I cannot see on any level why it is a bad thing.

Mr Roberts: Then you talk to Defra and they say that is a matter for DfES, so that is the second largest brick wall.

Q147 Mr Drew: You could play squash with them!

Mr Restorick: Defra were funding school programmes. They decided about three years ago that DfES should fund school programmes and they

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threw the ball to the DfES, the DfES resolutely dropped it, and now it is sat there between both of them and there is no funding going into environmental education, certainly through the NGO sector which there was several years ago.

Q148 Mr Vara: I am mindful of time constraints but you have touched on my next question. I have to say, Chairman, there is something here about government departments getting on their bike but I will not go into that area in view of what the Prime Minister said recently. What advice would you give to the Department for Education and Skills, the Defra NGOs and local authorities for them all to work together for the greater good of this particular cause? You have mentioned the value criticisms of how it is not working and it is disjointed but what do you think could make it joined up?

Mr Restorick: There needs to be a very, very clear target about carbon footprint reductions in schools so that the head teachers, governors and bursars know, “We have got a target to actually reduce the carbon footprint of our school,” because that will start to crank it up their agenda, and if that is linked into Ofsted inspections all the better, so it becomes the top of their agenda. In terms of actually implementing it, it really does not matter two hoots which organisation on the ground implements this thing as long as it is done well. What we have found with secondary schools is that teachers are fed up with getting curriculum materials. They get bombarded with curriculum materials and what most teachers do is cut and paste bits and pieces from here and there and create their own curriculum materials based on what they think is right for their school. What they need is a process which says we do an audit here and an audit there and here is support for doing that and someone they can ring up and say, “I keep getting asked by my kids is it better to turn the lights off for five minutes.” They need help, they need somebody who can help them through a process. Once they have got the process and once they know the support is there, the creativity of the students is allowed to shine through, and fantastic things are achieved. It is a myth to say that teenagers are not interested in this issue. We have more teenagers coming forward to do the schools programme than we can cope with. We have not got any money to do it. It is embarrassing. We have to turn away school after school after school week after week who want to do this and there is no resource for them to do it.

Mr Drew: Two very quick questions from our newcomer.

Q149 Chairman: My apologies for not being here at the beginning of your evidence but I had another meeting in the House which I had to attend. Both of your sets of evidence are very powerful on the effects of behavioural change. The current debate lies in a different direction, for example an emphasis on green taxation. If you had to put your money on which horse to ride to get the biggest bang for your buck in changing people’s behaviour in this area, would it be more resource in the direction of travel

that your evidence indicates or going for other strategies like green taxation? Which do you think would be the most effective?

Mr Restorick: My personal answer on that is that I think behaviour change gets you some quick wins. Taxation is a blunt tool for lifestyles. It is like pushing a bit of a balloon here and the air will come out somewhere else. I do not think necessarily taxation is the predominant way to go forward. I would much rather see using carbon trading and really making carbon trading work efficiently and basically reducing the amount of air in the balloon all the time so that the price of carbon goes up and forces businesses and schools and other bodies to be more innovative in dealing with the issue. My money would not be on the two options you gave me—it is probably cheating—it would be on behaviour change and carbon trading.

Q150 Chairman: What does Mr Roberts say?

Mr Roberts: I would second that as well in the sense there is quite a lot of evidence around that no matter how much you say you will recycle the revenues, no matter how much you say they will be hypothecated into this scheme, people generally do not believe you if you say you are raising a tax that you are not going to use it for something. I do not quite know where people think all these things that they enjoy from the government actually come from but there is a general sense that putting taxes up is a bad thing, and I think green taxes are going to fall into that same category so they are not a healthy policy instrument in that respect. For something like carbon emissions you have got huge uncertainties about the impacts you are going to get and with carbon emission reductions you need to be much more certain than that. Things like the cap-and-trade schemes, and I think as you will be looking at that in your next sequence of evidence, personal carbon allowances and personal carbon trading become much more interesting, because rather than people deciding on a financial basis what to do they start to decide on a carbon emission basis and start to make that trade-off between insulating my house so I can go on holiday by air, or maybe deciding not to do either, or insulating my house and dropping the car and then selling my emissions rights to somebody else who is going to do it or, as I would probably do, burying them in the back garden so that if I insulate my house no-one is going to get to drive their SUV around on the back of the measures I have taken, but that would be a personal position. I think you need to be looking much more at how you cap emissions and then trade them. You can use the imagination of 60 million people in the British Isles to work out how they would manage their carbon emissions within that gap instead of just charging them extra to do it, rather than leaving it to a few people in the Treasury to decide how to spend the money, which I am not sure is going to come up with the best answer.

Q151 David Taylor: Sorry to drag you back to that largest brick wall in the world but the attitudes and decisions of the DfES are important to the funding

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priorities that they allocate. Do they try to rationalise their apparent lack of enthusiasm to you? Do they say that their unenthusiastic response is rooted in a tightness of time in the curriculum, a lack of resources to develop it, or through lack of conviction that what has been suggested is worthwhile in its own right? How do they justify it?

Mr Restorick: They rationalise it to me in two ways. The first rationalisation, which I can understand, is that they are trying to pass responsibility and budgets down to individual schools so it is not in their remit to propose one particular initiative or one particular scheme over another. It was quite ironic—or rather it was not because I knew it would happen—that I got the letter explaining that the day that there was an announcement they were putting in £0.5 million into a music initiative to promote music in schools so there seemed to be a disconnect to me between what they were telling me on the one hand and yet what different bits of the Department were doing on the other. Their other rationale is there are so many schemes out there we do not know

what to invest in, we do not know so how can we make a choice about this or this or this? To me there is a tendering process that a lot of people can go through where they can use tendering to make the decisions once they know what they want out of it, so I think that is a spurious claim. I think they have been hit by environmental NGOs' criticisms fairly harshly and they seem to tread incredibly delicately around environmental NGOs and they seem very, very wary of upsetting one group over another by seeming to side with one group over another, which I think is pussyfoot politics; they should just get on and do it.

Mr Drew: That was a fascinating session. Whatever you have said cannot be unsaid, particularly as it has been broadcast, but there may be additional things you want to say to us and you have both made commitments to send to us some information, and if that could be sent to our Clerk it would be very useful. That was a very interesting session. Thank you for coming and we will make a quick stage change and the other gentlemen will come forward. Thank you.

Supplementary memorandum submitted by Global Action Plan (CIT 07a)

Thank you for your letter of 10 November. In response to the four questions that you raised:

1. I have attached a list of policy anomalies that make it difficult for groups or individuals to implement effective environmental action. This list has been compiled from feedback received from individuals and groups with whom we have worked or are working. (Annex A)

2. I have attached a summary of the comparative study of residents from Eindhoven and Nottingham. (Annex B)

3. I think that the public is confused about the range of targets and commitments relating to climate change. I believe that the main source of these different messages is the public sector bodies involved in communicating climate change. Recently, we have seen different communication strategies from DEFRA (Tomorrow's Climate Today's Challenge), the Energy Savings Trust (Save your 20%) and the Carbon Trust. In addition to these campaigns many local authorities have created their own initiatives. In contrast, the larger environmental NGOs have created a partnership network (Stop Climate Chaos) which is attempting to unify their views and campaigns. The smaller NGOs, such as ourselves, have insufficient resources to run large-scale communication campaigns and instead tailor smaller scale campaigns to the specific requirements of particular audiences.

4. Phase three of EEC could go a long way to recognising the value of "soft" measures in tackling climate change providing that:

- Government invests in research now that provides sufficient evidence for sound investment decisions to be made during phase 3;
- or
- Phase 3 is framed in such a way that it collects information about the potential impacts of "soft" measures. This will mean an acceptance that some elements of phase 3 might initially have a different carbon reduction target.

I hope that this is of use. If you need more information or if any of the attached is unclear please do contact me.

Trewin Restorick
Director
Global Action Plan

December 2006

Policies anomalies which make it difficult for Groups or individuals to implement effective environmental programmes

WASTE AND RECYCLING

There are variances as to how local authorities treat school waste. Some local authorities categorise school waste as being the same as commercial organisations. This means that they are unwilling to provide recycling advice and/or services.

Churches in some areas cannot have their recycling collected along with the doorstep scheme as they are also treated as commercial organisations. They, therefore, have to organise collections from private companies which discourages them from recycling as they have to pay for it.

There are sometimes gross variations in facilities and services between neighbouring local authorities and even within a local authority. If you move neighbourhoods you often have to change your “at home” habits and even have to check with friends when you visit what you should/shouldn’t put in the bin.

TRAVEL

Many people pointed out the variances in the way travel fuels are taxed making it relatively much cheaper to travel by air than plane.

People felt that car travel had become relatively cheaper than railways over the past decade. Government indicator information suggests that this is the case.

The way that public transport pricing structures have been created makes it harder or more expensive for people to travel by public transport. For example, introducing pre-pay Oyster cards in London that can’t be used on all transport in London, making it less convenient and more expensive to use some train lines/stations.

Many people complained about the pricing systems for the railways which they found both confusing. The high cost of fares which are not pre-booked also prevented people from traveling on the railways.

The deregulated bus services is also acting as a deterrent for people to travel on the buses. People cited lack of services on unpopular routes and too many buses on busy routes that increased congestion.

ENERGY USE

We have received many complaints about lack of consistencies within the planning system with regard to installing micro-generation technologies. For example one business in Devon was able to install a wind turbine and PV cells in an area of outstanding natural beauty on Dartmoor. A near neighbour in a different council was refused permission for a similar installation.

A common complaint has been the complexity of the planning process for micro-generation and the lack of standard and high quality advice available from planning officers.

One of the major water utilities has told us that they would like to install micro-generation technologies on many of their sites, but have been deterred by the level of resources they would have to devote to the planning process.

Several of our households have questioned why their electricity tariff goes down the more electricity they use—they feel it should be reversed.

SHOPPING

A shopping related complaint is that supermarkets heavily promote buy-one-get one free offers which some of our participants feel promotes food waste.

A number of our participants complained about over-packaging particularly for organic products which they feel is counter-intuitive.

Summary of the Key findings of: “Making the Abstract real: a cross cultural study of public understanding of environmental change, 1993–95”

BACKGROUND

The empirical research was conducted in two cities with broadly comparable socio-economic and demographic characteristics: Nottingham in the East Midlands and Eindhoven in the south of the Netherlands. The research was divided into three parts:

- (a) statistically representative quota samples were drawn from matched neighbourhoods in the two cities; 250 face-to-face household interviews using the same questionnaire, to measure levels of community and political involvement; levels of pro-environmental behaviour in households; awareness of specific global and local environmental issues; and individual preferences for environmental policy options in response to three environmental scenarios;
- (b) four in-depth, single gender, discussion groups drawn from volunteers in the quota samples. The two UK and two NL groups were matched by age and socio-economic status. Over five sessions each lasting 90 minutes, group members discussed the following broad topics: “green consumerism”; “social and technological change”; “the end of nature” and “sustainable development”;
- (c) two stakeholder workshops were held, one in each city, in which politicians, policy-makers, businesses, NGOs and the media participated in discussion and evaluation of the research findings.

MAIN FINDINGS

1. The survey results provided an early indication that individuals lacked any coherent or detailed understanding of environmental issues; that self-reported levels of pro-environmental behaviour were not especially meaningful since they bore little relation to actual household practices; and that the majority of respondents in both cities felt unable or unwilling to take personal responsibility for addressing environmental problems. Climate change at this time (1993) was ranked lowest of a suite of eight environmental problems, and regarded as a problem likely to affect future generations but not the present generation.

2. The qualitative research revealed a much more nuanced picture of the barriers and opportunities for pro-environmental behaviour change, and revealed interesting differences between men and women, and between the two countries. Taking personal responsibility to reduce environmental impacts of everyday behaviour emerges as the outcomes of four inter-related components:

- (a) A *moral/normative* component which relates both to altruistic and social demands of being “a good person”. This was shown to be a more powerful sentiment in Eindhoven than in Nottingham.
- (b) An *economic* component which concerns how much choice (money/time) individuals consider they have to change their practices.
- (c) A *knowledge* component in terms of wanting to question the basis of expert and policy demands for change; and clear demonstration that changes in behaviour are actually effective in achieving the desired environmental goals.
- (d) An *equity* component in which people wanted to know that the new environmental responsibilities being sought were shared equally across all sectors of society, including public and private sector organisations. The mass media emerged as a important player here in terms of consistently framing government intentions in a negative rather than a positive way. This was also much more pronounced in Nottingham than Eindhoven.

3. The study revealed scepticism in both cities about mass advertising or “exhortatory” campaigns. Rather organisations requiring change were expected to demonstrate their own commitments by both creating better infrastructure to support pro-environmental behaviour changes, and making changes in their own practices. This demand for organisations to “walk-the-talk” highlighted was appeared to be a major cultural difference between citizens in the two cities. In Nottingham at this time (1993–94) there was a sense of alienation and deep mistrust about the sincerity of government’s environmental and social commitments. By contrast, in Eindhoven, the research revealed a much stronger and efficacious “social contract” between Dutch citizens and the state. Although not immune for criticism, citizens felt the combination of regulatory, fiscal and planning measures then in play were being implemented for the common good. In return, Dutch citizens had agreed to act in more environmentally responsible ways.

Global Action Plan

December 2006

Supplementary memorandum submitted by the Centre for Sustainable Energy (CSE) (Cit 15a)

Q1. Please could you let the Committee have some more information on the work done by CSE for the Climate Change Programme on the potential role of local authorities in reducing carbon emissions? (Question 140)

Further to your letter of 10 November, please find attached our work for the Climate Change Programme on local authorities.³

Q2. Please could you provide evidence of take-up of insulation following CSE programmes in schools? (Question 145)

Please see table below from the evaluation of energy matters. It shows that the focus of energy saving measures installed as a result of Energy Matters tended to be on lower cost measures (where the young children prove more effective than professional advisers). This is principally because the energy matters resources did not include information about grants and discounts on insulation measures (cavity wall and loft)—which is the main trigger for take-up from professional energy advice provision. The full evaluation report on energy matters from which this table has been taken can be found at <http://www.cse.org.uk/pdf/pub1021.pdf>. These measures are separate and in addition to the energy saving behaviours which our original written evidence to the EFRA committee referenced.

Table 4

<i>Energy efficiency measures installed by parents since Energy Matters</i>	<i>All Energy Matters Respondents</i>	<i>Children 6–11</i>	<i>Children 12–18</i>	<i>Benefits of Energy Advice Survey 2002–Respondents who received advice on measures to install</i>
Base: All Parents	148	89	52	1,229
	100%	100%	100%	100%
Number who had since installed:	%	%	%	%
Low energy bulbs (CFLs)	40	46	33	30
Energy efficient appliances	15	16	15	2
Draughtproofing	11	13	10	20
Double/secondary glazing	10	12	8	7
Heating timer/programmer	9	11	8	2
Loft insulation	7	8	6	32
Block gaps in skirting	7	8	8	n/a
Floor insulation	6	8	4	1
Hot water timer	5	8	2	1
Solid wall insulation	5	8	2	1
Loft hatch insulation	5	4	6	n/a
Loft hatch draughtproofing	4	4	4	n/a
Cavity wall insulation	3	2	4	19
New CH boiler	3	4	2	6
Hot tank thermostat	3	2	4	2
Pipe insulation	3	2	4	2
Radiator foil	3	6	—	3
Radiator shelves	2	3	—	1
Hot water jacket	2	1	4	7
Room thermostat	—	—	—	2
Thermostatic radiator valves (TRVs)	—	—	—	2
ANY MEASURES	54	58	52	70
Average number measures installed	1.4	1.7	1.2	1.5

I also draw you attention to details of an education programme we ran for sixth-form students (The Climate Change Challenge) which can be found at <http://www.cse.org.uk/cgi-bin/projects.cgi?education&&1068> (follow links on RH side of the page for a conference report etc (or click here on <http://www.cse.org.uk/pdf/sof1094.pdf>)).

³ *Local & Regional Action to Cut Carbon: An appraisal of the scope for further CO₂ emission reductions from local and regional activity*: Report to DEFRA for the UK Climate Change Programme Review. Not printed.

Q3. Are you concerned that the importance of the message about tackling the causes of climate change might be lost in any confusion resulting from the range of targets and commitments set by different initiatives and pledge schemes? Should NGOs try to co-ordinate their approaches?

I think there is a danger of assuming that the public's inaction in climate change is a result of confused messaging. There's some poor messaging around which assumes that everyone thinks like we do about the issues rather than really understanding where they are "at" (taking account of differences between people too) and taking them from there.

I think it is more that: (a) most people do not have a sense of need to act now (as opposed to some time in a while); (b) most people have a sense (not helped by some of the pressure groups) that the government isn't doing enough (so why should I do my bit etc) and; (c) (as I said in the oral evidence session) the political position that "it'll only work if the whole world acts" and the comments along the lines of "what about China and India?" leave most people feeling (appropriately) impotent—with no sense of the importance of collective individual action backed by government which leads global progress. The overwhelming sense I suspect most people have is that it is important to act but it can't be that important to act now because a government which keeps telling us it is urgent seems to be slipping the clutch rather a lot on setting in place measures and actions to tackle it and allowing things which contribute (coal fired power stations, aviation expansion etc) to continue unchecked.

I have never been a particular fan of co-ordinated messages since there are too many "others" outside the co-ordinated group who will create noise and confusion anyway—and it isn't necessarily NGOs that are going to be the main carriers of messages to stimulate action. You just can't co-ordinate that much. It would be good if the government co-ordinated its own messages on a consistent basis (as per my oral evidence—(i) explaining the importance of collective action, (ii) showing how government is doing its bit and requiring industry to do the same and hasn't got contradictory policies such as airport expansion, and (iii) promoting the importance of UK leading the way not because politicians want the glory but because the global solution will only work if someone starts the dance—the UK started the last industrial revolution which caused climate change, so why not start the next one to control it?)

Also I think that different people have different tastes and needs in terms of information, motivation, underlying values which determine their action etc. A co-ordinated campaign would struggle to address this. In the same way that there are many different brands of soap to suit different tastes, there can be many different routes to action on climate change. Soap brands—often produced by the same company—are promoted in different ways ("luxury", "freshness and vitality", "economy/long-lasting", "convenience", "health and security—anti-bacterial", etc) depending on the target markets.

To extend the simplistic soap analogy, the key job for any co-ordinated campaign led by government is probably to explain the importance and mutual benefit of washing regularly and to show (honestly) how its own washing routines are measuring up—and how by washing regularly we set a compelling example for others to follow.

Q4. How far will phase three of the EEC go towards securing recognition of the value of "soft" measures in tackling climate change?

I think it will depend on the extent to which "soft" measures are allowed as qualifying measures within EEC and the extent to which Defra, knowing that there remains some doubts over the evidence, is prepared to allocate savings and lifetimes to "soft" measures in advance (and thus create a commercial case for suppliers to do "soft measures" within their EEC schemes). As we said in the recent EEC3 consultation response we wrote for the Energy Advice Providers Group of the Energy Efficiency Partnership for Homes:

"We strongly believe that it would be preferable to include energy advice in EEC3 and risk getting the numbers slightly wrong than to leave it out and avoid stimulating and supporting activities which are very likely to have a positive benefit which has yet to be accurately determined."

I have attached this consultation response for the Committee's information.⁴ It is in the public domain and may therefore be quoted if the Committee sees fits.

*Simon Roberts, Chief Executive
Centre for Sustainable Energy*

November 2006

⁴ Not printed.

Memorandum submitted by Richard Starkey (CIT 38)

INTRODUCTION

1. Since July 2003, Dr Kevin Anderson and I (both of the Tyndall Centre, University of Manchester) have been assessing the feasibility and appropriateness of implementing a Domestic Tradable Quotas (DTQs) scheme.

2. In December 2005, Dr Anderson and I published a detailed report on DTQs (Starkey and Anderson, 2005).⁵ This report (henceforth “the Tyndall DTQs report”) has been submitted to the Committee in evidence.

3. This memorandum briefly describes the DTQs scheme and then discusses issues of equity not fully addressed in the Tyndall DTQs report but relevant to the public acceptability and therefore the viability of a DTQs scheme. It is submitted in a personal capacity.

BRIEF DESCRIPTION OF DTQs

4. DTQs were formulated by Dr David Fleming who first published the idea in 1996 (Fleming, 1996). Dr Fleming maintains a website⁶ and his most recent publication is Fleming (2005).

5. DTQs are a “cap and trade” scheme for the reduction of greenhouse gas emissions from energy use under which emissions rights are allocated to and surrendered by all end-purchasers of fuel and electricity (both individuals and organisations). The DTQs scheme can be divided into three elements: (1) setting the carbon budget (2) the surrender of carbon units and (3) acquiring carbon units for surrender.

Setting the carbon budget

6. The *carbon budget* is the maximum quantity of greenhouse gases that may be emitted from energy use in a given year. Under DTQs, the carbon budget is reduced year on year in line with national and international emissions reduction targets. Fleming has proposed that, in any given year of the scheme, carbon budgets should be set 20 years ahead, so as to provide a long-term emissions reduction signal to society. He further proposes that carbon budgets are set by an expert independent *Carbon Policy Committee*, a proposal designed to de-politicise budget setting in the same way that the Bank of England’s Monetary Policy Committee is intended to depoliticise the setting of interest rates.

Surrendering carbon units

7. A *carbon unit* is an emissions right, specifically the right to emit 1 kg of carbon dioxide equivalent. All fuels and electricity are assigned a *carbon rating* based on the quantity of greenhouse gases (measured in carbon units) emitted by the combustion of a unit of each fuel and by the generation of a unit of electricity. Whenever individuals and organisations purchase fuel or electricity, they are required to surrender to the retailer carbon units to cover the quantity of fuel or electricity purchased. For accounting purposes, these units are surrendered up the supply chain and, on reaching the primary energy producer or the energy importer, are passed back to government.

Acquiring units for surrender

8. Each year a quantity of carbon units equivalent to that year’s carbon budget are allocated by government to individuals and organisations. The proportion of total carbon units allocated to individuals is equal to the proportion of total energy emissions arising from individuals’ purchase of fuel and electricity over a given period prior to the introduction of the DTQs scheme. (In the UK, the proportion is currently around 40%.) Carbon units are allocated to adult individuals free and on an equal per capita basis.

9. Whilst individuals receive their units for free, organisations must purchase the units they require on a national *carbon market*. Units enter onto the market from two sources. First, government auctions onto the market those units not allocated to individuals. Second, individuals who emit at a level below that permitted by their allocation, and who have, thus, not surrendered all their units, can sell their surplus units onto the market. Conversely individuals who wish to emit at a level above that permitted by their initial allocation (“above-allocation individuals”) must buy additional units on the market. Visitors to the UK are not allocated units and so along with organisations and above-allocation individuals, must purchase them on the market.

⁵ Available at www.tyndall.ac.uk/research/theme2/final—reports/t3—22.pdf

⁶ www.teqs.org

ASSESSING DTQs

10. In the course of our research we have encountered three main objections to DTQs.

- (i) Allocating emissions rights on an equal per capita basis is *not* equitable.
- (ii) Allocating emissions rights on an equal per capita basis *is* equitable and therefore 100% of emissions rights, rather than the approximately 40% under DTQs, should be allocated to individuals on an equal per capita basis.
- (iii) Allocating emissions rights on an equal per capita basis *is* equitable, but other instruments can achieve this allocation more cost-effectively than DTQs.

11. Objections (ii) and (iii) and responses to them are discussed at length in the Tyndall DTQs report and hence this memorandum focuses on objection (i).

FAIRNESS OF AN EQUAL PER CAPITA ALLOCATION

12. In exploring the equity (or fairness) of an equal per capita allocation of emissions rights (henceforth “EPCA”), I put forward an argument for fairness that finds some support within the philosophical literature on distributive justice. I contrast this with the main argument for the fairness of EPCA found within what might be termed the “non philosophical” literature (ie writings that do not explicitly draw on the distributive justice literature). Though somewhat academic in parts, the discussion is relevant to the public acceptability and, thus, the viability of a DTQs scheme.⁷

13. Within the non-philosophical literature

The central argument for equal per capita rights is that the atmosphere is a global commons, whose use and preservation are essential to human well being (Baer, 2002, p 401).

14. Used in this sense, the term “commons” refers to something that has, since the beginning of humanity, been owned jointly and equally by humanity. And if the atmosphere is jointly and *equally* owned, it follows that all of humanity should have the right to emit *equally* into it.

15. However, within the philosophical literature, it is disputed that the atmosphere is a commons in this sense. It is held by a number of philosophers, both on the left and the right politically, that, in fact, nature was, in the beginning, *unowned* and that, over time, various parts of nature have been taken into ownership by individuals acting upon them in an appropriate manner. It is further held by some philosophers that the part of nature which is the atmosphere is incapable of being taken into ownership in the way that, for example, fossil fuel can be, and that the atmosphere is therefore not only unowned by unownable. For instance, Schmidt (1997, pp 43–4) argues that there is

no foreseeable prospect of being able to privatise the air . . . [as] it is difficult to parcel out . . .

16. Given that fossil fuel is something that can, uncontroversially, be owned, is it the case that, in a fair society, individuals would be entitled to equal quantities of fossil fuel, and thus emissions rights? If so, then we would have an argument for EPCA that did not require an endorsement of the (philosophically contested) claim that the atmosphere is a commons.

17. Such an equal sharing out of fossil fuel would be an example of the norm of “equality of resources”. However, this is not a norm that has been endorsed by most egalitarian liberal philosophers.⁸

The norm of equality of resources stipulates that to achieve equality . . . everybody [should receive] a share of goods that is exactly identical to everyone else’s and that exhausts all available resources to be distributed. A straightforward objection to equality of resources so understood is that if Smith and Jones have similar tastes and abilities except that Smith has a severe handicap remediable with the help of expensive crutches, then if the two are accorded equal resources, Smith must spend the bulk of his resources on crutches whereas Jones can use his resource share to fulfil his aims to a far greater extent. It seems forced to claim that any notion of equality of condition that is worth caring about prevails between Smith and Jones (Arneson, 1989, p 77–8)

18. Most egalitarian liberals also reject the notion that “equality of condition” is achieved by equalising welfare.

Equality of welfare is a poor ideal. Individuals can arrive at different welfare levels due to choices they make for which they alone should be held responsible. A simple example would be to imagine two persons of identical tastes and abilities who are assigned equal resources by an agency charged to maintain distributive equality. The two then engage in high-stakes gambling, from which one emerges rich (with high expectation of welfare) and the other poor (with low welfare expectation). In [this] example . . . it would be inappropriate to insist on equality of welfare when welfare inequality arises through voluntary choice of the person who gets less welfare (Arneson, 1989, p 83–4).

⁷ This work is ongoing and is presented here in provisional form to provide the Committee with an illustration of the research conducted at Tyndall Manchester since the publication of the Tyndall DTQs report.

⁸ The views of egalitarian liberals are important as they take a much more egalitarian approach to the distribution of resources than, for example, libertarian philosophers.

19. In place of equalising welfare, Arneson therefore suggests that what should be equalised is, in fact, “opportunity for welfare”.⁹ (In his example in the previous paragraph, the two persons are provided with resources that give them equal opportunity for welfare. However, instead of realising this opportunity by consuming these resources, they decide to gamble with them.)

20. Arneson argues that equalising resources can lead to inequality in opportunity for welfare. Conversely, providing individuals with equal opportunity for welfare is likely to entail providing them with entitlements to unequal amounts of resources. For instance, people who live in colder regions may require more energy for heating. Or, as life in the countryside requires more travelling, people living there may require more energy for transport. (Indeed, one might even argue that people who feel the cold may require more energy for heating than people who generate lots of body heat!) And, if fossil fuel energy comprises the same proportion of each individual’s energy use, then an entitlement to differing quantities of energy translates into an entitlement to differing quantities of fossil fuel and, thus, emissions rights.

21. This sort of argument was been made in relation to the allocation of emissions rights *between* nations. For example, Raymond (2006, p 656–7) takes the view that

the more one considers the equal per capita argument, the harder it is to shake certain reservations about the idea . . . Does a poor writer living in a garret in St. Petersburg, for example, have the same entitlement to the atmosphere as one living in San Diego, or do the cold Russian winters (heating being a major source of GHG emissions) merit additional consideration? What about the rancher living in eastern Montana, 40 miles from the nearest school or hospital, versus the resident of Tokyo? The problem is that once one begins unpacking the apparent equality of the per capita right, it becomes clear that it creates significant inequalities based on criteria—warm versus cold climate, rural versus urban dwelling—that look morally arbitrary. Tailoring the allocation principle to adjust for these various mitigating factors, however, again threatens to undermine its initial advantages of clarity and simplicity as a basic human right.

22. This sort of argument has also been made with regard to DTQs (a proposal for the allocation of emissions rights *within* nations). For example, commenting on a recent blog posted by the Secretary of State for Environment, Food and Rural Affairs on DTQs (Miliband, 2006), one respondent (Harry Manuel) argued (echoing Arneson) that those with a disability may require additional emissions rights.¹¹

Will everyone get the same fixed amount, if so this is unfair on those with disability etc, who have a greater reliance on mechanical/electrical aids?¹²

23. Mrs Thatcher’s former Press Secretary, Bernard Ingham (2006), also responded to the Secretary of State in an article in his local paper, describing DTQs as

A perfect wheeze for champagne socialists, but egalitarian, my foot. Nor is there anything fair about a single carbon allowance, bearing in mind the differing needs of the elderly, families with young children, the disabled and those who live in the country who simply have to have a vehicle.

24. Faced with the charge that equality of opportunity for welfare requires something other than the EPCA of DTQs, what defence can the supporter of DTQs mount? Of course, the supporter can reject egalitarian liberal arguments in favour of the commons argument. However, I think that the supporter of DTQs can, in fact, mount a defence that accords with the egalitarian liberal approach. And that defence is that an equal per capita allocation is fair if it is the *closest affordable approximation* to the allocation of emissions rights that would pertain under equal opportunity for welfare.

25. Imagine a society implementing equal opportunity for welfare with regard to energy use. Prior to implementation, everyone starts with an equal allocation of energy. It is then calculated what adjustments would need to be made to take account of the various factors affecting opportunity for welfare such as the temperature, whether people live in the town or in the country, the energy efficiency of dwellings, the extent to which people feel the cold and so forth. These adjustments result in individuals being allocated differing quantities of energy. And, as fossil fuel energy comprises the same proportion of each individual’s energy use, individuals are therefore entitled to differing quantities of fossil fuel and, thus, emissions rights.

26. In this example, a fair allocation of emissions rights arises from the fair allocation of energy. By contrast, climate change policy, when considering issues of fairness, is concerned not to allocate *energy* fairly, but only *emissions rights*.¹³ But, in a situation (like today) where energy is not allocated fairly, the fair allocation of emissions rights can be established only by determining the allocation that would arise *if energy were to be allocated fairly*.

27. This fair allocation of emissions rights can *in theory* be established by everyone starting with an equal allocation. The same adjustments (for temperature, town/country etc) would then made to this allocation as would be made to the equal allocation of *energy* if one were setting out (as in the example in paragraph 25) to allocate energy so as to bring about equal opportunity for welfare.

⁹ Other egalitarian liberal philosophers have suggested alternative formulations of what should be equalised but this does not affect the basic argument set out below.

¹⁰ This response (21 July) can be viewed on the webpage referenced in Miliband (2006).

¹¹ Of course, it may be that a person with a disability is not able to travel much and so has low transport emissions.

¹² It might be argued that the aim of policy is to graft a fair allocation of emissions rights onto today’s less-than-fair allocation of energy!

28. However, *in practice* it may simply be too administratively burdensome and expensive to collect the information on individuals necessary to make such adjustments (see following examples). If so, the closest affordable approximation to a fair allocation of emissions rights (ie that which would pertain under equal opportunity for welfare) is to stick with the pre-adjusted, equal per capita allocation.

29. The following are two examples of the expense involved in collecting “adjustment information”. (1) There would be a significant administrative burden and expense to classifying each dwelling according to average temperature and tracking individuals’ moves between dwellings so as to accurately adjust their allocation of emissions rights. (2) Whilst it is probably feasible to assess how rural/urban each of a nation’s dwellings is, this would not accurately reveal how much travel a person required to live their life. For whilst rural life might on average require more travel than urban living, some urban dwellers may have to travel significant distances (eg to work) putting them above the rural average. Hence, obtaining accurate data on the amount of travel required by each individual to live their lives would be extremely expensive.

30. In making the closest affordable approximation argument, the supporter of DTQs would be arguing not that EPCA is the fairest allocation *in theory*, but simply that it is the fairest allocation *in practice*. And making this argument may be significant if government is minded to implement a DTQs scheme. For to argue that EPCA is absolutely fair may well invite a cacophony of objections such as those described above and diminish the public acceptability of the scheme. However, if it was argued that the equal per capita allocation was simply the fairest in practice, then the government would create a space in which to recognise the concerns of specific groups and could leave open the possibility of taking actions to accommodate their concerns. For instance, government could ensure that DTQs was implemented as part of a portfolio of measure to make certain that those on low incomes were not disadvantaged by the scheme.¹⁴ The adoption by government of this “fairest-in-practice” approach, may therefore promote a greater acceptability of DTQs amongst the public.

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Richard Starkey

Tyndall Centre for Climate Change Research, University of Manchester

September 2006

Memorandum submitted by the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) (CIT 23)

1. RSA CarbonLimited is a project that aims to explore a number of market-based initiatives to bring UK carbon emissions down to a sustainable level.

2. Among these, Personal Carbon Trading could be a powerful vehicle for learning about the climate change impacts of different behaviours and understanding how to live with and adapt to environmental change. It would provide choice, but within a restricted “carbon budget” which stops us from consuming unsustainable levels of energy.

3. The provision of a personal financial incentive to reduce our carbon emissions is an attractive one, because of the potential it has for accelerating change in attitudes and behaviours at individual and society level and because it makes use of existing structures and technologies.

¹³ See the Tyndall DTQs report, Section 3.4.

4. In a three-year project, the RSA is exploring the potential for personal carbon trading through research, open public discourse and the co-ordination of trial schemes and prototypes operating at local and national level.

5. The RSA believes that a personal carbon market would mean fresh ideas, opportunities for enterprise, flexibility and community resilience. There may be hidden dangers such as the effect of personal aspirations, which currently favour carbon profligate lifestyles. The RSA is bringing together expertise from the commercial, social and financial sectors to subject these ideas to rigorous analysis and make practical policy recommendations.

PROGRAMME AT AUGUST 2006

The RSA's project on personal carbon trading currently involves:

- *Downstream trading and travel*: A task force is being assembled to make recommendations for a "personal carbon" approach to transport. Led by David Quarmby CBE, the group, comprising of commercial operators, economists and academics will explore the logic of a personal approach and establish opportunities to pilot ideas in the commercial environment.
- *The personal carbon market*: The project is seeking to plug knowledge gaps that would lead to an understanding of the practical design and operation of a personal carbon marketplace. Taking DTQs as the starting point, the research will look at questions such as the specification of the auction, regulation to prevent gaming and predictions of market volatility.
- *Opportunities for entrepreneurialism in a personal carbon market*: This research will assist in understanding the competitive advantage that could be achieved in a personal carbon market and set out predictions for the investment needs and opportunities.
- *Positive incentives for personal carbon reduction*: This strand of work involving Climate Change Capital and the Climate Change Now campaign is looking to further the sustainable consumption debate by studying prototype designs for carbon reduction incentive schemes—which could form one of the most important precursors to an opt-out or capped marketplace.
- *Palatability of personal carbon policy*: The project will map changes in attitudes towards the idea of personal carbon trading over time. This is beginning with a simple poll, the results of which will be published in October. Beyond this, deliberative workshops will be run, some in conjunction with the Tyndall Centre. Plans are also underway to provide communities in social housing with carbon credits to spend as a community on carbon reduction technology, facilitated through workshops.
- *CarbonDAQ*: This is the first mock-up of personal carbon trading online. It promotes understanding of personal emissions and engages users in discourse about the efficacy of the policy idea. The trading element is simplified into a donation scheme for carbon reduction projects generated by users of the website. Gerry Acher, the RSA's incoming Chairman will launch this initiative to RSA fellows in October.
- *RSA/Tesco Schools Carbon Calculator*: Through the Defra Climate Challenge Fund, a curriculum-linked carbon calculator is being developed to empower children in reducing emissions in schools and communities, culminating in a national competition. Lessons plans will include policy options for reducing carbon, and look to develop the understanding and skills that would be needed if personal carbon trading was introduced.

Who will benefit?

6. If the UK can take the lead with a market-based mechanism to reduce CO₂ emissions, it could (a) show global leadership on climate change, (b) bring forward in time a decline in greenhouse gas emissions, while (c) gaining commercial advantage through carbon trading markets and early adoption of clean technologies that will dominate the future market.

7. Increasing numbers of individuals are now calling for exemplary solutions to the threat of climate change. Engagement in trial schemes to test new ideas based around a carbon allocation will enable the RSA to harness the potential of these individuals and build a strong public discourse on which consensus can be built.

Why the RSA?

8. A substantial amount of academic work has been done on personal carbon trading. The RSA is now developing the practicalities of these ideas so that they have a reasonable chance of being implemented. At its base, this means tackling three areas of difficulty: technological, economic and social/political. The RSA, with its links to business, government, environmental organisations and academia, is uniquely placed to address all of these.

About the RSA

9. The RSA exists to promote social and economic progress. Because it works with experts from across all walks of life the RSA can build solutions with long term sustainability that have wide ranging support. The RSA has a diverse Fellowship of 25,000 and can reach out to communities world-wide.

10. The RSA's work programme on the environment has recently included lectures on "Earth in the Balance Sheet" with The Hon Al Gore, "Carbon Trading", with James Cameron of Climate Change Capital. The RSA's prestigious Albert and Benjamin Franklin Medals were recently awarded to Gro Harlem Brundtland, former Prime Minister of Norway, and Dr Amory Lovins of the Rocky Mountain Institute for their work on addressing environmental concerns and sustainable development.

Project website

Holding page: www.theRSA.org/carbon. New site launch: 17 October 2006: www.rsacarbonlimited.org

Royal Society of Arts

September 2006

Witnesses: **Mr Richard Starkey**, Tyndall Centre for Climate Change Research; and **Mr Matt Prescott**, Project Director of RSA CarbonLimited, the Royal Society for the encouragement of Arts, Manufactures & Commerce, gave evidence.

Mr Michael Jack resumed the Chair

Q152 Chairman: Can I put on record my appreciation to David Drew for kindly taking the chair whilst I was unavoidably detained by other business of the House. I am delighted to be back in the chair and to be able to welcome our next two witnesses: Richard Starkey from the Tyndall Centre for Climate Change, who has been very kind in the past to give us evidence and we welcome back; and Mr Matt Prescott who is the Project Director of RSA CarbonLimited. We had hoped that Mr Steve Sorrell from the Sussex Energy Group of the University of Sussex would be with us but unfortunately he is unwell so, gentlemen, you have got the stage but we do have the benefit of Mr Sorrell's evidence which we have been looking at.¹ Personal carbon allowances: it is an area when you first encounter it which seems quite complicated but as a realistic, practical system for reducing carbon emissions, you obviously favour it. Could you tell us why you favour it over and above other techniques, some of which you heard discussed earlier in the evidence session?

Mr Starkey: When we were looking at personal carbon trading we used three assessment criteria. We call them the three Es—efficiency, effectiveness and equity—and I think that personal carbon trading has, arguably, some advantages under each of those three headings. In terms of equity, personal carbon trading schemes allocate emissions rights on an equal per capita basis and a number of people have argued that is a fair way of approaching emissions allocation. That is, of course, contested but certainly that is what is argued by a number of people. In terms of effectiveness, David Miliband said a couple of weeks ago at an RSA event that he liked the idea of personal carbon trading because it engages people's imagination. Simon Roberts, your previous witness, used almost the same phrase, that by giving people allocation of emissions rights it raises the

visibility of carbon and it could increase individuals' carbon consciousness, and it engages their imagination, as I say. So one could argue therefore that individuals are more disposed to making larger emissions reductions in carbon and are perhaps more able and more willing to root out energy conservation and energy efficiency opportunities, thereby actually reducing the cost of the price of carbon.

Q153 Chairman: Mr Prescott?

Mr Prescott: The RSA CarbonLimited project is charged with exploring the idea of personal carbon trading and the reason that we find most compelling that it could be a more effective mechanism is the fact that everybody is engaged, not just every individual but right the way across the economy. By bringing a huge number of extra actors into the process, as Richard put it, the visibility of carbon in people's lives would be much increased. Upstream measures do not necessarily communicate issues around carbon dioxide to individuals and we feel that that is very important. The potential that bringing individuals as actors into the system could bring about includes a number of things. For example, the UK has a strong history of being very entrepreneurial and by bringing a raft of additional actors into the scheme people's behaviour could actually bring about a rapid change in culture which in terms of local and commercial approaches to controlling carbon emissions would actually be supported by a much greater awareness of the issues.

Q154 Chairman: I suppose it comes through to me as a sort of personal cap-and-trade scheme. Could you describe for me how actually would it work?

Mr Starkey: I think that is a very good description. Personal carbon trading schemes—and there have been a variety proposed—are indeed cap-and-trade schemes under which some or all of the available emissions rights are allocated to individuals. The particular personal cap-and-trade scheme that I have been looking at is known as domestic tradable

¹ Ev 398.

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quotas and it is probably the most discussed of the personal carbon trading schemes. Under that particular approach approximately 40% of emissions rights would be allocated to individuals on an equal per capita basis and that is because individuals are responsible for approximately 40% of energy emissions, that is emissions from their use of fossil fuel and electricity.

Q155 Chairman: Can I stop you there so that we fully understand what you are saying. You are saying 40% of the nation's emissions, if you like, a level? When you say 40% of the emissions rights, how are 100% of the emissions rights going to be decided in this model?

Mr Starkey: 100% of emissions rights is equal to the emissions available under the cap. Ultimately it is the science that will determine the level of carbon.

Q156 Chairman: To go through the methodology for us simple folks up here, there is a given level of emissions which we think is desirable, achievable or actual. In other words, if we were going to introduce this thing tomorrow, what would be the first steps that you would have to take to decide what the figure was for the 100% emissions rights? Who would do that job?

Mr Starkey: I think the question is what would be the accumulative emissions budget for, for instance, the UK over the next 50 years and that cumulative emissions budget would be determined by what the science is telling you.

Q157 Chairman: You are not answering my question. You are veering off to describe a nice model. We are practical people and we have to go and sell this idea to the people whom we represent. So I am knocking on the door of my next door neighbour and saying, "I've got this great idea here, it is personal carbon trading: are you going to buy into this?" I have got to explain to my next-door neighbour, Mrs Salthouse—and I hope she does not mind being mentioned but she is a good Lancashire lady—how her allowance was actually determined. I am going to have to say to her, "Somebody has decided, Mrs Salthouse, that this is your allowance." How can I get the message through to Mrs Salthouse?

Mr Starkey: I think what you would say to Mrs Salthouse is that every year the Government sets a financial budget; it is also going to set a carbon budget and that is the amount of emissions that could be released in that given year, and because we have to tackle climate change, in simple terms, that budget has to be reduced every year. Or you could use the analogy of a cake: if the carbon budget is a cake then the available cake shrinks year on year on year.

Q158 Chairman: Let us look at the size of the budget. You say the Government is going to set it. One of the discussions around Mr Miliband's statement earlier this week was the establishment under the Climate Change Bill of something called a Carbon Committee which had a feel that it was to one side of

government, it was a sort of equivalent of the Monetary Policy Committee in the world of carbon. Would you envisage an organisation like that determining what the number of the budget was or are you going to leave it to politicians to fix the number?

Mr Starkey: I am pleased you mentioned that. I was using the term "government" loosely but in fact the gentleman who formulated the domestic tradable quotas idea, David Fleming, did suggest a number of years ago the idea of having a Carbon Policy Committee and I think having that sort of independent body would be a very good idea.

Q159 Chairman: You have concentrated on emissions as opposed to the other end of the scale the amount of carbon in the inputs; is that right?

Mr Starkey: That is right.

Q160 Chairman: Okay, so I go along to Mrs Salthouse and say 40% is this national emissions figure in the carbon trading and you have got one 60 millionth worth of this; is that right?

Mr Starkey: If emissions rights were allocated to all individuals 18 or over it would be one 50 millionth.

Q161 Chairman: Let us assume it goes to the adult population. I presume that there are allowances for children. They do not live in an energy-free world, do they?

Mr Starkey: Amongst the people interested in this field there is an on-going discussion as to whether parents should be allocated additional emissions rights because of the fact they have children.

Q162 Chairman: If they are going to advocate this scheme do you not think they should have come to a conclusion already as to how it is going to work?

Mr Starkey: You want to get academics to agree? That is not always entirely possible!

Chairman: Well, I am anxious to explore the practicalities. I hope the Committee would agree that we ought to know whether this is a feasible idea or whether it has just become part of the new genre of jargon because over the coffee tables wherever these matters are discussed you can say, "Let us have a personal carbon allowance, I am really with it, I am hip, I have got this latest thing," but what we have to decide is whether it is actually practical, can we do it as a mechanism. Our previous witnesses left us with a mouth-watering prospect of people using their imagination and innovation to trade their way into a lifestyle choice between going on holiday and using less energy in the home, which was interesting. I am interested to know if that model were to be applied, how we are going to make it work. We have got to the level where we have set the budget and my Mrs Salthouse has got one 60 millionth worth of this but she might—let us say Mrs Salthouse is anybody—have a child in her house that she has got to look after and you are telling me you do not know whether children are going to have an allowance.

Q163 Lynne Jones: Could you also take into account transport emissions as well rather than just energy in the home?

Mr Prescott: Just to mention a little bit more about what we are doing. There is a certain level of agreement across the community that has been looking at this issue for a number of years now of the things that are agreed upon, and there are a number of areas that are not yet fully understood, and the issue of whether or not children get an allocation or how big that part allocation would you be is one of those issues. The research programme that we have put in place with partners such as the Tyndall Centre is to establish some of those gaps, and I think perhaps the most important part of that work is the number of pilot schemes that we are setting up around the country to test exactly these kind of aspects and the public appetite for personal carbon allocations. I do not think therefore that we should see the design of them as set in stone at this stage. We are very much approaching this from a public discourse point of view, running events around the country to elicit some opinion. So I think in a way we are on a steepening part of the curve towards understanding exactly how personal carbon trading schemes could work.

Chairman: Mr Drew, in the voyage of exploration of understanding this novel concept, has also got some points for you.

Q164 Mr Drew: That is my problem and obviously if we had Steve Sorrell with us we could ask him. He has got this hybrid scheme, I understand. I was once called an academic and I always tried to push that aside, but academics do not come to conclusions, they leave that to decision-makers. With the best will in the world, if this is going to work it is going to have to be put together fairly quickly and it really has got to be comprehensive because it has got to grab the public's imagination and it has got to grab the public's imagination in a way in which they can understand the practical consequences. Surely somebody is doing this, somebody is working on this, somebody can deliver this; give me an assurance that that is the case.

Mr Prescott: Absolutely. I think there are four organisations that are focusing on this very closely at the moment and a growing number.

Q165 Mr Drew: And can there be agreement on the approach because I do not understand whether personal carbon allowances is the same thing as domestic tradable quotas or whether this hybrid of Steve Sorrell's is the appropriate way forward. Is there some rationalisation of approach, so that we get the best and the concrete (sorry about the analogy) way forward?

Mr Prescott: Yes, I think the model that Richard described in his paper from the Tyndall Centre describes the model that is supported by the RSA and the majority of the community which is this issue of having 40% of the total carbon budget allocated to individuals.

Q166 Chairman: Why did you choose 40%?

Mr Prescott: The reason for that is that 40% of the UK's total body of emissions is directly attributable to fuel and electricity.

Q167 Chairman: Can I just stop you there. You say 40% of the emissions are due to fuel and electricity. Just to be absolutely clear, what are the universal emissions that are covered by that term emissions?

Mr Starkey: Under the domestic tradable quotas proposal it is emissions from the combustion of fossil fuel.

Q168 Mr Drew: And that includes cars?

Mr Starkey: Yes.

Q169 Chairman: So if you use a piece of transport in a collective sense, a bus or a train, then that is a free hit, is it?

Mr Starkey: It is not a free hit because the bus company will be purchasing the fossil fuel to run that bus and will therefore be required to buy emissions rights and surrender them when they purchase the fuel and so the cost of those emissions rights will be embodied in the fare charged by the bus company. What will not happen is that the individual will not surrender emissions rights when they get on the bus. The individual will only surrender emissions rights when they buy fuel directly or they buy electricity.

Mr Prescott: If I may say so, there are two particularly strong reasons for why that should be the case. Obviously if one took the bus, one does not know how many people are on the bus at any one time so it would be very difficult to raise the carbon intensity of that particular journey, whereas if you buy a tank of petrol the calculations are far more simple, so there is an accuracy issue which is very important. The other issue is one of simplicity. Much of the excitement around personal carbon allocations, apart from the fact that individuals are involved and therefore compelled to engage, is that the existing credit infrastructure, the existing banking infrastructure that everyone is very familiar with—credit cards and loyalty cards and so on—would be the type of technological infrastructure that would carry this scheme, so if one imagined one's current account also accounting for one's carbon at a petrol station, a single swipe of that same debit and credit card that you would always use would simultaneously transact in carbon. If one were to introduce such a thing on London Transport one could look at the Oyster system, but clearly the feasibility of that becomes far more complicated. Thus the system effectively operates in the background but the information becomes far more prevalent so that people have a stronger price signal and a stronger quantity signal, which affects their behaviour.

Q170 Mr Drew: Maybe I am losing the plot here. If you were to make that public transport free and were to allocate collectively the carbon cost of running that bus or that train, but you were to charge the individual for using that car, is that not a bit simpler? Why do you need the notion of a personal carbon

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allowance when you use the bus? Make that free because that is a collective action that could be undertaken.

Mr Starkey: We are saying when you got on the bus you would not be dipping into your personal allowance; you would simply pay the fare, but the fare would embody the price of the emissions rights purchased by the bus company because, as Matt said, technologically it becomes very complicated for someone to be able to surrender emissions rights when they get on a bus. You said earlier if a scheme like this is going to have any chance it needs to work and be able to be implemented relatively soon, and so sticking to surrendering emissions rights when individuals are purchasing fuel and electricity seems much more simple and also, as Matt says, you are piggybacking on existing technologies. Debit/credit card technology has been in place for a number of years, it is tried and tested, so you are not really inventing anything new.

Q171 Chairman: What are you going to do for people who do not have a credit card or an account?

Mr Starkey: That is a good question. For instance, visitors coming from abroad will not have been allocated any emissions rights but they will be able to buy those rights at the point of sale. If they hire a car, they go to the petrol station and fill up their tank, and as well as paying for their petrol they would also pay for the relevant number of emissions rights to cover that purchase of petrol. That would simply be added on to the bill so it is actually very convenient.

Q172 Chairman: What about an airline on a short journey, for argument's sake, from Paris to London? That does not buy any fuel in the United Kingdom so how does this system work on something like that because you are imputing that the user of the fuel has to buy their rights to emit but a foreign airline coming into the United Kingdom, say Air France which flew from Paris and landed at Heathrow and did not refuel here and went back where there was no purchase and no rights but people use the plane; how does your system deal with that kind of situation?

Mr Prescott: What I would say on the aviation question is, firstly, we have a work programme to look at the whole public transport and aviation question, which has just started recently, so we will report back next spring on that. That piece of work will take account of the possible role of the European Union Emissions Trading Scheme which may or may not capture those emissions imminently, and our position would certainly be if that could do so in the short term, then it should. The piece of work that we will be doing will look at the ticketing arrangements, for example, and also maybe some of the relationships with the airports and the control they have over the airlines using their spaces, so there are a number of possible angles to that.

Q173 Chairman: What you are saying is that there are some things in the doable column now, if you like, on domestic household energy consumption, and some things in the "we would like to do them"

column. If you went on the doable column, how long do you think it would take from a standing start to get such a scheme up and running?

Mr Prescott: That is a very good question. Richard and I were discussing precisely this only last night, I think, that if one were to have a phased implementation, of which we are very supportive, then the domestic emissions would be a very clear first port of call and obviously as the EU ETS evolves, and again we are looking very closely at how that could be brought about in conjunction with the PCA, then yes the aviation question can be tackled later. I do not think there is any denying that it is a more complicated question than domestic emissions.

Q174 James Duddridge: I would just like to probe the psychological impact on individuals of a personal carbon allowance and whether that will actually stimulate a behavioural change in the way that an upstream cap-and-trade system through the market mechanism would not. Is it really that much more effective?

Mr Prescott: That is a very interesting question. Our feeling is that it probably would be but there is no evidence, as I think Steve Sorrell says from his point of view, on this issue as yet.

Q175 James Duddridge: How reliable is that evidence? Is it the fact that there has not been an academic piece of work or is there no model or academic study that is on the table as a proposal that would provide the evidence?

Mr Starkey: There has been limited academic work in this field to date, but I do think that this is the sort of work that the academic community now needs to be engaging in because, in a sense, this is one of the issues in Steve Sorrell's suggestion about going upstream, which he said would be cheaper administratively. If it is cheaper administratively, why not do it? Even if a downstream scheme proves to be more expensive administratively, the proposition is that it will engage and excite the imagination of individuals or organisations more and so lead to more efficient emissions reduction. Steve describes that as a "contestable proposition", and I think that is what we need to be looking at by a variety of means (interviews and focus groups being two of the avenues we could go down) and that is what we are intending to do in the near future.

Mr Prescott: Yes, and we have two or three pilot programmes just beginning at the moment which are probing exactly that question. If I may make a name check, for example, we are working with Manchester is My Planet, which is an interesting community-based scheme across 10 metropolitan boroughs in Manchester, and we will be very much having a dialogue with signed-up members of that community to elicit some of the excitement and creative potential of that group. We are running similar schemes with both local authorities and developers looking at some of the local implementation options from that local government angle. So I think there is no evidence on the table but

I do think in the next six months we will start to provide the first evidence that we need to answer that question fully.

Q176 James Duddridge: Is there not a potential problem with personal carbon allowances and domestic tradable quotas in that there will be a double counting because citizens will already be charged under the EU Emissions Trading Scheme?

Mr Starkey: Yes, that is one of the points that Steve Sorrell raises in his paper. Again, I think the area of interaction with EU ETS is one that the research community needs to engage with more fully. I think essentially there are three options: you either accept the double counting as an additional cost and go with it. Another option would be to take electricity out of the personal carbon trading scheme because electricity is already covered under EU ETS. A further option would be to explore the possibility, perhaps in phase three of the EU ETS, of allowing rights' holders to shift from electricity generators to electricity customers. If you could do that you would pave the way for a personal carbon trading scheme.

Q177 James Duddridge: What work has been done on the politics side? Perhaps I can ask you for some political advice. On one side the upstream trading schemes seem less politically sensitive because there is no initial impact on the consumer, it is disguised, but then longer term it might be typified by an environmental stealth tax and there will be longer term resistance, this being seen as more of an increased take from the Government.

Mr Prescott: I think this is precisely one of the main attractions of personal carbon allocations, that the individual has in their hand their right to emit so it is not hidden, it is very visible. So, for example, if one were a very active environmental campaigner, one might choose to, as Richard describes, retire their credit, which would effectively be the same as buying carbon offset except slightly more intelligent because those emissions rights are taken out of the system and the overall budget shrinks. So the individual citizen—and also incidentally we are looking at communities operating as a group as well with their credits—can actually effect changes to the overall carbon budget. In terms of governance at city region level, citizens could be very much engaged in leading the way in terms of bringing about renewable energy and so on in their local communities by using their credits in the appropriate manner. To exemplify what I am talking about, if one were to introduce tomorrow the full system of DTQs as described by Richard, then there would naturally be a queue of people wanting to sign up to the 100% renewables electricity providers because they would be lower rated and naturally that means there is a flow of capital into renewable energy which enhances that sector of the economy. In other words, purchasing decisions will favour low carbon products and services. I do not know if that fully answers the question but I think that gives a flavour of how the individual would then interact with politics.

Mr Starkey: If I could come in on that as well. It is an interesting debate as to whether it is better to have a visible instrument or a less visible, more hidden instrument. I perhaps slightly question Steve's contention that having an upstream emissions trading scheme would hide things that much. For instance, the price of carbon, if we are talking about large cuts in emissions over the years, could go quite high, which would mean that the price of fuel would go quite high and from the point of view of the individual consumer it is the same as a tax, so it is just the price of my energy is going up and, as we all know, the Great British public is not overly enthused about energy taxes going up. So there is a question of how invisible you could make it and what the reaction would be if large price rises came through in the form of what looked like a tax. I would add to that you used the word "stealth" and if you try and hide it, opponents will just say, "The Government is trying to hide it, it is a stealth tax, we all hate stealth taxes".

Mr Prescott: Could I add another possible piece of evidence to this. We commissioned a poll from YouGov which gave us some responses which were very interesting, one of which was that 77% of respondents said that they could reduce their personal carbon emissions.

Q178 Chairman: What was the question you asked them?

Mr Prescott: "Do you feel that you could reduce your personal carbon emissions?" To which three-quarters plus said that they could. Within that we probed where they could do that and, interestingly, it was in the home that they felt they could do that, far more so than both road transport and even more so than aviation. The other interesting aspect was that 65% of people chose that individuals should take responsibility for emissions, above 21% who chose government, and 11% industry. In other words, there was a strong body of opinion that individuals did actually have primacy in responsibility for emissions. We can make that report available to you if that would be of interest.

Q179 Lynne Jones: But your proposal is that the Government forces people to take responsibility. It is not them actually volunteering to do it, is it?

Mr Starkey: Every cap-and-trade scheme forces society as a whole to take responsibility because it is saying we are going to have to cap emissions because climate change is serious. I do not think that is a specific criticism of any one particular instrument.

Q180 Lynne Jones: I am just talking about the perception of people. They are saying that they should be responsible but you are saying that we have got to make them responsible by imposing this scheme.

Mr Prescott: I would say it is more of a framework to enable them to be responsible because under this scheme, more than—

Q181 Lynne Jones: A taxation scheme is a way of forcing people to be responsible then.

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Mr Prescott: Forcing, yes.

Q182 Lynne Jones: Either way, it is compulsion, is it not?

Mr Prescott: I think we recognise the importance of reducing emissions.

Q183 Lynne Jones: How would people feel about the administrative cost? You said they would be unhappy about a stealth tax but somebody has got to pay for administering all this. It is relatively easy if you know certain people live in a particular house and therefore they are responsible for that, but what about when you go and fill up your car or when you go and buy something that is energy intensive or something which is the cause of a lot of CO₂ emissions? What about crime; will we introduce a new crime of nicking people's carbon allowances and going to the shops?

Mr Prescott: I suppose there are two questions in there. On the issue of the black market I think I will defer to Richard to talk about that, but on the first issue, as we were describing earlier, much of the credit card type technology is already in place to support such a system and I think—

Q184 Lynne Jones: I can go and buy any number of credit cards. What is to stop me doing that? You have got to have some sort of identity card. You have got to have restrictions on access to that. It is more complicated, is it not?

Mr Prescott: I agree. Richard has hopefully got something to say on that. On the first part of the question, I think on the intervention vehicle in terms of the costs—and you were talking about the high cost and whether that would be acceptable to the population—we feel quite strongly that the commercial sector would probably carry much of that cost because there are a number of opportunities that would develop. I think in many ways this is a strong first mover advantage for companies who could start to develop the kind of financial products and services to support this much larger industry that we would be talking about if everybody was involved, and therefore banks and market mechanisms and so on would be looking to develop new products, some of which they could sell, so there would therefore be a possible new burgeoning market. It is difficult to imagine how big that could be right now but it is potentially huge, especially if other countries came on board. So I think commercial players will see an opportunity and indeed an opportunity cost—

Q185 Lynne Jones: Sorry, marketing what?

Mr Prescott: The carbon market that we would be talking about would have far more actors, so therefore there would be far more transactions. I think, if I am right, the question was that the much greater number of transactions would result in much greater costs to the system. What I am suggesting is that it may be that the commercial operators would carry that cost because they could offer further

products that they could sell on the back. In other words, there is a role for entrepreneurs to enter into this new space.

Q186 Lynne Jones: It sounds a bit vague. Am I going to have more junk mail?

Mr Prescott: It is vague again because this is work that is only just underway.

Q187 Lynne Jones: In principle I am in favour of some kind of personal carbon trading, but I am not convinced about its feasibility from what you have said, I think you need to do a lot more work.

Mr Starkey: I would certainly say that credit cards have worked well enough for a long time and essentially you would be piggybacking on well tried and tested credit card technology. I am not pretending that there would not be—

Q188 Lynne Jones: It is the identity that is the problem. I am wholly opposed to identity cards, for example, and all the problems with that, the technology, the size of the database, the potential for the database going wrong. I do not think we have yet got tried and tested technologies on that.

Mr Starkey: The database for a scheme like this would be relatively small. It would be much smaller and much less complex than the proposed database for ID cards which stores biometrics and up to 50 pieces of information on individuals. You are simply talking about a relatively small database to track people's trading.

Q189 Lynne Jones: You have to be sure of the identity of the person who is doing it. You have to have secure identity for this.

Mr Starkey: Absolutely and just as with credit cards and when you apply for a credit card you have to have your identity verified to a given level, so if you were enrolling in this scheme there would undoubtedly be issues of identity verification. I do not think that at all takes you down an ID card route. It is simply if I am issuing you with a carbon account which contains emissions rights that have a value on the market, I have to be sure that you are who you say you are and I have to be sure that you do not open three accounts rather than the one that you are entitled to.

Lynne Jones: That is where the problem lies.

Chairman: I think we have all got some practical questions. I am going to defer to my colleagues before I have a go. David?

Q190 Mr Drew: I was going to make this point: to me if—and the word “if” keeps coming up—this is going to work everybody has to play. It means that there will be an enormous amount of data stored on every individual because you will have to know exactly what journeys you are making, what power you are buying, and somebody will have to control that. Either it is the state or it is the private sector, and the state may defer to the private sector, which it increasingly does. But this is about, whether you like it or not, individual freedom infringement because if you are serious about this you have to say

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that you are going to control people's lives to the extent that they are able and willing to incur carbon cost which they will then have to offlay. Is that what you are saying? There is no other way you could do it. Somebody has got to control this data on people because otherwise it is going to be very unfair. You cannot opt into this. We either all do it or we do not do it.

Mr Starkey: I agree. Any cap-and-trade scheme, be it upstream, downstream or any carbon tax, means controlling people. You are controlling the amount of fossil fuel that ultimately they can combust and, yes, you would have to have a central database and that database would track the movement of emissions.

Q191 Mr Drew: My argument is that is an ID card. What is the difference?

Mr Starkey: Absolutely not. In fact, in the paper that I submitted to the Committee, I am just trying to find the relevant section, I actually made a very big distinction between identity cards—

Q192 Chairman: Which paragraph, take us to these words.

Mr Starkey: In the large paper I submitted to the Committee there is a section on civil liberties on pages 14 and 15.² When the Director of Liberty was giving evidence to the Home Affairs Select Committee she said one of the reasons that Liberty was opposed to ID cards was that it was a “single identifier that is used for multiple purposes” but she said that in principle Liberty had no difficulty with purpose-specific identity material. So this would not be a card that would be used like an ID card to prove your identity for multiple purposes to the state and possibly to lots of private organisations. It is simply a card that allows you to access your carbon account, just as your debit card allows you to access your cash account. I see this as much more analogous to the database that your bank holds on you to track your movement of money rather than to some big biometric ID database. I think there is a very definite difference between a single identifier that is used for multiple purposes and purpose-specific identity material. As I said, the NGOs that are most opposed to the ID scheme very much make that distinction.

Q193 James Duddridge: If we go down the personal carbon allowance route, I am intrigued by our American tourist coming over and getting a hire card and filling up. He goes to a petrol station, hands over his card, buys £20 worth of fuel and there will be an additional charge, let us say £2, for purchasing somebody's personal carbon allowance so we have already gone down the market mechanism route that would be involved upstream. I cannot see why, if it is not going to work for that American tourist and

change behaviour there, it will not work for everyone else. We seem to be adding on an extra layer of bureaucracy for a proxy of a market system. As you have said, it is like a debit card. If it is so much like a debit card, why do we not just put a value on it? What is the point in me having 10 units of carbon I can emit and buying an extra 12 or selling 2 that I do not need, and not simply putting a value on it imposed by government, because, as Lynne Jones said earlier, we are already imposing a mechanism, we are not allowing citizens to change directly.

Mr Starkey: By not allowing citizens to change directly you mean voluntarily?

Q194 James Duddridge: Yes, voluntarily and I do not think that will work entirely. I do think we need a mechanism. I am just unsure about whether the downstream mechanism is fundamentally flawed.

Mr Starkey: I would agree entirely, I think the voluntary approach on its own is not going to work. You need to cap emissions within the economy and you can do that in two ways, upstream or downstream, and both of them use the market. Personally I do not think that the downstream personal trading scheme route is flawed. It is a different way of doing it. The distinction is that the individual is confronted with a quantity signal, their allowance, rather than a price signal.

Q195 James Duddridge: The Energy Saving Trust came to my house and they said, “I bet you don't know how much your electricity costs and how much your gas costs,” and I did not. In terms of per unit we do not know a measure but I know for sure that it costs me £35 a month for my electricity and £55 for my gas, and I can understand that because I can equate it to my grocery bill and other bills, whereas if we say 10 units of carbon that will mean nothing to me. My argument is that perhaps it never will mean anything to me but £35 does, it is a universal measure.

Mr Starkey: I think there are a number of points to make. A number of people perhaps do not even know what their quarterly electricity or gas bill is and even if they did know how much it costs in money, it does not incentivise them to look for that energy efficiency or energy conservation opportunity necessarily. In a sense, the hypothesis is that if you give someone an allocation or an allowance in carbon units, it will set their mind thinking. They will suddenly think, “I have got this limited allowance, how much carbon am I emitting? How can I reduce this? How can I look for efficiency measures, how can I look for conservation measures?” The question really is does that quantity signal stimulate individuals to look for these opportunities more fully than a price signal.

Q196 Chairman: In your paper you are critical of it but you talk about certain elements of economic welfare in trying to justify the way that the allowances are going to be given to various people. You have assumed in the way that you use the word people a universal knowledge and ability to conduct

² Not printed. *Domestic Tradable Quotas: A policy instrument for reducing greenhouse gas emissions from energy use*, Richard Starkey and Kevin Anderson, Tyndall Centre for Climate Change Research, December 2005. <http://www.tyndall.ac.uk/research/theme2/final-reports/t3-22.pdf>

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your life within the framework which the personal carbon allowance regime imposes on people. There are some people who are what one might describe as energy literate and they also might be well resourced, in which case they would have a very good chance of using the best and most innovative techniques to try and reduce their emissions position and take advantage of the system. There are some who are not so advantaged. We all come at things with a different quotient of intelligence, education and resource at our disposal. There are some who might be utterly flummoxed by the whole thing as, "Gosh, what on earth do I do?" How do you deal with this inequality of individuals to respond to the intellectual challenge/the economic challenge which this system would impose upon them?

Mr Starkey: I would answer that in two ways. The first is even if you had an upstream trading scheme or an upstream tax which put the price of fuel up, some individuals are better at dealing with money than others, so I think your question applies to whatever instrument is implemented. In terms of personal carbon trading perhaps the question becomes having these carbon accounts, having these carbon units, having these emissions rights, it all seems terribly complicated; how do you deal with that? Actually there is a rather easy answer to that which is that as soon as an individual is allocated their allowance of emissions rights they can automatically sell them and then they buy all the units that they need at the point of sale, so they can just transact in money if they wish to. So you can go down the "I will manage my carbon account route because I think that would be fun and interesting." . . .

Q197 Chairman: Can I just ask another question. A high-rise block of flats in a really rundown inner city area, with a highly mobile population, difficult social crime conditions, some people say, "I am not damn well signing up to this load of nonsense"—what are you going to do about imposing this? What kind of mechanism to enforce people to comply do you envisage because there are plenty of people around who are very good at ducking and weaving when it comes to officialdom and sometimes they just vanish off the radar altogether. I seem to recall that when we had the unfortunate poll tax there was a rather large number of people who just did not pay. They did not want to play the game and the rest of the people had to pay on their poll tax a figure called "adjustments" to make up for those who were not part of the game. What kind of enforcement mechanism would you envisage to get everybody to play in an PCA world?

Mr Starkey: It is very interesting that you raise the example of the poll tax because the personal carbon trading example is 180 degrees opposite to the poll tax. Under the poll tax not everybody paid. If you do not sign up under the personal carbon trading scheme not everybody receives, so under the poll tax you benefited by not paying; under a personal carbon trading scheme it is a disbenefit because you do not receive your free allocation of emissions rights and you will still have to acquire emissions rights by buying them at the point of sale.

Q198 Chairman: What about the supply of energy, do you envisage that people would be able to buy their energy without becoming part of the scheme?

Mr Starkey: No, they would not be able to buy their energy without becoming part of the scheme, so if for some reason I have not enrolled in the scheme so I have not been allocated my free allowance of emissions rights, then when I come to pay my gas bill the gas company is going to have to buy the emissions rights that I require off the market and add the cost on to my bill, so there is a very real economic penalty for not enrolling in the scheme.

Q199 Chairman: An economic penalty, but are you saying that there is a non-sale barrier, in other words that the gas or electricity power supplier cannot sell the product to somebody who is not part of the scheme?

Mr Starkey: No, if you want to get your hands on a unit of gas or a unit of electricity or a unit of petrol you have to have the relevant number of emissions rights and if you do not have a carbon account so you do not have them in your account, then the retailer has to buy the units for you, surrender them on your behalf, and add the cost to your bill. So if you had not enrolled in the scheme and it was time to pay your quarterly gas bill, you would pay the cost of the gas and there would be this additional item on your bill for the cost of the emissions rights that the gas company had to buy for you, so it is important . . .

Q200 David Taylor: Presently Britain has excess deaths due to hypothermia each year. So in a future Richard Starkey winter, if they were then presented as excess deaths due to inadequate domestic tradable quotas that would sound rather better, would it, for elderly people who did not want to play?

Mr Starkey: Again, I do not think that is a criticism that is specific to a personal carbon trading scheme. If you are trying to cap emissions, be it with an upstream tax, an upstream trading scheme or a downstream trading scheme, you are nevertheless capping emissions. There is a limit to the amount of fossil fuels out there so the deaths could come under any instrument. I suppose the important point to emphasise is that personal carbon trading is not proposed as a stand-alone scheme that solves all problems. It has to be implemented as part of a portfolio of measures, including tackling fuel poverty, making sure that elderly people have a proper fuel allowance and so on and so forth. It is valid point but I do not think it is one that is necessarily specific to this scheme.

Mr Prescott: It is one of the reasons why we are particularly interested in looking at the community angle and working with local authorities because one issue of concern in terms of climate change adaptation is that people in social housing in the block that you have described quite often pay communal energy bills and do not actually own their property so they cannot insert solar panels on the roof and so on, and so they are quite limited in the way they can act, which is why if we can bring a community-focused angle into this debate, we can

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not only enable the far more efficient group efforts such as, for example, communal CHP and so on and so forth but also support those individuals who are particularly vulnerable as part of a community.

Chairman: Can I ask you to do something because you may think we sound rather cynical in the questions that we are asking, but we are traders in reality because all of us are anticipating what we think we might have to deal with in our constituencies if such a mechanism was there. I think the words “if”, “might”, “hope”, “would” and “could” have percolated what you have said. I think it would be helpful, because we are also trying to understand something which is totally novel and unfamiliar to us and you have the advantage of working with it. If you could reformulate your paper for the Committee taking into account some of the practical questions that we have asked, and present us with what I will not call an “idiots’ guide” because that would be insulting to my colleagues but a simple guide as to what a workable scheme would actually look like, taking into account what I might call things that we can be reasonably certain of now and a column for the work in progress, I think that might be quite useful. You have made it very clear that there are a lot of areas where, in fairness to you, you are formulating a new way of doing business. What are the areas of uncertainty which would have to be resolved in order to try and make a scheme that was practically launchable? You have heard colleagues around the table express some concerns about identity of data. Perhaps you could reflect upon those in terms of some further material that you may wish to send to us. Lynne, I think you have some further points.

Q201 Lynne Jones: I am attracted in the hybrid scheme by the concept of having the lump sum distribution from the auctioning of carbon permits to the energy suppliers because it could be redistributed in a way that it benefited people who are poor financially or people who have poorly insulated homes to help them insulate their homes, that sort of thing. Is there any mechanism in your proposal that would allow redistribution in that way?

Mr Starkey: Under a personal carbon trading scheme emissions rights themselves are allocated on a lump sum or equal per capita basis. In Steve’s proposed scheme the emissions rights are auctioned upstream and the revenue from the sale of emissions rights is allocated on a lump sum basis, and what Steve argues in his paper is that those are roughly equivalent.

Q202 Lynne Jones: But you could redistribute that money in different ways. You would either do it equally or there would be a mechanism of actually giving some people more than others.

Mr Starkey: Yes, Steve talks about the lump sum route but one could go down other routes as well. What we have argued is that allocating emissions rights on an equal per capita basis or allocating the revenue from the sale of emissions rights on a per capita basis is broadly progressive and that those on

low incomes would, broadly speaking, be better off because the emissions from their energy use are lower than the number of emissions rights that they would receive in allocation so they would have surplus units.

Q203 Lynne Jones: They would not be jetting off and having high carbon emissions in that way but they might actually use a lot of energy in heating their poorly insulated homes.

Mr Starkey: Yes, this was a piece of research done by the Policy Studies Institute which found that 20 to 30% of households in the lowest income deciles are actually above average emitters because they live in such energy inefficient housing and they have to use so much energy to heat their houses so they are having to use a huge amount of energy and fossil fuel to keep their house warm which means that their emissions are very high. What the Policy Studies Institute found was that they thought they could tax household energy and then redistribute the income to make sure that those in fuel poverty were no worse off, but they found that because the range of energy use within the lowest income deciles was so broad you could not adequately compensate those on low incomes to make sure that they were not worse off. I think what this tells us is whether you use Steve’s upstream scheme, you use a carbon tax or you use a personal carbon trading scheme you cannot implement the instrument in isolation. You also have to deal—very quickly I would argue—with issues of fuel poverty because otherwise you end up disadvantaging some people on low incomes.

Chairman: You have said on a number of occasions that each individual would receive their own personal allowance under the scheme. If I look at the energy usage in our house, there are two adults who live there and in terms of the heating we can enjoy the heating simultaneously. Are you not in that context over-allocating multi-owner households because from the point of view of the differential, it is the individual actions say in the use of hot water where there may be a difference but in the context of absorbing the heat there is no difference.

Lynne Jones: Unless you share a bath!

Q204 Chairman: That is an innovative solution.

Mr Prescott: In a way it is the same as car sharing; you buy a tank of petrol and if your car is full then it is more efficient, but there is a dose of realism here which is that multi-occupancy households are more efficient.

Q205 Chairman: Does that not go back to my next-door neighbour who is a single person in her home. She gets one allowance; she has still got the same space to heat up. The only saving she has over a two-person household is the hot water in a domestic situation. It could well be that you use the same amount of gas in both properties. It just seems to me that equality ends up by disadvantaging the single person.

Mr Starkey: In a sense, this was the issue that I addressed in my memorandum to the Committee. There is in some sectors of the environmental

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movement a feeling that if you allocate emissions rights on an equal per capita basis that is straightforwardly and obviously fair, but the example that I think you are giving shows things are perhaps a little more complicated than that: single occupancy households versus multiple occupancy households; people who live in the countryside who have to do a lot travelling simply to live their lives who do not have a regular bus service versus people who live in an urban setting where all the conveniences are very nearby and where public transport is plentiful; people who live in much warmer parts of the country versus people who live in much colder parts of the country. There are very many ways in which you can say this particular allocation of cash, if it is lump sum recycling or emissions rights, is not entirely fair. I think those are very valid arguments. The point that I was getting at in my memorandum, I suppose, is perhaps the argument that one makes is you cannot adjust the lump sum recycling and the emissions rights to take into account every single factor so this is about as fair as it can get practically. So for those people who live in the countryside, okay, we have to implement other measures in addition to this scheme to make sure that they are not unnecessarily disadvantaged.

Q206 Chairman: Can I give an example. All of us as MPs have people in our constituencies who have a disability who feel, for example, that they ought to qualify for a benefit like Disability Living Allowance, but because their disability and circumstances do not chime in with that scheme's definition of disablement they do not get state money. Let us say for argument's sake, in the world of PCAs that people with a disability that is recognised by Disability Living Allowance may get some extra credits in terms of the scheme, but another person with a disability who might argue, "My personal condition requires me to sit at home with the fire on because I get cold very easily but I am not officially recognised as being disabled" is in a very disadvantaged position because of the measures that might be used to determine who could get an additional allowance because of their circumstances. If you are saying to me that is about as fair as you can get, the question you have to address is how are you going to deal with the hard luck cases which we, I can guarantee you, will have in our constituency surgeries every week with people complaining, "But they do not understand my energy needs."

Mr Starkey: Perhaps I will clarify what I said. That may be as fair as it gets in terms of allocation of emissions rights, but it may be that through the benefits system you could, for instance, increase disability allowances so that that particular constituent was in a position to buy more emissions rights on the market.

Q207 Chairman: That is the practical problem through the benefits system and the point I was making—forgive me, I would not expect you to be an expert in Disability Living Allowance, there are very few people who are—what I am saying is there are categories of people with difficult personal

circumstances who do not qualify for a benefit but who may need additional help. Officialdom has a nasty habit of saying, "Okay, we recognise that some groups need some special help so if you qualify for the following forms of assistance you are in but if you do not, notwithstanding the fact that you might need assistance, you are out." Somebody, for example, who was very ill but who did not qualify for a social benefit might need more heat and you are going to have to build in a mechanism to deal with that set of circumstances.

Mr Starkey: All I would say is if there is a need to build in that sort of mechanism it does not simply apply to personal carbon trading; it applies to whichever instrument you allocate, so the carbon tax would be the same.

Q208 Chairman: Let me ask you one factual question and one interesting one. I understand at the moment that the price of carbon is about £11 a tonne on the market. If you want to go and buy some carbon credits it will cost you £11 a tonne but from what I have read the average household in this country pushes out about eight tonnes of carbon a year. Would it not be a lot simpler if you just said everybody has got to have eight carbon credits and go on the market and spend £88 and buy sufficient carbon credits to offset your carbon emissions?

Mr Prescott: But that would involve basically purchasing credits from anywhere in the European Union under the £11.

Chairman: It could be that in a world system you might do it on a world basis.

Q209 Lynne Jones: It would push the price up quite a bit if all these people were after them?

Mr Prescott: It is true to say that the price would rise according to the scarcity of the credits and if everybody was buying then clearly the price would go up, but then there are some serious global equity questions that get raised when the offset is thrown into the ring.

Chairman: So my simple system is not workable?

David Taylor: It would suit your much-quoted neighbour who would be better off than you and your wife.

Q210 Chairman: Let us move on to the easy question then, who is involved in CarbonLimited and how is this project being funded?

Mr Prescott: CarbonLimited is funded upfront by the RSA. There are a number of funders that have supported the total budget of the work and I can make that available.

Q211 Chairman: That would be helpful, thank you.

Mr Prescott: No problem. The project has an advisory group and I shall also send through a list of those names, as it is rather a long list, drawn from experts in the field of personal carbon trading and also the relevant experts across economic issues, social issues and technological issues so that we can cover many of the key questions that are being raised. It is a three-year programme with a small core team at the RSA. The work programme that I

believe we sent through with our evidence is looking to cover many of these larger questions that are being asked. Because the RSA has very good links with many different sectors of society, including industry, we are looking very closely at what the commercial precursors could look like and some of the steps that we would take in the direction of a personal carbon trading scheme and, as we know, the goalposts may well shift so there is a lot of learning to be done on that process. We are working with a number of partners, the likes of the Green Alliance and local authorities that I mentioned, developers, other regional schemes, so it is a multi-faceted project.

Chairman: Can I on behalf of the Committee thank you most sincerely for interacting with us because you have been very kind in stopping your flow of thoughts when we wanted to pose another question.

I think you will have seen that you have certainly stimulated our thinking as we have groped towards understanding this new potentially very interesting area to involve individuals in making a contribution to reducing emissions and dealing with climate change. I hope perhaps you might think that there is some value in eventually bouncing your final product off a group of cynics like us because we as a class, if I can put it this way, do have to deal with all shapes, sizes, forms and conditions of man and womankind in the work that we do so I think we have some expertise in what works and what does not, so maybe you would like to reflect on that. Can I thank you in advance for the further work you are kindly going to do to help us to get a better understanding of these matters, and we very much look forward to hearing from you, and thank you very much for the written evidence.

Supplementary memorandum submitted by Richard Starkey (CIT 38a)

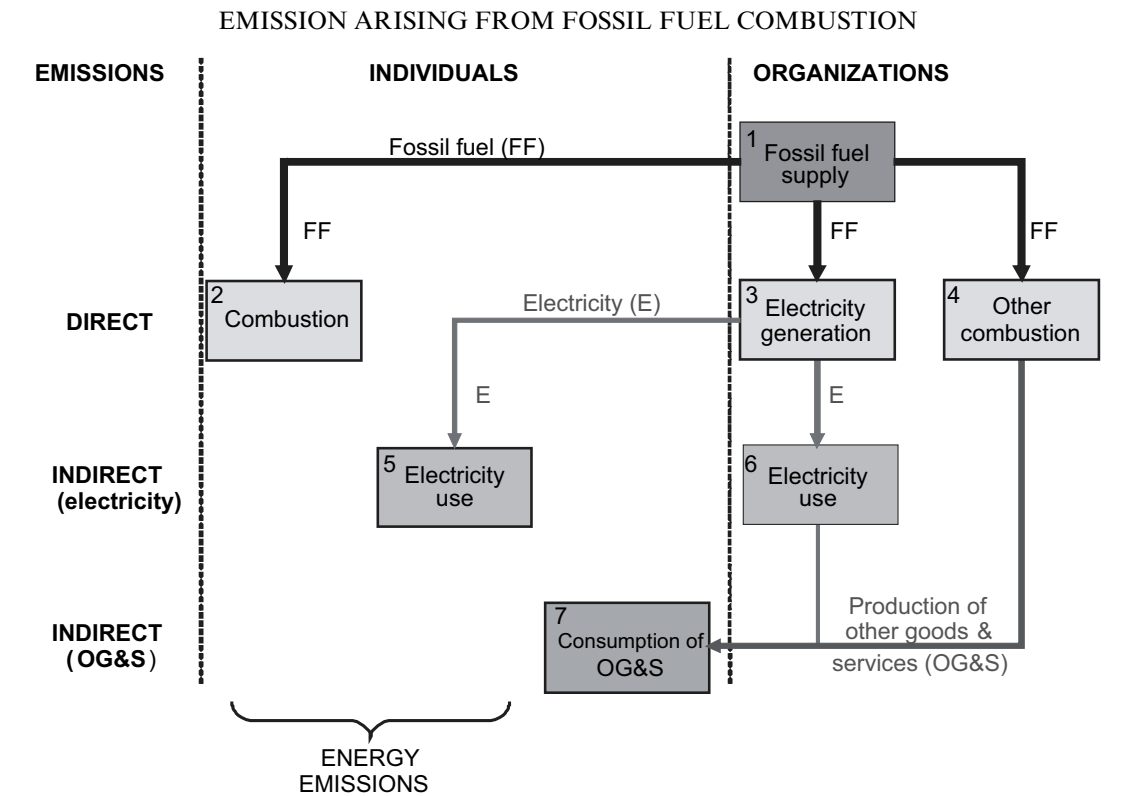
INTRODUCTION

1. This memorandum addresses (1) questions put by the Committee during the evidence session of 1 November 2006 and (2) those questions set out in the Committee’s letter of 10 November 2006. Sections of Tyndall’s Report on DTQs (Starkey and Anderson, 2005)—subsequently, “the Tyndall Report”—are referenced as appropriate.

TERMINOLOGY

2. The terminology surrounding personal carbon trading can be confusing and the Committee indicated that some clarification would be welcome.

Figure 1



3. Figure 1 is a simplified schematic of emissions arising within a nation from fossil fuel combustion. Emissions are divided into *direct* and *indirect*. An individual or organisation emits *directly* when they themselves combust fossil fuel and in Figure 1 direct emissions by organisations are divided into those produced from the generation of electricity and those produced from other combustion activities. Figure 1 illustrates the following equation, with the bracketed numbers in the equation referring to the box numbers in the Figure.

Equation 1

$$\text{Total emissions (1)} = \left\{ \begin{array}{l} \text{Individual direct emissions (2)} \\ + \\ \text{Organisational direct emissions—electricity (3)} \\ + \\ \text{Organisational direct emissions—other (4)} \end{array} \right.$$

4. An individual or organisation emits *indirectly*, when they consume goods or services, the provision of which involved direct emissions by one or more (other) organisations. As can be seen in Figure 1, an electricity generator's direct emissions (3) can also be regarded as the indirect emissions of its customers (5, 6). Hence:

Equation 2.1

$$\text{Total emissions (1)} = \left\{ \begin{array}{l} \text{Individual direct emissions (2)} \\ + \\ \text{Individual indirect emissions—electricity (5)} \\ + \\ \text{Organisational indirect emissions—electricity (6)} \\ + \\ \text{Organisational direct emissions—other (4)} \end{array} \right.$$

5. It is customary for individuals and organisations to refer to their use of fossil fuel and electricity as “energy use”. Therefore the direct emissions of an individual or organisation from their combustion of fossil fuel combined with their indirect emissions from electricity use are referred to as their *energy emissions*. Hence, from Equation 2.1 it can be seen that:

Equation 2.2

$$\text{Total emissions (1)} = \left\{ \begin{array}{l} \text{Individual energy emissions (2 + 5)} \\ + \\ \text{Organisational energy emissions (6 + 4)} \end{array} \right.$$

6. As Figure 1 shows, organisations use electricity and fossil fuel to produce consumer goods and services. Therefore, organisations' indirect electricity emissions (6) and non-electrical direct emissions (4) can be regarded as individuals' indirect emissions arising from their consumption of goods other than fossil fuel and electricity and of services—referred to, for short, below as OG&S (other goods and services) emissions (7). And hence

Equation 3

$$\text{Total emissions (1)} = \left\{ \begin{array}{l} \text{Individual direct emissions (2)} \\ + \\ \text{Individual indirect emissions—electricity (5)} \\ + \\ \text{Individual indirect emissions—OG&S (7)} \end{array} \right.$$

7. Four general types of emissions trading scheme can be envisaged that capture total emissions from fossil fuel combustion. The first is an upstream scheme under which emissions rights are allocated to and surrendered by fossil fuel suppliers. The *Sky Trust* proposal (see Tyndall Report, Section 3.2) is an example of such a scheme.

8. The second type of scheme is one under which individuals and organisations are allocated and surrender emissions rights to cover their direct emissions (see Equation 1). EU ETS is a scheme which covers only direct emissions, though only certain large direct emitters are included. (And, of course, EU ETS includes emissions produced from sources other than the combustion of fossil fuel.)

9. A third type of scheme is one under which individuals and organisations (other than electricity generators) are allocated and surrender emissions rights covering emissions from their energy use (see Equation 2.2). DTQs are such a scheme, as is the scheme proposed by Robert Ayres (see Tyndall Report, 3.2).

10. A fourth type of scheme is one under which emissions rights are allocated to and surrendered by individuals only. Here, individuals surrender emissions rights to cover not only their energy emissions but also their OG&S emissions (see Equation 3). The RAPS scheme (Tyndall Report, 3.2) is such a scheme. The PCAs scheme proposed by Mayer Hillman (Carley *et al*, 1991, Hillman, 2004), under which individuals surrender rights covering emissions from their energy use and their use of public transport, is conceived of as a staging post on the road to a fully-fledged RAPS scheme (or to a scheme as close to RAPS as can practically be achieved).³

11. Under the *cap and share* scheme proposed by the Irish NGO, Feasta (cap and share, 2007), emissions rights are allocated downstream to individuals, who then sell them upstream to energy suppliers. Energy suppliers then surrender these rights when they sell fossil fuel. Hence, under the cap and share scheme, individuals are initially allocated all of the emissions rights but do not surrender any, whilst energy suppliers surrender all of the rights but are not initially allocated any.

12. The term *personal carbon trading* can be thought of as an umbrella term for all emissions trading schemes under which individuals are *allocated* emissions rights (eg DTQs, RAPS, Ayres, PCAs and cap and share). If the definition is tightened to include only those schemes under which individuals are both allocated and *surrender* emissions rights, then the cap and share scheme is not a personal carbon trading scheme.

PRACTICAL IMPLEMENTATION

13. Understandably, the Committee was keen to investigate whether a DTQs scheme could be implemented in practice. Section 5 of the Tyndall Report (pp17–28) addresses technological and administrative feasibility including various issues raised by the committee such as (1) the central database (2) enrolment in the DTQs scheme and issues of identity verification and (3) cards and card fraud.

14. On 12 December 2006 an expert seminar was held at the Royal Society of Arts (RSA) on the technical and administrative feasibility of DTQs. There was a consensus that the technology required to run the scheme currently exists and that much of it (card readers and communications links in garages) is already in place.

COST

15. Section 8.1 of the Tyndall Report (pp 31–34) explains why we did not attempt a detailed cost estimate. However, it does set out some preliminary thoughts on costing. Recognizing the importance of producing a detailed cost estimate, the RSA is currently looking into doing so.

CIVIL LIBERTIES

16. The Committee was concerned that there were civil liberties issues surrounding carbon cards. Section 3.6 of the Tyndall DTQs report (pp 14–16) argues strongly that the civil liberties issues associated with ID cards do not apply to carbon cards.

CHILDREN

17. As stated in the session, views are divided amongst researchers as to whether parents should receive assistance under DTQs in the form of either additional emissions rights or additional child benefit. Sections 3.3 (pp 10–11) and 3.5 (p 14) of the Tyndall Report set out our views on the issue of children.

18. The Committee was keen to explore (Q162) the link between (1) the question of whether parents should get an additional allocation of emissions rights under DTQs and (2) the feasibility of the scheme. In my view, whether or not parents receive an additional allocation does not impact on the technological and administrative feasibility of the scheme.

FUEL POVERTY

19. Q200 raised the issue of excess deaths amongst the elderly due to hypothermia. Such excess deaths were occurring long before the implementation of any greenhouse gas emissions reduction policies in the UK but it is clearly important that a policy such as DTQs does not adversely affect the low-income elderly.

20. Section 3.4 of the Tyndall Report (pp 11–16) explains how, as a result of fuel poverty, certain low-income households would be disadvantaged if a DTQs scheme (or indeed any other emissions trading scheme or a carbon tax) were introduced tomorrow. Hence, DTQs would need to be implemented along with measures to aggressively tackle fuel poverty.

³ Mayer Hillman, personal communication, 27 November 2006.

SPEED OF IMPLEMENTATION

21. Two factors are relevant here: (1) technical and administrative feasibility and (2) fuel poverty. With regard to the former, where experts at the RSA seminar expressed a view, it was that a DTQs scheme could be implemented in five years or less.

22. With regard to the latter, research by Dresner and Ekins (2004, 2006) at the Policy Studies Institute argues that, in order to implement a household carbon tax without disadvantaging anyone on a low income, it would first be necessary to tackle fuel poverty and they propose a 10-year programme to do so. The argument they make for delaying the implementation of a household carbon tax for a decade can equally be applied to other emissions reduction instruments. Hence even if, from a technical and administrative perspective, a DTQs scheme could be implemented in five years or less, implementation might be delayed beyond this point so as to effectively tackle fuel poverty. In other words, technology may not be the limiting factor with regard to implementation.

COST/BENEFIT ASSESSMENT

23. In his written evidence to the Committee, Dr Sorrell argues that an EU ETS/upstream hybrid trading scheme would be less costly to administer than a DTQs scheme running alongside the EU ETS. Section 8.2 of the Tyndall Report (pp 34–5) argues that any additional administrative costs associated with DTQs would have to be justified by additional benefits and sets out what these additional benefits might be.

24. One suggested benefit is that DTQs may result in individuals and organisations more fully searching for and discovering cost-effective energy efficiency, energy conservation and low-carbon supply opportunities, thereby reducing the cost of carbon abatement. Dr Sorrell notes that this is a “contestable proposition” and I agree with Dr Sorrell that work is required by the research community to test the proposition.

COMPATIBILITY WITH EU ETS

25. Dr Sorrell is correct to point out that implementing DTQs alongside EU ETS would result in double counting. In my response to Q176, I outlined three options for addressing double counting: (1) accept the administrative costs entailed and factor them into the cost/benefit assessment of DTQs (2) take electricity out of the DTQs scheme thus avoiding double counting and (3) explore the possibility of amending EU ETS in Phase III to allow emissions rights in the electricity sector to be allocated to customers of electricity generators as an alternative to allocating them to the generators themselves. Option 3 is briefly outlined in Section 9 of the Tyndall Report (pp 35–6). As stated in my response to Q176, I believe this is an area in which further research is needed.

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Richard Starkey.

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January 2007

**Supplementary memorandum submitted by the Royal Society for the encouragement of
Arts, Manufactures and Commerce (CIT 23b)**

RSA CarbonLimited—Exploring the Issue of Personal Carbon Trading

Following the evidence session for the inquiry into *Climate Change: “the Citizen’s Agenda”* on Wednesday 1 November, I wanted to write and thank you for giving me the opportunity of speaking to the Committee about the RSA CarbonLimited project. The discussion was interesting and certainly lively. I have provided below some further detail on the project and also clarified some of the issues that were raised during the course of the evidence session.

ABOUT RSA CarbonLimited

RSA CarbonLimited is exploring personal carbon trading (PCT) as a possible method to reduce carbon emissions. The RSA feels the idea has great potential as a means to encourage the public to take greater responsibility for their carbon emissions and as a potential framework to deliver rapid behavioural change across sectors, leading to a strengthening of a low carbon economy and the development of new entrepreneurs and market opportunities.

While the RSA is exploring how to develop the practicalities of these ideas so that they have a reasonable chance of being implemented, the RSA is not advocating for a personal carbon trading system to be implemented in the UK immediately but for the idea to be looked into and considered as a possible policy tool in the medium term future.

A body of academic work on personal carbon trading exists, but there remain several key gaps. This involves tackling three areas of difficulty: technological, economic and social/political. The RSA, with its links to business, government, environmental organisations and academia, is uniquely placed to address all three of these.

The RSA (originally The Royal Society for the encouragement of Arts, Manufactures & Commerce) was founded in 1754 to “embolden enterprise, enlarge science, refine arts, improve our manufactures and extend our commerce”. Today the RSA’s work is framed by five manifesto challenges that reflect the original mission in 21st-century terms. These challenges are delivered through a portfolio of projects and a lecture programme consisting of over 100 events every year. It remains an independent, non-aligned, multi-disciplinary body, supported by 26,000 Fellows locally, nationally and internationally.

PERSONAL CARBON TRADING

PCT would provide choice, but within a restricted budget which stops us from consuming energy at unsustainable levels. For the citizen, it could be a powerful vehicle for learning about the climate change impacts of different behaviours and understanding how to live with and adapt to environmental change.

RSA CarbonLimited is exploring this market-based idea for controlling carbon emissions and its more immediate precursors. Providing us all with a financial incentive to reduce our carbon emissions, tradable allowances are exciting because of the potential they have for accelerating change in attitudes and behaviours at individual and society level and for encouraging faster development of a low carbon economy.

Operating alongside existing “upstream” emissions trading, almost total control of emissions could be achieved across the economy. In a three-year project, the RSA is exploring the potential for PCT through research, open public discourse and co-ordinating trial schemes and prototypes.

CURRENT FOCUS OF WORK PROGRAMME

Personal carbon and transport

The RSA is commissioning expert-led research looking at the potential to tackle emissions from air travel from a personal carbon perspective and looking at the potential impact of PCT on public and private surface transport in economic and user terms.

The personal carbon market

The RSA is seeking to plug knowledge gaps that would lead to the practical design and operation of a personal carbon marketplace including the relationships to, and possible merging with, the EU ETS and the steps that would be necessary to make that compatibility a reality. This would include analysis of the technology and skills required, the implementation options available and the related timescales.

Entrepreneurs and market opportunities

RSA CarbonLimited plans to undertake research to assist in understanding any competitive advantage that could be derived from the implementation of a personal carbon market and the investment needs and/or government intervention that would enable it. This will include a focus on the financial and construction sectors.

Positive incentives for personal carbon reduction

This strand of work is looking to further the sustainable consumption debate by studying prototype designs for carbon reduction incentive schemes—which could form one of the most important precursors to an opt-out or capped marketplace. By engaging commercial providers of low carbon products and services, we will learn more about market opportunities for carbon credits and user behaviour when confronted with a quantity as well as a price signal.

Palatability of personal carbon policy

The project will map changes in attitudes towards the idea of personal carbon trading over time. Some initial polling work has been completed. Research trials are being put together to more fully test the response of the public to various aspects of the proposed scheme. A number of trials are in their early stages, most notably work in South London looking at community scale responses to the concept of a carbon allowance and in Manchester, looking at the commercial opportunities to engage consumers in personal carbon reduction.

The RSA recently commissioned YouGov to conduct a poll into the public's willingness to reduce their emissions. In summary, the poll found that nearly 80% of people believe they could personally reduce their carbon emissions. Only one in five of those questioned would oppose plans to financially penalise people for using “more than their fair share” of energy. Sixty-five per cent of people say every individual should take responsibility for tackling climate change, while 81% thought they could reduce their energy use within the home, for example by using low energy bulbs or putting in insulation. Less than half of those questioned (48%) thought they could reduce their car usage. The research also found only 22% of people would oppose an initiative to financially penalise those using more than the average amount of energy per person and financially reward those using less than the average. 65% of people thought individuals should be mainly responsible for tackling climate change, as opposed to 21% who said the Government, and 11% who said big business.

CarbonDAQ

An online mock-up of personal carbon trading has been made available at www.rsacarbonlimited.org. This is the first online system to show people how such a system would work. It also promotes the understanding of personal emissions and engages users in discourse about the idea.

Schools Carbon Calculator

Through the Defra Climate Challenge Fund, a curriculum-linked carbon calculator is being developed to empower children in reducing emissions in schools and communities, culminating in a national competition. Lessons plans will include asking children to develop their own ideas for how carbon emissions could be effectively reduced at personal and community scale.

KEY ISSUES TO ADDRESS

I now turn to some of the specific issues we discussed in order to clarify the RSA's position and also highlight some of the areas that need to be addressed for PCT to be considered as a practical solution to climate change.

Scheme operation

The scheme would involve taking the focus of attention away from “upstream”, less visible areas, such as business, and delivering a “whole economy” system which includes an equal per capita allocation of carbon, at no cost, to all adult individuals resident in the UK. This would be subject to the setting of a total carbon budget and a trading mechanism which could operate in the public or private sector.

How long would it take to get PCT off the ground?

Technology could be refined for the purpose in three years. Phased implementation could begin in three years, with a complete system implemented in seven years. A relationship, or merger, with phase III of the EU ETS may prove to be essential.

Who would set the budget?

To be effective, the budget needs to be set according to the best scientific information and it needs to be trusted in all quarters. An independent body set up by government would be best placed, such as the organisation currently being proposed as part of the Climate Change Bill. Alternatively, it could become a function of the Carbon Trust.

What would the budget be based on—existing emissions or what emissions should be?

The budget should begin at current levels of emissions and be tightened according to emissions reduction targets set by scientific consensus. It would be reduced year on year to achieve targets and to encourage people to reduce their emissions. The level of that reduction should be determined by scientific consensus and by available carbon reduction strategies for individuals—which may require government support, eg low cost micro-renewables.

If there are more people in a house, would PCA be unfair to those living on their own?

Single occupancy households are becoming more common. We may therefore need to look to differentiate between single household occupants subject to different economic circumstances. Access to additional credits may be necessary in a similar way to current assistance with fuel bills.

Would PCT also be unfair to those living in big houses, rural areas, colder areas or the poor?

Large dwellings and rural locations will both attract additional carbon costs under the current proposal. However, the impact on people with low incomes is less clear. On the positive side, income and emissions bear some relationship, since poorer people are generally lower emitters.

There is a potentially redistributive impact from PCT that the RSA intends to look at, and this was one of the key benefits of PCT that first appealed to the RSA. On the negative side, those on low incomes have a tendency to live in energy inefficient dwellings. The relationship with other policies in place to tackle fuel poverty is therefore essential (eg Warm Front), but this should be seen more as an opportunity to assist the fuel poverty agenda.

Would children get an allowance?

Under the Tyndall Centre proposals, they would not. However, part credits would seem like a sensible idea that the RSA is also exploring.

ID card issues

If the data were able to be managed in the private sector (eg by banks) then the system could operate independently of the requirement for the government to intervene in data management terms. However, there are large numbers of people who would be unable to designate a bank account and therefore some means of enrolling/cross-checking the whole population would be necessary. However, since the information would be only a quantity of carbon units matched to an identity, systems such as the electoral register, passports or birth certificates could cover the missing 8% who do not have a bank account.

Would it attract large administrative cost and be bureaucratic?

To some extent, if led by the private sector, these issues can be minimised. The cost-benefit analysis will have to take account of the greater speed at which PCT may bring about the policy goal of reducing carbon emissions for the greater administration cost it would be likely to attract. Public attitudes towards the efficacy and the fairness of the scheme and the extent to which it delivers the appropriate level of empowerment will be a key signal in terms of political feasibility.

Steve Sorrell's issue of possible double counting with EU ETS

Steve Sorrell has raised the issue that energy could be double-counted, and accounted by both upstream and downstream schemes, due to overlap between the EU ETS and PCT. This would be undesirable. The RSA is tackling this question in partnership with Green Alliance. We would be looking to make recommendations in the next year regarding the evolutionary options for PCT including a focus on Phase III of the EU ETS in 2013.

FUNDING

RSA CarbonLimited has received part-funding from the Gulbenkian Foundation and Defra.

Please also find enclosed:

- Annex A: A list of the members of Advisory Group
- Annex B: The YouGov data we recently commissioned⁴

I hope you have found this additional submission of interest. If you have any queries, please do not hesitate to contact me. In the meantime, I wish you well with the inquiry into Climate Change and the citizen's agenda.

Matt Prescott
Project Director—RSA CarbonLimited

⁴ Not printed.

RSA Carbon Limited Advisory Group

Richard Starkey—Tyndall Centre for Climate Change Research

Richard has been working in the field for a number of years, recently publishing the most comprehensive paper to date with his colleague Kevin Anderson.

Dr Kevin Anderson—Tyndall Centre for Climate Change Research

Kevin is an established climate scientist and major authority on climate change.

Catherine Bottrill—Environmental Change Institute

Catherine researches in the field, with a strong focus on the social science.

Peter Jones—Biffa Waste Services Ltd

Peter is a well known environment figure and member of the RSA advisory council.

Derek Osborn—

Derek is a senior environment figure with a long history of government, business and NGO involvement.

Fiona Harvey—*Financial Times*

Fiona is the environment correspondent for the FT.

Ed Gillespie—Futerra Sustainability Communications

Ed is creative director for the sustainability communications consultancy Futerra.

Mayer Hillman—Policy Studies Institute

Mayer, a senior fellow emeritus for the Policy Studies Institute is credited with the original idea.

David Fleming—Independent analyst

David is an independent energy analyst who first developed the idea of “domestic tradable quotas”.

James Cameron—Climate Change Capital

James is Vice Chair of the merchant banking group Climate Change Capital.

David Quarmby CBE—Colin Buchanan and Partners

David is former chairman of the Strategic Rail Authority and the British Tourist Authority.

Colin Challen MP

Colin is chair of the cross party group on climate change.

Malcolm Cahill—Transaction Network Services, Inc.

Malcolm is Technical director of TNSI, formerly of Barclaycard.

Wednesday 22 November 2006

Members present:

Mr Michael Jack, in the Chair

Mr David Drew
James Duddridge
Patrick Hall
Lynne Jones

David Lepper
Mrs Madeleine Moon
Sir Peter Soulsby
David Taylor

Memorandum submitted by the Office of Gas and Electricity Markets (Ofgem) (CIT 08)

1. Ofgem is the regulator of gas and electricity industries in Britain. Ofgem's principal objective is to protect the interests of present and future gas and electricity consumers, where appropriate by promoting effective competition. We also have important duties relating to the environment, sustainable development and security of supply. Ofgem welcomes the committee's inquiry and our response to the questions in the call for evidence is set out below.

BACKGROUND

2. There is considerable scope for individuals to contribute to tackling climate change. Domestic use of energy accounts for 27% of emissions and there are a number of measures that householders can take to reduce this impact. The measures include behavioural change (eg turning off unwanted lights and not leaving equipment in standby mode), alterations to the fabric of buildings to reduce energy consumption (eg insulation) and improvements in the efficiency of appliances.

3. A range of incentives can be used to deliver these changes in households. These can include:

- the provision of better information on energy consumption, through appliance labelling, home energy performance certificates, better metering and billing;
- fiscal incentives through council tax or other taxes;
- education, awareness and promotional campaigns;
- price signals through the impact on gas and electricity prices of the EU emissions trading scheme;
- specifically targeted programmes such as EEC which create obligations on certain market participants; and
- innovative market initiatives including energy services.

4. Many of the changes that householders can make are already available at low cost, or are subsequently offset by reduced energy costs. This suggests that price incentives alone may not be sufficient to deliver substantial changes although there is increasing evidence that rising energy prices are increasing domestic and business customer awareness and interest in energy efficiency.

5. There is an opportunity for the market to provide innovative offerings that meet the needs of customers. This could be through energy services contracts that provide packages of energy and energy efficiency goods, simpler arrangements that provide metering devices, and billing that allow consumers to manage their energy consumption better. We consider that energy suppliers should be encouraged and supported in efforts to improve the range of products available to consumers. Such an approach may be more effective in many cases than imposing new regulations.

6. Different customers will respond to energy service packages in different ways. For some customers, investment in time-of-use metering may be justified so that more sophisticated tariffs can be offered; for others, simpler and cheaper measures to raise awareness of their energy consumption may be more cost effective and convenient. Suppliers have the best information about their customers' needs and we expect them to use that knowledge to determine the best ways to meet their needs.

ENERGY EFFICIENCY PROGRAMMES

EEC

7. Ofgem administers the Energy Efficiency Commitment (EEC) on behalf of the Department for Environment, Food and Rural Affairs (Defra). The EEC obliges domestic electricity and gas suppliers to deliver energy savings from domestic customers. Half of the energy savings must come from priority customers who receive certain income-related benefits or tax credits. The third annual EEC report was published in August 2005 and showed that suppliers had installed, or provided, energy efficiency measures which would result in an energy saving of 86.8 TWh, or 140% of the total target of 62 TWh.

8. The total savings made under the EEC are greater than its costs. Furthermore, energy efficiency measures are an economic way of achieving carbon savings because they can enable consumers to reduce their consumption in the long term. However, the benefits of the programme are focused on a limited number of consumers, whilst the costs are borne by all. In addition, the Department of Trade and Industry (DTI) estimates that every 1% increase in fuel bills pushes 40,000 households into fuel poverty. It is therefore conceivable that an increase in the scale of the EEC could potentially push some consumers into fuel poverty. However, if energy efficiency measures are appropriately targeted they are the most sustainable way of alleviating fuel poverty.

9. Any decision on the scale of the EEC needs to be considered in conjunction with changes to other policies arising from the Energy Review. Before any increase is agreed it is important to consider the equity issues arising from the programme and, in particular, the implications of directing different levels of activity to the priority low income group.

Supplier cap-and-trade scheme

10. Despite the scale of the EEC, the demand for energy has continued to increase and consequently so have carbon emissions from the domestic sector. The Energy Efficiency Innovation Review, sponsored jointly by Defra and HM Treasury, suggested that the EEC could be changed to a cap and trade scheme: a scheme that would impose a limit the amount of electricity and gas each supplier would be allowed to supply or on the emissions arising from that supply. This could be seen as a desirable way for the programme to develop as it would focus the suppliers' activity on the key output, namely to curb carbon emissions.

11. There are, however, a number of issues that would need to be considered in implementing such a scheme. For example, a target of curbing annual carbon emissions may provide only short term incentives. It may push suppliers to consider measures, such as attempting to change consumer behaviour in the immediate future, as opposed to focusing their activity on measures that improve the fabric of the housing stock. If such a cap and trade scheme were ever to be discontinued there may be little lasting benefit because consumers tend to revert to their old behaviour patterns, whereas with the installation of insulation measures there is a long term effect on consumer energy consumption. Under a cap and trade scheme, for suppliers to consider installing higher cost measures that have longer term impact, such as insulation in domestic properties, they would need to be certain of capturing the benefit from curbing that consumer's consumption. The only way that would be possible would be to lock consumers into long term arrangements. This would potentially reduce competition in the domestic energy supply market.

12. The way the target is set is also a key consideration—whether it would be based on the absolute amount of electricity and gas supplied or whether it would be based on the number of consumers each supplier has. If the cap were to be based on an absolute level this could have implications for the competitive market. Additionally, proposing a cap on the amount of electricity and gas that could be supplied could have welfare implications.

13. Any decision to move to a cap and trade scheme should focus on capping carbon as opposed to energy demand. There is genuine concern about restricting domestic consumers' energy demand as this might have an adverse effect on consumer welfare, particularly for people such as pensioners who may be in their homes all day. A cap and trade scheme would require suppliers to meet an obligation in something over which they have little influence.

MICROGENERATION

14. The Government's Microgeneration strategy and the passing of the Climate Change and Sustainable Energy Act earlier this year have raised the profile of microgeneration. The Energy Review Report, published on 11 July, also highlighted its potential and that of other decentralised energy sources as potentially significant contributors to our energy mix.

15. In line with our statutory responsibilities to consumers and to the environment and sustainable development, Ofgem is working to ensure that there are no undue barriers to the development of microgeneration. In addition, we fully consider microgeneration in policy development across all areas of our work, including the review of the electricity supply licence and measures to promote innovation in metering.

16. The resolution of issues surrounding the arrangements for the sale of exports from microgeneration remains one of the key pre-requisites for the greater penetration of microgeneration in the market. This has been drawn into sharp focus by the incentive for action placed on suppliers by the Climate Change and Sustainable Energy Act (CCSE) 2006. Ofgem is supporting and participating in a project under the auspices of the Electricity Networks Strategy Group to address this issue.

17. We agree with the Government that suppliers are best placed to provide leadership in this area and we look to them to develop initiatives that will allow the market to develop without the need for regulatory intervention.

18. The potential for microgeneration can be further enhanced by measures under the government's environmental programmes administered by Ofgem, the Renewables Obligation and the Energy Efficiency Commitment. Recent legislative changes including the CCSE Act, have improved the potential access for microgeneration to assistance under these programmes. We are working with Defra and the DTI to implement these changes, and also to ensure our administrative procedures are as easy to use as possible for non-expert generators.

SMART METERING

19. Following consultation, we published in June a report entitled "Domestic Metering Information—Next Steps". This document contains our conclusions on the case for smart meters in people's homes and how best to promote them.¹

20. There is a range of smarter metering technologies available. Simple devices consist of displays that can be connected to existing meters and can provide customers with information on out of how much energy they are using and what it is costing. More sophisticated and expensive options allow displays; a record of the customer's energy use every half-hour, thus allowing suppliers to vary their prices across the day; remote reading of energy use; and the ability to limit the customer's energy use in an emergency.

21. Based on our analysis and responses to our consultation, we maintain our position that a competitive market in metering, rather than a standardised approach imposed by regulation, is the best way to deliver metering innovation.

22. Given our duties to protect consumers' interests and to promote sustainable development, we see a role for Ofgem in providing leadership and direction to help make smart metering a real option for domestic customers. We intend to remove barriers to smart metering as part of a package of measures which acknowledges that while the onus is on suppliers to deliver smart meters, the regulatory framework needs to encourage new products, innovation and investment. There are three major areas where we can help.

- We will work with the industry to agree common standards to provide for interoperability of smart meters;
- Ofgem's supply licence review will identify and remove any barriers in the supply licence; and
- we will managing the trial that government is funding with the industry to collect evidence on how customers respond to a range of metering technologies.


23. This work will supplement other work in which Ofgem is already engaged. This includes providing clearer guidance to suppliers seeking accreditation under the EEC for smart meters and ensuring that settlement rules can accommodate smart metering.

24. Ofgem would be happy to provide oral evidence or any further briefing if the Committee would find it helpful.

Ofgem

August 2006

¹ http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/15591_Metering_Innovation_Decision_document_final.pdf?wtfrom=/ofgem/whats-new/archive.jsp



Promoting choice and value for all gas and electricity customers


SUPPLEMENTARY MEMORANDUM SUBMITTED BY THE OFFICE OF GAS AND
ELECTRICITY MARKETS (Ofgem)
(CIT08a)

CLIMATE CHANGE: THE CITIZEN'S AGENDA

Introductory remarks from Ofgem as requested by the EFRA Select Committee

Alistair Buchanan
CE - OFGEM

1
EFRA Select Committee



Promoting choice and value for all gas and electricity customers

OPENING DISCUSSION

1. The financial contribution by the citizen and an awareness of the costs paid by the citizen.
i.e. "Best value per £ invested/spent on carbon reduction".
2. Citizen must not be frustrated by regulatory barriers:
 - Ofgem's renewables strategy (early investing in wires)
 - Ofgem's microgen strategy.
3. Empowering the citizen in the home.
 - Ofgem's central role in smart metering.
 - Providing clear and transparent information on costings of meters, microgen, energy efficiency.
 - Promoting 'choice and options' for customers from suppliers.
4. Looking to the future – the role of HEAT.

OFGEM =
CONSUMER

1. INFORM 2. ADVICE
3. ADMINISTER 4. FACILITATE

OFGEM =
PRO-ACTIVE

2
EFRA Select Committee

COSTS OF CARBON CAPTURE POLICES

	£/tC(NAO figures: 2005)	Projected MtCsavings by 2010 (Ofgem)
Renewables obligation certificates–ROCS	70 - 140	2.6
EU ETS (Emissions trading scheme)	18	5.9
UK ETS (Emissions trading scheme)	18	0.5
EEC (Energy Efficiency Commitment)	Negative – 16	1.6
Climate Change Levy	5 - 11	3.7

RENEWABLE OBLIGATION COSTS

	£.million p.a. (NAO figures:2005)
ROC's 2003 - 2006 (NAO figures)	470
ROC's 2015/16 (Estimate)	1600
ROC subsidy per bill	
2005	£6
2021(estimate)	£28

CHOICES HAVE DIFFERENT COSTS AND BENEFITS

3

EFRA Select Committee

COSTS AROUND THE HOME

METERS	ELECTRICITY	GAS
Smart meters – fully interactive	£50 - 90	£90 - 110
Facia meter	£7 - 10	£19 - 22
HOME GENERATION (ESTIMATED)		
Micro Wind Schemes	Range from £1,500 - £12,000	
Solar Water/Heat	£2,500 - £4,500	
Ground Source/Heat	£8,000 - £10,000	
Combined Heat and Power Boiler (CHP)	£3,000 - £7,000	
ENERGY EFFICIENCY COSTS/SAVINGS		
Cavity wall insulation - costs	£350	
Possible savings on household bill	Up to 20% p.a.	

N.B. (1)Average Dual Fuel Household bill up £400 to £1000 in the last 2 years.

(2) 6% Bill is ROC, EEC, EU ETS –but not split out as such.

4

EFRA Select Committee

Witnesses: Mr Alistair Buchanan, Chief Executive, and *Mr Steve Smith*, Managing Director, Markets, Ofgem, gave evidence.

Q212 Chairman: Welcome to this further evidence session on our inquiry Climate change: the “citizen’s agenda”, and we welcome Alistair Buchanan, the Chief Executive of Ofgem, supported by Steve Smith, Managing Director of Markets, which will make an interesting discussion as to what markets you are the managing director of, but no doubt we will find out. I have outlined, Mr Buchanan, to the Committee that you and I had a very interesting conversation in which you briefed me on some of the work of Ofgem and some very interesting information which you had elicited, particularly about the use of public resources in the context of energy saving programmes, and indeed renewables. I was impressed by what you had to say and invited you to give a short presentation to this Committee by way of introduction to the subject and as a precursor to your evidence. You very kindly sent round—and I think every Member of the Committee has a copy—the presentation you are going to speak to.¹ So could I, in formally welcoming you and thanking you for your written evidence, ask you if you would speak to this additional piece of evidence.

Mr Buchanan: Thank you, Chairman. If you could go to page two of the very short presentation I have given you, there are four areas where I think Ofgem can help the debate, and I hope you feel the same after we have left today. The first is in discussing the financial contribution by the citizen and an awareness of the costs involved in the renewable debate by the citizen, as I have put here, the best value per pound invested and spent. The second is on regulatory barriers. That is more naturally home for Ofgem. The third is how Ofgem can help to empower the citizen in their homes; and finally, I think one of the areas which I sense you are very interested in and possibly excited by as well is the role of heat going forward. Let me take the first issue, because in many ways this is the key element of my short presentation. I think there are three key issues which spin out of an analysis of the financial contribution. The first focuses on the Renewable Obligation Certificates (ROCs). As you will see on page three, ROCs as confirmed by the NAO, is the most expensive approach to pounds per tonne of carbon and equally you will see on the second table on page three that the subsidy of £470 million in 2005 will rise to £1.6 billion by 2015. So the Chancellor will be looking at having to find that in 2016. Then I have put the customer impact as a sense test for you at the bottom.

Q213 Chairman: Let me be clear—and there may be other colleagues who may want, if we may, to interrupt for clarification—the ROCs as such, is that electricity generator companies’ money or public money? Let us just be clear what the terms are here.

Mr Buchanan: This is subsidy money.

Mr Smith: This is customers’ bills, basically electricity customers paying this directly, and gas customers.

Mr Buchanan: As we will come on to in the next stage.

Q214 Chairman: In other words, it is a subvention out of what we all pay for our power, so that if the generator knows that they cannot generate enough renewable electricity to meet the obligation themselves they build into the price which we pay the cost of them buying the ROC?

Mr Buchanan: That is absolutely correct. So I think the first issue I wanted to bring to your attention was the scale, and again coming back to this issue of best value. The second issue, which I think is the big strategic core for you in policy, is the potential decision to make between whether you look to put your subsidy all towards the renewable schemes or whether in time some of that subsidy is going to be focused on page four schemes, which are the local generation or distributed generation schemes. The schemes which I have listed in the middle of page four, micro wind, solar, ground source heat, combined heat and power within the home, these are schemes which effectively will need a degree of subsidy through an energy export equivalents in order to make them compete within the marketplace. One of the intriguing issues which I have, looking at what you do, is where you get to the point where you say we can have over £1 billion for the renewable subsidy, and we can also have subsidies to promote the local generation schemes, or whether you are in fact saying there is a defined pot and at some stage we may have to make a choice between the renewable schemes (many of them in the northern part of Scotland, which will come down wires, where you will have transmission losses and SF6 emissions), or whether you will actually play the subsidy towards the local generation. The second financial issue which I was asked to address was the degree potentially of return and profit made by those who are enjoying the ROC. Again, the National Audit Office has been very helpful to us in the report it issued last year, because it said that both onshore wind and landfill will make substantial profits excessively above the hurdle rate; indeed the figures they used were 15 to 26% IRR. So when we look at the degree of earnings power here, the NAO then asked Oxera whether in fact a lower ROC price could give a decent return and Oxera said, “Yes. They shouldn’t be using £30 per megawatt hour for the ROC, they should be using 15.” This, I think, again might be an issue which comes to the fore as companies start to release the kind of money they are making here. Another important comment from the NAO was that by 2026 (if the scheme is run through to 2026) they believe that a third of the return which the companies are making is effectively super profit from the ROC.

Q215 Chairman: Is that because in terms of the types of renewable power source which would have been “subsidised” by virtue of the ROC, by whatever write-down or life they would have had they would have paid for themselves, and so if they last beyond that point where the economics runs out then it is

¹ Ev 105

pure profit and they are getting the ROCs on top of it? Because the ROC is a continuing obligation, I presume?

Mr Buchanan: There is that, yes, and yes. I think the other thing is to step back a little bit in history and say, when was the ROC put in place? The ROC was put in place when electricity prices had fallen from £30 per megawatt hour to £14 per megawatt hour and in that decline, around 2000 to 2002, of course British Energy got into terrible financial trouble. At around 2002 the Government was seeking to promote renewable energy and it could not do it at £14 per megawatt hour, so effectively it assessed that a £30 ROC plus the £14 you would earn in the market would give you a return. The price of electricity today is £50 per megawatt hour this winter and a ROC is around £40, so effectively your potential wind farm operator is now earning £90 plus, when of course they had originally calculated that the return requirement would be more like £44. So there is an issue there.

Q216 Chairman: Is there anything in the legislation to allow variation to take place according to market conditions?

Mr Buchanan: What we are waiting for at the moment is that the DTI, as you know, is doing a major overhaul of ROCs and a review of the banding of ROCs, and it could be that within that overhaul and within that review of the banding they will come to some decisions about whether it is right to maintain the same level of ROC for a particular form of renewable. I would just point out that these two schemes have been used in Holland and in Spain and within the last year the Spanish have withdrawn it and the Dutch have changed it.

Q217 Chairman: When you use the term “banding”, I presume that is the value of the ROC in relation to the type of power generated?

Mr Buchanan: That is absolutely right.

Q218 Lynne Jones: What about other renewables? You have just mentioned wind, but the other renewables are not yet competitive so—

Mr Buchanan: The work that the NAO did was that you would barely make an adequate return on offshore at that level, but of course bear in mind that that level was two to three years ago rather than the current prices which we are seeing.

Q219 Lynne Jones: There are other renewables, for example wind and wave and tidal.

Mr Buchanan: Indeed, and their economics may well need a higher ROC. Indeed, Scottish Power in the past has said it needs to see £100 per megawatt ROC to make wave at Orkney financially viable. I have got no grounds for questioning that, but you are absolutely right, it is one of the issues.

Q220 Chairman: If we look at the column on page three where you have got the projections of millions of tonnes or carbon savings, is there any way of relating those big numbers as bulk figures to the type of carbon savings which could come from the wider

adoption of some of the systems which are detailed on page four, because there are subsidy schemes in place now through the DTI, but if I have understood the thrust of what you are saying, there may be other ways of spending ROC-type money, or other uses?

Mr Buchanan: It is a very good question, and I will come to it. On the combined heat and power, which I will spend a bit more time on when we talk about heat, the Energy Saving Trust has estimated that if you go down that route and 30% of our power was coming from that source by 2050, which I think is the date they used, then 15% of our carbon would be saved by going down that route alone. So you are absolutely right, there is a play-off between where you spend you money and what the carbon saving is from each route.

Q221 Chairman: Has anybody produced anything?

Mr Buchanan: It is funny you should say that, because I was thinking about that over the weekend. Somebody needs to. I am not entirely sure whether it is us or not, but we need to have a look at that to see whether that analysis is there. I think it is a very good question.

Q222 Chairman: Because obviously from the kinds of things we are looking at about what citizens can do, as I think some of our questioning later will expose, I think I looked at some figures which the Building Research Institute had done showing that, for example, current technology, photovoltaics, on an average house would take 46½ years to pay back. Okay, subsidy makes that a bit more acceptable, but it is still a very long time.

Mr Buchanan: Indeed. It is a very interesting area. It does come back to this concept of the energy export equivalents of a subsidy for local generation. If you look at the CHP fuel cell schemes, I think the encouraging thing there—it is going to be my strap line at the end, but I will use it now—is that they believe you will not need a subsidy by 2015 and that it will be able to compete for itself in the market, whereas, you are right, the Energy Saving Trust for virtually every other scheme I have listed on page four needs some form of protection until 2050. So it does look as if within the race of the different technologies the fuel cell CHP kind of product which British Gas and Ceres are developing, or Powergen and the Sterling engine, that looks to be the one which might make it to the market quickest at the moment from the evidence I have seen.

Q223 Chairman: Just on a technical point, going back to the ROCs situation, if you were going to have more flexible applications, or different applications of the revenue stream from that, would you require a change in legislation to achieve that? Could one argue that if the bill was drafted correctly, the Climate Change Bill could be a vehicle for achieving that?

Mr Smith: I think the answer is yes to both questions.

Chairman: Lynne, you had a question about terawatt hours and it might be appropriate to ask about that.

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Q224 Lynne Jones: In your evidence about the Energy Efficiency Commitment, you tell us that the target is to save 62 terawatt hours. I just wondered if you could put that in the context of what sort of carbon savings that would mean? I know that it would depend upon how the electricity is generated, but taking an average for a gas generator, what sort of carbon savings are we talking about here in relation to overall carbon emissions?

Mr Smith: If you look at Alistair's slide, the Energy Efficiency Commitment there, I think the projection was that you would save about 1.6 million tonnes of carbon through EEC and that is against, I think, UK emissions at the moment of about 160 million tonnes of carbon.

Q225 Lynne Jones: So it is 1%?

Mr Smith: Yes, very small.

Lynne Jones: So it is a very small target, even though it has been exceeded.

Q226 Sir Peter Soulsby: On the general presentation here, one factor you do not draw attention to here is the existence of specific green tariffs and suppliers. I just wonder if you could tell us about what effect they have on the position, particularly obviously the position as seen from the suppliers' point of view?

Mr Buchanan: I think, as I spoke with the Chairman last week, this is a very interesting area where some companies have recently got into trouble with the Advertising Standards. As an example, Scottish and Southern has got into trouble, and obviously rightly so. It seems to us that there is a debate in many ways yet to be had here. If I can use the example of biomass, there are some who would argue that a company offering a biomass-based energy was green. There are others who would say, "No, biomass has enabled a coal-fired station to run and therefore we don't think it should be regarded as green power." I just use that as one of the examples. In fact I think we, to a certain extent, at Ofgem have been looking at the industry to try and resolve. Well, some of the industry is now falling foul of that resolution and we are actively thinking about the extent to which we have to regard that as one of our key issues to look at in 2007 under our sustainable development remit. I would welcome your views on it, but it is a very difficult area.

Q227 Sir Peter Soulsby: It is not just these latest examples, there has been some concern for quite some time about the differing definitions of green tariffs?

Mr Buchanan: Yes, indeed.

Q228 Sir Peter Soulsby: I just wondered whether you really do feel it is something which Ofgem needs to take a grip of?

Mr Smith: We were asked a few years ago and at the time the Energy Saving Trust actually had a scheme where they accredited people, so we did not feel we needed to move into that space. Then when the Energy Saving Trust withdrew then Friends of the Earth actually would provide a star rating on suppliers—they withdrew that about 12 months

ago—as Alistair has said, there has been some work by the industry to try and see if the industry together could come up with basically a star rating system where you would have one to four stars depending on how green you were against audited and clear objectives. So we have just been looking at whether our role in that should be to try and facilitate that happening or, as Alistair said, actually should someone in government, be it us or somebody else, actually step behind that and say, "We will audit some sort of star rating system." At the moment we are still in discussions because I think our preference would have been for the industry to sort it out itself, although, as Alistair said, it does not seem able to agree on a definition of actually what green energy is, so it may need someone to bang some heads together.

Mr Buchanan: I am glad you have raised it, because it is something we are looking at as part of our SD work for 2007.

Sir Peter Soulsby: I suspect it may be something we may wish to take a view on at some stage.

Q229 Lynne Jones: I am sorry, what is your SD?

Mr Buchanan: Sorry, our sustainable development. I am sorry, Chairman, I used SD as I go along. It has become a catchphrase. It is sustainable development.

Q230 Mr Drew: Can I raise a point which actually underpins all of this? The Chairman may have told you that we have all undergone a sort of mini energy audit in our homes and I think the one thing I have learned as a result of that is how difficult it is to get information which really gives you measurable yardsticks which, with the best will in the world, the ordinary public can grasp. It may well be they want to know about ROCs. I suspect they do not. What they want to know about is if they were to have, as I have now done in one part of my house, cavity wall insulation, what that is going to cost me, what type of benefit I would get, and then if I go on and get solar heating what that is going to cost me as against PV, as against sticking a wind turbine on the roof if I can get the planning permission to do that, and pay for the planning permission. These sorts of things are absolutely crucial at the moment, and to be fair to the people who came to see me, they were in despair because they felt they did not have the ability to do it, neither were they funded to do it. If they recommended the wrong person to do it, they could be in some difficulties because of what you were just talking about, Mr Smith, the star rating. Does Ofgem see it as their responsibility to get out there and try and do some of this information delivery, or if not who should be doing it, because otherwise I fear there is going to be an awful lot of disillusioned people who just will not know where to go to.

Mr Buchanan: We do take every opportunity to talk about how you handle your bad debts, how you handle energy efficiency, how you handle switching. In addition to that, what we have done is we have also carried out what is called mystery shopping. In the last couple of years we have tested how the suppliers themselves have provided information to

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their customers and in two instances, one with Scottish Power and one with Powergen, we have named and shamed how poorly they have served the customer who is ringing up seeking information. Under the priority group banner within energy efficiency, there are particular services which, from memory, over 300,000 rang up for energy efficiency advice in 2004. That was the NAO's figure. So it is provided.

Q231 Mr Drew: Is there any qualitative assessment of who gave them advice, whether they got the right advice and whether they feel satisfied with what has happened as a result of that advice?

Mr Buchanan: As I say, since we have done our mystery shopping analysis of the companies, we have not come back and done that. That is not scheduled on our current plans for 2007 and it is something which we keep under watch all the time.

Q232 Lynne Jones: You say in your brief that suppliers have the best information about their customers' needs and they expect them to use that knowledge to determine the best ways to meet that. I was quite surprised at that, because what do Ecotricity or British Gas (I have numerous suppliers because of having two homes) know about my needs? They know what I consume but they do not know whether I need to consume that amount or what I could do to reduce my consumption.

Mr Buchanan: I think there is a number of aspects to this. The first is, and it is rude of me to ask you but I will use myself as an example. I switched last year as I was getting rather frustrated with the supplier I had. I have to say the supplier I currently have, whom I cannot name because that would cause all kinds of trouble, has gone out of its way to work out how I can best use my consumption patterns, how I can best pay, and I have been very pleased with the experience I have had. This is one of the things which Ofgem is obviously trying to promote, for customers to do this.

Q233 Lynne Jones: So how do they do that then?

Mr Buchanan: Well, they have rung me up and talked to me, and I am very happy to take the call. I found, particularly when I was going through the switching process, that they were very receptive to trying to work out what it was I wanted from my supplier.

Q234 Lynne Jones: Can you just give us a couple of practical things you have done as a result of that?

Mr Buchanan: Yes, I can. In terms of paying, I went to direct debit, which I am very happy with. I think that was primarily the main change I wanted to make. The supplier I moved to I am particularly happy with because I know the supplier I moved to is the most competitive and cheapest in the field, which is obviously a huge driver for me.

Q235 Lynne Jones: But you are talking about prices, how much you pay, rather than your CO₂ reduction.

Mr Buchanan: It is maybe not so much CO₂ as an issue for the companies, it is more on the social side as well. If you go for a visit—I went round EDF in Hove a few weeks ago—when you are standing behind the people who are operating the customer interface, they have information on the customer which enables them to try and ensure they are getting the right product to the right customer and currently, for example—

Q236 Lynne Jones: I am sorry, but you have given me an example of direct debit and other things—

Mr Buchanan: Well, I think because I was using myself rather than—

Q237 Lynne Jones: In fact, if more people go to direct debit, it means that people on metres are paying more and you are paying less, so that is not a very equitable way of going about things. What I wanted was an example of how your fuel supplier allowed you to reduce your electricity consumption, or your gas consumption, and hence your CO₂ emissions.

Mr Buchanan: I cannot remember exactly the various issues they raised with me, other than I felt when I was going through that switching process that they were asking me about my consumption and how I used it. I believe, having been around the companies, that the companies are in a position to seek to identify—and this is on the social side—particularly the degree to which a customer who is deemed to be fuel-poor or a vulnerable customer can get various advantages for himself. So different companies are offering different schemes, be it free cavity wall insulation, offering customers to move onto a particular trust scheme if that is what is needed. So there is a range of products which companies are offering.

Q238 Mr Drew: But how do I know if I am getting a good deal on that? With the best will in the world, if they are offering me free cavity wall insulation, there has got to be some cost in that, and that is what worries me. Is there a notion that somebody who can give me independent advice will say, "Don't go to them, that's a bad deal. Go to the smaller person who will give you solar heating"? Because it may appear to be small, but I am actually doing a lot more for the environment if I go with them. I will pay more because I want to actually do something. I want to make a gesture. But it is no good if I have made a gesture if it has cost me a lot more money and actually it is of no real benefit whatsoever.

Mr Buchanan: To a certain extent I think the media are covering this extremely well now. The media are providing a lot of information as to which companies are offering various solutions, and it starts with your overall product preferences, whether you want fixed or variable, and then it moves into your own personal requirements, in other words if you are in a vulnerable or fuel-poor category what is it that the individual company is potentially offering you? For example, are they charging pre-payment metres at the same level as the credit customer? That is something which, for

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example, EDF have done. So individual companies have a range of products. Where do you get that information? From the media, from various providers of this information, uSwitch and other organisations like that.

Mr Smith: All I would add on the question is that there are suppliers out there, and I am not going to name them, who will provide you not only on request but will actually push to you nice, simple diagrams which say, “Based on your house and your usage, here are some measures you can take. Here is what they will cost you. Here is what it will save.” They will quote you what they will charge you to do the work and then, having clearly said what it is—

Q239 Chairman: Let me just stop you there. You are in a unique position to have an overview of the industry. You have moved away, as regulators, from the formal control of pricing structures and one of your remits is the promotion of energy efficiency and yet you say, “There is a range of companies out there and I am not prepared to name them.” Surely you should be in the business of helping people to make an informed decision about the quality of the information they are giving, going back to Mr Drew’s line of questioning, which is how does the consumer know if they are being told the truth? When we did our inquiry into bioenergy, for example, we discovered that in the absence of an accreditation scheme for so-called green fuels ranges of CO₂ savings ran from about 3% to 77% according to the type of fuel and the way it was manufactured. Why do you not give some kind of rating and some kind of indication as to the qualitative analysis which is available to the customer?

Mr Smith: Let me qualify it. I apologise. The reason I did not want to name them is because if I name one company and say they are particularly good—so to put flesh on the bones of what I said, British Gas, for example (but they are not the only one of the suppliers who are active in this area and I would say do a good job), if you go to their website, their marketing material, when you sign up to them as a supplier they will offer you energy efficiency advice. If you actually looked at the kind of energy efficiency advice they provide, it is simple, it is easy to understand. It is a picture of a house and on that picture of the house it will say, “Here are the different elements. This is what they will cost. This is what we can do and we are encouraged to do under various government schemes.” So the reason for not naming them was not an unwillingness, as I said, it is just that I could also name Scottish and Southern, which also—

Mr Buchanan: I think there are two areas. I think in a way just using the Ofgem brand, which I believe is a good brand, more aggressively in this area, there are just two bits that I would add to that. First of all, we do get involved in things like sponsoring the code of best practice on housing for energy efficiency, where Ofgem is very much party to that. Secondly, there is the consumer body Energy Watch, who clearly we assist as much as we can, and they are the primary interface with consumers and we support them as much as we can.

Q240 Chairman: Energy Watch are very much concerned with the price, are they not, and to encourage a competitive marketplace by consumers altering their supplier?

Mr Buchanan: Yes.

Chairman: To come back to a very important question which Mr Drew raises, how does the citizen make the decision as to what is the optimum route, bearing in mind some consumers cannot afford to do everything? They have to optimise the use of their resources. Going back to British Gas—and I will name names—I sent off for the British Gas energy saving pack and along came the box and it had two energy saving light bulbs and a leaflet. The main thrust of the leaflet, from what I can recall—and I apologise to British Gas if I had got it wrong and they will no doubt write and tell me if I have not got it right—seemed to be more about selling me a new boiler than it was about lots of practical things to do in the house. I do not mind them doing that.

Lynne Jones: It is expensive, even with the discount!

Chairman: Thank you for that. Sorry about that, British Gas, if you are watching! The interesting question is—and this is a very real one—one of the things in the evidence which we have had clearly talks about the benefits of condensing boilers. Now, it is a major investment decision to buy a new boiler. How does the consumer have the range of options to pay in excess of £2,000, for example, for a new condensing boiler versus a whole range of other options to minimise their carbon footprint? Where do they get the kind of definitive advice to make that kind of quite complex investment decision?

Q241 Mrs Moon: Could I just jump in there, Chairman, because one of the things which concerns me as well is that you made a choice to change and no doubt contacted the supplier you used and said, “Right, I want to move.” An awful lot of people get contacted through cold calls and there is a major distrust in this country of people making cold calls and trying to allegedly give you advice when often what they are doing is trying to sell. It is a bit like your box with two energy bulbs in, but really they are trying to sell you a new boiler. How do we also get over that need to give people information that they can trust and can also feel is not just from someone coming from the position of you as a captive audience, trying to sell you their product, that what they are doing has some sort of rating of approval which lets them trust that that is the product they want to sign up to?

Mr Buchanan: I would like to add my own concern to yours and then I will try and break it down in terms of some answers, because the third issue I was going to mention under financial was the potential for what I almost might call governmental subsidy clashes. One which strikes me is that under EEC, as EEC progresses, one of the ways the companies are seeking to—

Q242 Chairman: Eek is a noise that a squeaky door makes! Would you like to spell out what it is for the wider audience?

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Mr Buchanan: The Energy Efficiency Commitment. Under the Energy Efficiency Commitment companies are effectively being incentivised to get traditional boilers more and more efficient. I find this quite an interesting proposition, that there is a subsidy helping you to make your traditional boiler more and more efficient—that is good stuff—but at the other point we are looking towards CHP fuel cell developments. Therefore, are you actually just creating a bigger gap there? I think there is quite an interesting issue there for me. Equally, just the final point of potential subsidy clashes, under the Lazarowicz Bill Microgen is going to come into the Energy Efficiency Commitment (EEC). Again, I think one of the interesting things here is that potentially you will get Microgen under EEC and then the Microgen consumers can effectively aggregate and get the ROC as well. So you are then going to get two dollops of subsidy within that. So not only potentially is there some confusion to the consumer coming in to find out information, but I am not entirely sure there are not layers of confusion now being added on top of that in terms of what are the messages that we are wanting to send about which boiler you should use, what the subsidy is going to be for different forms of—

Q243 Chairman: Who should try and bring clarity?

Mr Buchanan: I am hoping that the Government will bring clarity—

Q244 Chairman: But which bit of Government?

Mr Buchanan: In Defra for the energy efficiency and for the renewable certificates, which is DTI, the policy lies squarely with them. Ofgem is the administrator in terms of products.

Q245 Chairman: Is it possible, do you think, within the existing mechanisms of government to get such a clear and coherent series of actions to be coordinated, to remove if you like the muddle which you have just described?

Mr Buchanan: I am sure a Committee such as yours will have a very great influence on them trying to work their way through this.

Q246 Chairman: But are you as an organisation which, if you like, is on the official side of things, sending out that kind of message to Government about clarity and coordination of policy in this area?

Mr Buchanan: Indeed we are.

Q247 Chairman: I would like to take you on, because your presentation has stimulated questions on a whole raft of things, but the Energy Efficiency Commitment, in certain cases, has exceeded its targets. Do you think that in order to try and stimulate activity in that area there should be a sort of carbon credit ability to trade gains through the Energy Efficiency Commitment, to perhaps put more money back into it in the future to drive it forward? In terms of the way it is currently configured, the Government is calling the shots about where the emphasis should be. The current focus is on fuel poverty, but some of the evidence

you have put forward suggests that it might have the perverse effect of actually making more people more fuel-poor, which seems to be an odd way of going about it, and because of the current emphasis there is also no focus on all the other possible ways in which the Commitment could work to reduce energy consumption in other domestic situations. Has the Government got it right in defining it, and could it be made a bit more sophisticated if it does better than its targets in getting some carbon credits?

Mr Buchanan: I will start and then Steve, if he wants to be more radical than me, can follow that through. I think you are asking the fundamental question about the Energy Efficiency Commitment, which is, what is it for? Is it for the fuel-poor, or is it your primary government vehicle on attacking carbon? If you look at the costs, it stands very favourable comparison—

Q248 Lynne Jones: It is only 1%.

Mr Buchanan: Indeed, but I think it is quite interesting as to what it is there for. Oxera analysed EEC for the NAO and looked at those who were receiving the EEC and 20% of those people who were receiving it did not need it. They would have done what they were going to do anyway without EEC. So it is a vehicle which is becoming more expensive. You are effectively moving from the last phase of the scheme costing about £480 million. This phase is going to cost about £1,200 million. So you have a scheme which is becoming more expensive. It is not entirely clear whether it is driving towards fuel poverty or whether it is driving towards energy efficiency. In fact it is probably doing both at the moment and if you look at it from a cup half full point of view, it probably is doing both, but could it do better if it actually more narrowly focused potentially away from fuel poverty? What we are trying to do, because it is one of the vehicles towards fuel poverty, is to argue with Defra—it has been out position—that they should maintain a large proportion towards 50% of EEC, towards the fuel-poor priority group.

Q249 Chairman: Can I just be clear, when you quote £480 million and then £1.2 billion, that is the cost to the energy industry?

Mr Smith: It is exactly the same as the ROC scheme, so the supplier has to meet the obligation. The cost in meeting that obligation it will recover through bills. This is why you get the inequality in that they are likely to recover that on a customer basis and so it hits poorer customers harder. So every customer is paying a set amount—

Q250 Chairman: It is a form of cross-subsidy from the energy user to pay for the efficiencies of the people who the beneficiaries of EEC?

Mr Smith: Absolutely.

Q251 Chairman: So from the generators' point of view, it is a zero cost to their operation?

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Mr Smith: Well, the only slight wrinkle on that is obviously to the extent suppliers compete, if one supplier is able to meet its commitment for slightly less because it does it better than another supplier—

Q252 Lynne Jones: It makes a better profit?

Mr Smith: Yes. It has the choice then to charge its customers less. So there is some slight dynamic in there.

Q253 Chairman: In terms of pain for gain to the energy sector, when I looked up, for example, Shell Oil, I think their earnings were \$26.9 billion. I was trying to get some sort of context to the size of the sales of energy in the United Kingdom to the amount of money which was being expended on efficiency. You are not able to help me with those numbers, are you?

Mr Smith: I would have to take it away and perhaps—

Q254 Chairman: My intuitive feeling is that one is a very big number and relatively speaking one is a very small number.

Mr Buchanan: I think the only thing you need to be careful of there is that obviously we have focused exclusively on domestic, so around about a third of electricity and gas consumption. There is an awful lot of money being spent in the industrial and commercial sector without the need for government involvement and subsidy. We could definitely write to you on that, but I think you are right in terms of the sums being spent in domestic versus the total value—

Q255 Chairman: I suppose the supplementary question is, should the energy companies be using more of their own money to achieve efficiency, whereas at the moment it is the consumer who is paying the cost of recycling money for these entirely correct and laudable purposes, but it is not really hurting the bottom line of the energy companies.

Mr Buchanan: I think perhaps the most blatant aspect of this was the free allocation of allowances, and then not the full 10% auctioning of phase two of the EU Trading Certificate Scheme. The recommendation we made within our energy review—and I do not know how well it went down within government circles—was that arguably if the UK wants to create its own carbon trading scheme for concerns about the European scheme's workability, or indeed its longevity after 2012, was to effectively cull money from the generators because they have had free allowances, give that to the Treasury to effectively act as the collateral for the Treasury to be the middleman in a UK trading market. But in addition to that, we also argued that this was a great opportunity to take some of that windfall gain and feed it back into fuel poverty schemes. I have to say that some of the noises I am hearing around government would suggest to me perhaps that they are looking at a form of UK trading scheme as well going forward. I fully appreciate and understand, and you would expect an organisation like Ofgem which has in its statute that

we should be seeking to protect, to promote consumers through marketing competition, but we do not want to undermine in any way the European trading scheme. Nevertheless, I think there is a groundswell occurring at the moment that this might be an idea for the White Paper. So to answer your question, we have certainly offered a solution whereby you could take a large chunk of money away from the generators and put it to good both with carbon and with fuel poverty.

Q256 Chairman: We are tiptoeing around one of the subjects about the nature of the energy industry—and it refers to a point which I think Mr Drew made earlier and other colleagues mentioned—about who trusts whom, because the argument crystallises out and should we in fact be looking at an industry of energy services providers rather than just simply energy suppliers? Is there any sign that the industry is moving to embrace that concept or not?

Mr Smith: I would answer, yes. I think in the early days the energy efficiency focus from the companies was all about customers saving money. I think the carbon and climate change agenda has moved that on. I think to begin with if you were trying to sell energy efficiency it had to be, you know, “Unless we can show customers they’re actually going to save money over the course of whatever we do for them, we’re going to struggle.” I think now there is a clear appetite amongst customers to say, “We’re beginning to understand the challenges of carbon and actually we might have to pay more for our energy, and we’re more interested in are we cutting carbon?” Inevitably there will be a lag between that and the companies actually getting out there and doing things, but I think you certainly do see that change in attitude. Do not forget that with the high prices we have seen over the last couple of years, gas demand last winter was down about 8% when you account for temperature differences year on year. So suppliers are having to work out that with the carbon challenge and what that is likely to do with prices, a business model based on just selling more and more energy is not really a sustainable one, even from a narrow business perspective.

Q257 Lynne Jones: There seems to be a problem in that the contracts can only be monthly contracts. You have expressed concern about locking consumers into long-term markets.

Mr Smith: We did make a change. The industry came to us and said this and we used to have a rule in our regulations called the 28 day rule, which said that customers had to be able to walk away at 28 days’ notice, and they said, “We want to sell energy services products, we want to be able to sell people long-term contracts where as well as their energy supply we provide them with a new boiler or insulation so their total energy costs came down.” We took all of those restrictions away in response to that. So we are in the game of trying to break those barriers down. Where companies are trying to do innovative things in this area, we are saying, “We are

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not going to stand in your way and if there are things that we have done because of trying to protect the competitive market, then we'll take them away."

Q258 Lynne Jones: So now if people sign up with a contract with British Gas, who have said, "We'll provide you with a new boiler and you'll pay for it on your gas bills," that is now possible?

Mr Smith: It is possible because there is not this restriction which says the customer has got to have this right to walk away, but obviously in terms of the trialling of this we had to put some protection in place for exactly the reasons you have alluded to about customer trust and making sure that before anyone enters into that contract, because it could be for a large sum of money, that they have properly been given all of the facts, they have been given a cooling off period and that we do not end up with people who have been mis-sold products like that. But all of that is now in place.

Q259 Mrs Moon: Let us say I am a newly retired person, I am going on to a fixed income and I want to look at where I can get the best deal in terms of buying my electricity and I want to know where I can get good, practical advice in cutting my CO₂ emissions. Where can I go to find that information that is totally independent, that is neutral, not trying to sell me anything—because it does not seem like I can come to you—that will give me a league table which says, "These are the people who are doing extremely well on price and these are the people who are doing extremely well in terms of CO₂ and, by the way, these are the offers they have got in relation to insulation, energy saving and replacing your boiler," or whatever? Where can I go for that independent analysis of the market so I can decide what is my best option?

Mr Buchanan: I think on price you are going to go to the providers of that particular product. Again, I do not want to mention many companies but companies like uSwitch, but you can also go to Energy Watch, but on the advice you are after the Energy Saving Trust has a primary responsibility for domestic consumers. Energy Watch is the interface with consumers. It is not just solely interested with price, it is the all-encompassing issues facing the consumer, and they will become the consumer voice in March 2008. So I would say the Energy Saving Trust and Energy Watch are the two parties I would recommend you to approach.

Q260 Mr Drew: Could we move on to carbon trading, which I think is an equally interesting area? Could you just spell out for me what you understand are the differences between carbon trading allowances and the idea of cap and trade? Do they impose on each other, or are these quite different concepts?

Mr Smith: I do not think they are. I think cap and trade traditionally has been something which has been imposed upon businesses and businesses which directly emit carbon. I think the ideas about personal carbon allowances is, in addition to doing that to business, actually saying to individuals,

"Here are the things you do in driving your car and the way you heat your home which has a carbon footprint and we are going to, in some sense, cap your ability to do that or give you an allowance, and if you use less allow you to sell your surplus to other people, or if you use more you will have to go and buy it." So I do not think they are fundamentally in conflict. They can sit alongside each other and work together, because I think one is predominantly business-focused and one is more focused on the individual than on the citizen.

Q261 Mr Drew: So you are clear that cap and trade will in the due course of time apply to individuals as well as businesses?

Mr Smith: No, I am not making any statement on whether it will happen, I am saying if that is something which the Government wants to do then I do not think there is any fundamental problem in having the two sitting there together. I think they can be made to dovetail.

Q262 Mr Drew: I just want to be absolutely clear. In terms of, therefore, people making changes in their lifestyle, I have a problem with the trade idea because I think that could be terribly complicated, but if people actually were to reduce their carbon footprint that is something that you would think is feasible and is deliverable in the long run, or would this be faddish?

Mr Smith: It is not something we have spent a great deal of time and effort thinking about. My concern would be, as with yours, with the practicability, which is that given the number of people who do not even have bank accounts the idea that you could give all individuals a personal carbon allowance and expect them to interact with that, I think it is an awful lot to ask people to do. So I think you would have to think very, very carefully. As I said, if you ask me in theory if you could overcome those problems, could it be made to work sitting alongside what is there already, yes, but I would share some of the practical concerns that I think you are alluding to, particularly on the trading aspect. The idea that you are going to have 25 million households or 65 million individuals in this country actively trading, I think you would have to ask yourself the question why you were doing that and is that really the best way of achieving what you are trying to achieve?

Q263 Mr Drew: So to make a difference then, we should be concentrating the effort on suppliers, and should we be concentrating the effort on capping suppliers? In other words, we have got the ROCs on the one hand, which in a sense is trying to divert them away from the traditional forms for creating energy and towards more renewable ways, but the cap would in a sense be a physical cap. It would say, "We're going to ask you not just to divert but also to reduce." Is that something which you again think is feasible? Your paper was a bit unclear whether you thought this was going against human ingenuity and people would not therefore respond?

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Mr Smith: I think in our energy review response to the Government's energy review it may be a bit clearer. We basically said, I think, that we were optimistic that if you did cap carbon, and cap carbon quite aggressively, and give people a clear, long-term path of where that was going to go, with the ingenuity of the variety of technologies that are out there we said, "Yes, energy efficiency will have a part to play. Yes, development of low carbon or no carbon generation sources will mean that through a combination of those measures you can get to where you need to be. There has been some discussion about capping energy." What we were saying was, "Do not cap energy, focus on what your real objective is, which is carbon. Cap carbon, and do it in a credible way, and then allow suppliers, generators and customers to work out what the different range of solutions, partly energy efficiency, partly generation technologies, they want to deploy to do that."

Q264 Chairman: Mr Drew touched upon renewables. Do you know what the relationship is between the sales of renewable energy and the amount of renewables available for sale?

Mr Smith: In terms of, does all the renewable energy out there actually find its way to market? Is that the question?

Q265 Chairman: That is one way of putting it, yes. I am just intrigued to know what the supply and demand balance is, because somebody told me that there was more renewable energy being sold than there was actually being generated. I would just like to know, if somebody signs up for a renewable tariff are they actually getting renewable power?

Mr Buchanan: I think this brings us back to our discussion about how we need to look at how renewable or green power is being sold.

Mr Smith: There are basically three different types of green offering and there are companies like Good Energy, who basically guarantee you that every electron you buy has been sourced from—and they will define what they mean by a "green generator". There is a second class where they say, "We can't guarantee you that, but we will ring fence a certain proportion of what you pay and we guarantee that will be invested in future green generation." The third sort, which is where the confusion comes in, is where it is green but it is only green because they make a contribution to, say, Greenpeace or Friends of the Earth—

Q266 Chairman: So it is an offset?

Mr Smith: Exactly, and that is why I think you are probably right that if you added up all of the different products you would get to far more than the total amount of green energy on the system because people are doing these different things and labelling them as green offerings.

Q267 Chairman: So it does need to be made clear, or clearer, so that if the public decides, for example, that its personal contribution would be to switch to a renewable tariff it needs to know which of those options it is actually buying into?

Mr Smith: Yes.

Q268 Mrs Moon: Can I ask you what you are doing to actually make it easier for the green energy suppliers to actually get into supplying, because I was talking to a company yesterday and it was telling me that even to get a feasibility study from the grid about putting the energy it is going to generate into the grid, it is a blank cheque book. You go along and they almost make up the figures as they are going along. There is no fixed tariff as to how much you will earn for the electricity which you sell into the grid, and again you are at the whim of what they decide to pay you for the energy you supply. What are you doing in terms of facilitating the creation of that market so that in fact there is actually a market which is attractive for the green energy producers to move into, so that we can increase the number of green energy suppliers who are out there?

Mr Buchanan: I am not surprised you have had that complaint and it has been an Achilles' heel of Ofgem for some time and one which we are addressing currently. It falls under the heading of the supply licence review, but effectively over the 20 years since liberalisation and privatisation 150 pages of rules and regulations have been created, thereby frankly, in my view, stifling potentially new entrants wanting to come into the market. It is just rule-bound now. Steve and his team are working towards a position where we can cut that by around 50% in the middle of next year. As you can imagine, we need to carry with us all the consumer groups, Energy Watch, we need to ensure that vulnerable customers are protected, but I think at the end of this I would really look to hear from suppliers wanting to come into the market a positive view that we have made it much easier. But at the moment I think you have absolutely put your finger on one of the weaknesses that we have had and we are sorting that out.

Mr Smith: The only thing I would add is the points you made about access to the grid as well are fair and we have a major project under way at the moment, which is every five years we review the pricing regime and the revenues the grid companies are allowed to earn, and as part of that they will be making changes to the arrangements for new generators, not just green generators but anyone who wants to connect so that you do not have to get the cheque book out and make some enormous contribution before they will even put a spade in the ground, to get a much clearer and more stream-lined process. That is all on the positive side. The only difficulty which will remain, which is perennial, is the whole planning issue, which is part of the problem in the delays. They have to get planning permission for the transmission lines. You have to get planning permission, but there will be major changes to actually the commercial terms and the way you get to sign up to the grid, and they should come in from April next year.

Q269 David Lepper: I just wanted to come back to the point you were making about different definitions of what “renewable” means in terms of supply and relate that to Madeleine’s mythical recently retired consumer who wanted to survey the field. Is that information about individual suppliers readily available to that mythical consumer? Where would he (or she) go to be able to understand what this company means when it is telling him he is buying from it renewable energy?

Mr Smith: I think the system at the moment, as Alistair said, is one which is policed by the Advertising Standards Authority, so in essence those companies you go to will, in their marketing material, set out what it is they mean by “green” and what sits behind it. As Alistair said, Scottish and Southern recently was actually found in breach by the ASA for actually over-egging what it was offering and it was told it had to withdraw that marketing material, but at the moment it is predominantly the marketing material of the company which will say, “When we call this ‘green energy’ this is what we mean,” and that will be in their marketing and their contractual information, as I said, overseen by the Advertising Standards Authority.

Mr Buchanan: If I could just add, one of the things which really struck me as tremendously useful from our point of view from this session today is that in the different questions you have asked us there has been almost a sense of helplessness for the consumer. At the end of the day you are relying on the ASA, on the EST, on Energy Watch, arguably possibly Ofgem, these faceless organisations, very difficult to get in. Will I get the information? In picking up particularly this green energy which Sir Peter Soulsby started with as an issue, I am going to take that away from this session. This is something we had been thinking about as one of our targets for next year and it is quite clear from the range of questions you have raised that this would be a useful area for us to explore.

Chairman: Mr Drew said before he went, “I’m even more confused than I was before!”

Q270 Sir Peter Soulsby: Could I say that I am very pleased to hear that because I was going to suggest it was a bit of a cop out to rely on the ASA, but in the light of what has been said I am actually very encouraged by the response we have had there from Ofgem, because it does seem to me there is a desperate need for an accreditation scheme for so-called green tariffs and really only Ofgem is in a position to provide that scheme.

Mr Buchanan: Or if we are not, we have to find out who is and we can use our brand and our facilitation process to try and work that through. So it is something we need to look at. I cannot do that now, it would be inappropriate for Ofgem to do that, but it is one of my take-aways from today.

Q271 Sir Peter Soulsby: Thank you very much. Chairman, if I could just return to the micro-generation issue, because in their evidence to us the Energy Saving Trust talked about the potential for,

I think it was, somewhere in the region of 30 to 40% electricity generation being from micro-generation. It is an enormously exciting prospect, and of course we have now got the Climate Change and Sustainable Energy Act with the obligations under that. In your evidence to us you said that you were, I think I quote you correctly, “working to ensure no undue values to micro-generation.” I just wonder whether you would accept that that does not sound as if you are being particularly pro-active? It sounds rather more as if you are hoping that the market will sort things out and that others will take the active initiatives.

Mr Buchanan: Just in two areas, quickly, we announced our forward view on Microgen a couple of weeks ago. There are two elements to that. One is to get rid of what I just call plain silly rules, which I where, if you want to put a Microgen unit in your house you have to have to get permission from the local planners. It is just nonsense. The other issue, which is an issue that Ofgem does not take lightly because under a better regulation remit and under a view that light-handed regulation, where possible, is a good thing, we have warned the companies that if they do not sort out selling back we will basically put on the regulatory hobnails and sort it out for them. That is not something which as an organisation we do lightly because it is slightly running against the whole better regulation agenda, but we feel it is important enough for us to signal that.

Q272 Sir Peter Soulsby: That is very encouraging. I just wonder when you think you might have progress with that and how you measure your success in smoothing the way for micro-generation?

Mr Smith: We said in our press release that suppliers needed to get this sorted. It comes back to your point. What we said is that because there are very few of these things installed, we need very simple products which your average customer can understand which just says, “If you install one of these things we will pay you, five, six, seven, whatever the number is, pence per kilowatt hour, just with simple marketing material, and we have basically given them a year to say that if we do not see those products in the marketplace within that time then—

Q273 Chairman: Is there anybody doing that now?

Mr Smith: The response was positive. The trade bodies’ response from the suppliers was, “Oh, this is all terribly premature.” Two of the suppliers, npower and Scottish and Southern came forward and said, “It’s a fair cop. We will put effort and resource into developing these products,” because we only need one of them to do it and if one of them do it and it starts to become a success then clearly the others will follow suit. So we are encouraged that two suppliers did step forward to say they will meet the challenge.

Sir Peter Soulsby: Chairman, could I just press the issue of timescale?

Chairman: Of course, yes.

Q274 Sir Peter Soulsby: When might we actually expect to see this becoming a reality?

Mr Smith: I would be really disappointed if it got to the end of the year and it had not happened—sorry, one year from when we put the press release out, which was probably about three weeks ago, so October 2007. I would be disappointed if we got to there—

Q275 Chairman: Let us be very clear, when we talk about micro-generation, because I want to make certain I really understand what we are talking about, this is a device like a mini gas boiler which does electricity and heating as a combined unit in a house, and does it do 100% of the consumers' electricity or not?

Mr Smith: That is the issue, because obviously your use of electricity varies over the day. So at points in time you may be actually producing more than you are consuming and therefore the question is how much will you be paid by your supplier when you are actually exporting. At other times, when you are using a lot, you may still be drawing down and the problem is at the moment there is no simple product out there which says, "This is how much we will pay you when your wind turbine is actually generating and your lights are switched on."

Q276 Chairman: If somebody wanted to do down the micro-generation route, what is a ballpark figure for a normal house? How much would it cost to get into being a micro-generator?

Mr Buchanan: You have got the list in the middle of page four.²

Mr Smith: So a wind turbine for your roof currently retails for about £1,500, solar power is anywhere from two and a half to £10,000, and then these boilers which actually generate electricity start at about £3,000 compared with a normal condensing boiler, which might be £1,000.

Q277 Mrs Moon: Do you know what the difference is between a micro wind scheme which is going to cost me £1,500 and one which is going to cost me £12,000?

Mr Smith: It is just the simple size of the thing and how much electricity it will generate. The bigger they are, the more they generate, and obviously that will depend. The £12,000 ones are ones which will be aimed more at commercial buildings where you have got a large building and you have an array of them on your roof. The £1,500 one is a single one which you can mount on top of the roof of an average domestic property.

Q278 Chairman: Just to sum up, what you are saying is that within the next 12 months the economic offer that is micro-generation should become should become clearer and at this moment in time two companies which you mentioned are working on some kind of "product" to buy back surplus electricity from that generation. I suppose the interesting question is, if you applied energy saving,

energy efficiency, plus micro-generation, what impact would that make on the emissions in the United Kingdom of either carbon dioxide or greenhouse gases? Has anybody done that format?

Mr Buchanan: The Energy Saving Trust, coming back to your figures, has estimated it will be 15%, if you get that 30% in, and I would just go back to page four, because again they are EST figures. On those schemes which are listed there, except for the fuel cell CHP, you are looking at a form of subsidy right the way through to 2050. That does somewhat bring me back on a circular argument where I started. If you have got lots of pots of subsidy, great, because you can have a subsidy for renewables under ROCs and you can have a subsidy here for these schemes under the energy export equivalents, but it may be that for you in policy there is going to come a point where you have to make a choice. Is it the wind farm and the wave scheme, say, in Scotland, or is it the local generation scheme in somebody's home? It would be great if we have all, but—

Q279 Chairman: One of the questions I was going to ask about micro-generation is that the trouble is that this area becomes full of new popularisms and the new popularism is a disaggregated generation; in other words, we do away with the National Grid and it is all done in the backyard, to put it at its crudest, but on the other hand the renewables, particularly if you are dealing with wind and wave, happen to be miles away from where people live. So what are the implications for the National Grid as such of what we are talking about? In other words, if there was a wholesale move to micro-generation and the amount of electricity flowing across the existing grid drops, demand from the major generator drops and we have got an increase to the potential of wind and wave but we need to get it to us, what are the economics of keeping a grid system in operation to deliver the renewables and give us some back-up? Has anybody done any work on that?

Mr Buchanan: I think it is a great question, because our bread and butter work is network regulation, which first of all we have addressed up front in so far that, unlike the situation we traditionally had at Ofgem, we have fast-forwarded the allowance of investment for wires, particularly the backbone scheme from Beaulieu to Denny in Scotland, which is broadly Inverness to Perth and then on to Glasgow. We have fast forwarded £600 million for the development of that.

Q280 Chairman: Who is paying for that?

Mr Buchanan: That is paid for by consumers and it goes into the companies' regulatory asset base. We therefore have stepped forward and said, "Right, this is clearly something which needs to be facilitated. Before you get excited there, this is 250 miles of re-worked pylons, bigger pylons, and there have been 16,000 complaints. There are going to be five public inquiries. As I say, it is 250 miles across the Cairngorms. Twenty-five miles across the North York moors took 12 years to get approval. Why this is important is both from a renewable point of view and also from a security of supply point of view,

² Ev 106

because you have five gigawatts plus of wind power and the coldest day last year was 61 gigawatts in the UK, just to put that in context. So you have got five gigawatts of new power waiting to come on down that route. So I think there is a lot of very major issues there about investment and potential stranding if the public inquiries were to stifle that route and not potentially get hold of that power. As far as the local generation issue is concerned, one of the things we came to realise as we wrote our submission to the Energy Review is that Ofgem, I think, could provide a significant public service by producing long-term reports, providing a series of scenarios looking at how networks might configure, not over a five or a 10 year review, a five year review typically on our price control reviews, but over a much longer term review. That is not just to do with local generation, that is also to do with, for example, nuclear. If nuclear were to be reconfigured and we had a new breed of nuclear power stations built, what does that do to the network? Those are questions which we think we need to have in a report, which will have a series of scenarios. We will not give an answer as to how the market should behave, but we will take a series of scenarios so that we have got that information available. So we will be working on that.

Q281 James Duddridge: EDF and npower are advocating the national roll-out of smart metering, and indeed the Italian Government has said it is going to go for a national roll-out, but the Government's position, and I believe your position, is to rely on the competitive market rather than go down the mandatory route? If you could firstly explain that, but also give us an update on the smart metering trial.

Mr Buchanan: Yes. If I could start on this, because Steve is in charge of running the trial, Ofgem's position was in fact, I think, two-fold. Firstly, in terms of vision, we did a lot of the empirical work behind the smart metering debate. In terms of vision, the board of the authority of Ofgem was very keen to promote smart meters and was very minded towards what I call the most intelligent meter. If you look at page four here, you will see that the most intelligent meters come at quite a price. If you look at the bottom of page four, in a two year period when we have seen the price of electricity go up, intelligent smart meters, fully interactive, of course, which is very important for Microgen because you can sell back into the grid, you can have an interface with the company. You can also effectively treat it for intelligence information about when during the day it is best for you to sell on to the grid or for you to sell yourself. Personally, I am a great advocate of the most intelligent meter, but it comes at quite a price, as you will see there. I think that the board at Ofgem, almost stepping slightly outside its remit in policy or blue sky terms, was looking at that as a way ahead. Now, the Government felt that there should be a pilot scheme put in place for two years, which I will ask Steve to talk about, just to ensure which route would be the best route to go down, because the *de minimis* route is just putting a fascia in everybody's

kitchen. Whether that actually gives you much more information than you get from opening the cupboard under your stair or going outside your back door, I am not entirely sure. In terms of the competitive market, we have gone down the competitive market route. There are players in the market like Siemens who are looking at this market. It is slightly on hold at the moment in terms of development, because we have a major Competition Act case going on with regard to the metering market, but the view has been that you do not need to go down a mandated route, a regulatory re-bundling route (which incidentally Europe is actually going in the opposite direction at the moment, which is un-bundling), but that there should be a number of common features. So there should be some standard features so that a number of developers know what the standard features are and we are developing that through workshops and discussions. Steve, do you want to talk about the pilot?

Mr Smith: Yes. Just one observation first: the key distinction is to make between domestic customers and business customers. In the business environment we have had smart meters in electricity for the majority of customers ever since the market was opened. For those sorts of smaller, medium sized companies down to your local newsagent, there are now suppliers, and I will name one, Bizzenergy, who will do you a supply deal where part of the deal is you have a smart meter installed so that you can monitor your consumption. They will help you to look at things like methods you can use to cut your consumption. In gas, we are about to see a major roll-out. In gas you can actually get these gadgets which basically sit on top of the existing meter, which then can provide you with information to a computer anywhere you like that will tell you exactly how much gas you are using and how much you have used. We are about to see a major roll-out of them where the National Grid will make them available to any customer and you will be able to sign up to that. So I think the business market is increasingly served very well and is seeing real progress there. On domestics and the trial, we have been out to tender. We have had a very good response to that tender, not just in terms of the range of companies who have bid but also the range of technologies, because the key thing in the domestic market, as Alistair was saying, is that there is no single technology. There is a spectrum from something which allows you to see on your tv screen how much you are using to very, very complicated systems which can actually measure your consumption every five minutes. It can send that information to your supplier and your supplier can then vary how much you are paying by the time of day. We have had responses back that cover a range of technologies and then a range of packages around them in terms of how the supplier will then use that information to tell customers and either to offer more complicated tariffs, to say to people, "If you use more energy outside of the daytime we will charge you less," or to give people more simple information, simply, "This is how much energy you used last year. These are the things you

can do to use less energy.” So I think we are quite encouraged by that. We hope to appoint a number of these companies within the next two to three weeks and then the trial will start. So we will have a range of companies, a range of technologies and a range of packages for the customer around that technology in terms of what the supplier is actually going to do for the customer to make that information useable and then at the end of a two year period (we will have reports at each stage) we will then be able to look at that and say what worked and what did not both in terms of the technology, but also what worked and what did not for the customer, ie what is the sort of information they could interact with and respond to and what sort of things they found useful and helpful.

Q282 James Duddridge: If I want one of these gizmos for my house, where do I go?

Mr Smith: At the moment you have two choices, which are that you can actually put one in yourself—and you have always been able to—or you speak to your supplier and you say, “I would like a smarter meter,” and if your supplier turns round to you and says, “We can’t do that,” then I am afraid it does go back to the choice point where you have to go to one of the others and say, “Can you do this? This is what I would like.” One or two of them at the moment are trialling with a large number of customers these bits of equipment which, as Alistair said, you can put in your kitchen. It is a simple screen which is connected to your existing down meter which will tell you exactly how much you are using, how much it costs, how much CO₂ you are emitting, and some of them are beginning to build around that in your billing cycle and saying, “Here are some ideas.”

Q283 James Duddridge: It goes back to the simplicity. If it is £90 for one of these, I would be prepared to pay £90, and I am sure lots of people would, but it is just far too confusing and my eyes, to be honest, have glazed over and I have moved on to other things as a consumer.

Mr Smith: Yes.

Mr Buchanan: Sadly, I think we have got about three and a half million fuel-poor at the moment and I do not know if, when they look at that, that is a figure they feel comfortable with.

Q284 James Duddridge: But in terms of water metering, there was a reduction on water meters. I know it is not like for like, but the reduction in energy is about 10%. Now, on the reduction in use for people in fuel poverty, on an investment of £90 I imagine the pay back period is quite quick, given 10% of the bill?

Mr Smith: When we did the work Alistair was pointing to, we did a huge amount of work looking at international evidence and there was some evidence that actually for a lot of the benefit you did not necessarily need a new or a really expensive meter, you just needed to give customers simple information they could understand and that you got big reactions just to giving them better information about their usage. So part of the trial will be, if you

like, your test case will be how much reduction and what sort of consumer response you get from just doing that.

Q285 Chairman: There are two things which arise out of what you are saying. There is a need to try and unify what we are actually after, because you said that one of these smart meters showed you how much carbon dioxide you were emitting. A lot of the discussion talks about reducing carbon emissions and Kyoto is cast in terms of a basket of greenhouse gases. Do you think there is a need to try and come down to a common denominator so that when we start looking at all of these systems if people are saying—and we talked earlier *en passant* about personal carbon allowances which the Government says it is looking at, but we have got to get something so that people can say, a bit like a diet, “I can take in so many calories and all these different ingredients are adding up to my daily intake,” because at the moment we have talked about the amount of energy we are using, carbon dioxide, this and that, and there is no way of bringing it together. How are we going to achieve that?

Mr Buchanan: I think one of the answers might rest within the DTI’s White Paper process, because it is quite clearly looking at billing and it is wanting to look at how it gets benchmarking information onto the bill, quarterly by quarterly usage onto the bill, and maybe a carbon footprint concept finds its way into this debate as well. I think the debate is very live at the moment.

Q286 Chairman: When you and I met, I happened to have my energy bill for, I think it was gas, and I read it out to you because the meter is in units and in trying to convert the units into some meaningful number you have to be a mathematical genius to do about three sets of calculations to work out in, what was it, kilojoules of energy how much you have actually used, and most people do not work in that kind of thing. As for information, my electricity and gas bills are bereft of any kind of trend information, even though I have been with the supplier for more than a year so he could tell me whether I am going up or down and how much carbon I have used, but there is none of that. Are we going to get some proper billing?

Mr Buchanan: It is going to be interesting to see how ambitious the DTI is, because this is one of the key strands of the White Paper.

Q287 Chairman: You say the DTI has got to sort this out. Why do you think it is that these quite well-off energy suppliers, who are on the one hand advocating a million and one ways to be more economic and they can sell you this, that and the other thing, are not in their billing—their billing is stuck in the Stone Age.

Mr Buchanan: I think many of them are seeking to improve that. I mentioned earlier that I went down to spend a day with EDF in Hove and it is great how far they have got, but they clearly need to go so much further, but they have effectively interactive on your computer screen where you can work out what your

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family is using by the day and compare it with last year, but then you have got to assume that you have got a computer screen. These are the kinds of things they have just got to think through and improve upon. Companies are investing vast amounts of money on improving their billing systems. I think Centrica, British Gas, are investing £450 million in trying to produce a much more modern approach to billing.

Q288 Chairman: I find it staggering if they are spending £450 million—

Mr Buchanan: Billing is part of their overall, what is called their Jupiter project.

Q289 Chairman: I would not want us to be misguided. They are spending £450 million on trying to—

Mr Buchanan: On the whole of their back office development.

Q290 Chairman: Of which billing is a part?

Mr Buchanan: Of which billing is a part, yes.

Chairman: But bearing in mind this is not a new subject, I just find it amazing. You are the regulator. Why can you not, in the nicest sense, go and kick the backsides of these companies and speed them up? Why are we all waiting for the DTI to do a bit here and a bit there? We have only got until 2050, according to the Government, to stabilise our emissions and time is ticking away.

Q291 Mrs Moon: You have said on a number of occasions, when we have asked where is the money coming from for this, “Well, it is coming from the consumer.” So the consumer is subsidising all of these energy companies writing out to us, ringing us up and saying, you know, “Go with us. Buy this meter. We can do this insulation for this.” We are subsidising planning applications and public inquiries to bring energy from northern Scotland down to the Midlands. All of that, as consumers of electricity, we are funding, all of that.

Mr Buchanan: Yes.

Mrs Moon: Okay. If I said to you, I’m not going to do that any more because, quite honestly, it ain’t making a lot of difference in the quality of life for the majority of people and in particular not in the quality of life for those who are in fuel poverty, so let’s scrap all this, a little bit of fiddling here and a little bit of fiddling there, and especially a mountain

of waste paper coming through my front door in my bills which automatically goes straight into the recycling, what would you spend the money on that would bring us a straightforward win in terms of energy consumption and reduction of carbon? What is the simple one thing? Would it be to give everybody a smart meter?

Q292 Chairman: Are you able to supply the answer to that?

Mr Buchanan: I would like to supply you with two answers, if I may, and they are big answers to the solution. One is, sort out Beaulieu-Denny. I mentioned this earlier, the line from Inverness to Perth. You have five gigawatts plus of economic wind power waiting to come down that wire. If that gets delayed, a lot of your targets are going to get delayed. That is a big, major change. The other change is something which was in the 2004 Energy Act, which is to keep the pressure on the policy makers to deliver a regime for the offshore wind so that offshore wind developers can get going with their schemes. We are going to be three years on from that Act next year and we will not have a footprint for that regulatory regime. So two large schemes to make really significant impacts on hitting our carbon targets, in my view, would be to sort out Beaulieu-Denny and sort out offshore.

Mrs Moon: That would be terribly unpopular in my constituency, where there is an offshore wind farm in abeyance, and I tell you there are not many people who are not cheering!

Q293 Chairman: Well, there you have the political conflict between those who want to do their best to reduce carbon and those who have to deal with the practical politics of how it is done. Mr Buchanan and Mr Smith, thank you very much indeed for answering our questions and thank you for your introductory presentation, it was very stimulating. There may well be things which you would like to add, in the light of the line of questioning, and which you want to come back to us on. We would be genuinely very pleased to receive that and we thank you again for your written submission and for your opening remarks, which have been very useful indeed. Thank you.

Mr Buchanan: If I can thank you, Chairman, and your Members. We have taken away a couple of very useful pointers for us to work on next year.

Chairman: Good. Thank you very much indeed.

FURTHER SUPPLEMENTARY MEMORANDUM SUBMITTED BY THE OFFICE OF GAS AND ELECTRICITY MARKETS
(Ofgem) (CIT 08b)

This memorandum supersedes Cit 08a and contains updated figures. It was received after the oral evidence session and therefore is reprinted again here.

CLIMATE CHANGE: THE CITIZEN'S AGENDA

Introductory remarks from Ofgem as requested by the EFRA Select Committee

Alistair Buchanan
CE - OFGEM

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EFRA Select Committee

OPENING DISCUSSION

1. The financial contribution by the citizen and an awareness of the costs paid by the citizen.
i.e. "Best value per £ invested/spent on carbon reduction."
2. Citizen must not be frustrated by regulatory barriers:
 - Ofgem's renewables strategy (early investing in wires).
 - Ofgem's microgen strategy.
3. Empowering the citizen in the home:
 - Ofgem's central role in smart metering.
 - Providing clear and transparent information on costings of meters, microgen, energy efficiency.
 - Promoting 'choice and options' for customers from suppliers.
4. Looking to the future – the role of HEAT.

OFGEM =
CONSUME

1. INFORM 2. ADVICE
3. ADMINISTER 4. FACILITATE

OFGEM =
PRO - ACTIVE

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EFRA Select Committee

COSTS OF CARBON REDUCTION POLICIES

	£/tC (NAO figures: 2005)	Projected MtCsavings by 2010 (Defra)
Renewables obligation certificates – ROCS	256 - 511	2.5
EU ETS (Emissions trading scheme)	13 - 25	8
UK ETS (Emissions trading scheme)	65	0.3 (CO ₂ only) 0.5 (other GHG)
EEC (Energy Efficiency Commitment)	Negative – 59	2.25
Climate Change Levy	18 - 40	3.7

RENEWABLES OBLIGATION COSTS

ROC's 2003 –2006 (NAO figures)	£470 million per year
ROC's 2015/16 (Estimate)	£1500 million
ROC subsidy per domestic customer	2005/06 (estimate) £7 2021 (estimate) £28

CHOICES HAVE DIFFERENT COSTS AND BENEFITS

COSTS AROUND THE HOME

METERS (estimated installed cost, Ofgem 2006)	ELECTRICITY	GAS
Smart meters – fully interactive	£89 - 130	£92 - 142
Basic meter	£27	£42
HOME GENERATION (DTI 2005, for typical household installation)		
Micro Wind Schemes	£2,500 - £5,000	
Solar Water/Heat	£2,500 - £4,000	
Ground Source Heat Pump	£4,000 - £6,000	
Photovoltaics	£9,400 - £12,600	
Domestic combined heat and power	£ 3,000 - £7,000	
ENERGY EFFICIENCY COSTS/SAVINGS		
Cavity wall insulation – costs (EST)	£350	
Possible savings on household bill	Up to 20% p.a.	

N.B. (1) Average Dual Fuel Household bill up £400 to £1000 in the last 2 years.
(2) 4% Bill is ROC, EEC – but not split out as such.

Supplementary memorandum submitted by the Office of Gas and Electricity Markets (Ofgem) (CIT 08c)

Further to my earlier letter of 15 November, I promised to send you information on a number of questions which emerged from our discussion. This also builds on our evidence presented to your select committee as part of the citizen's agenda inquiry.

MICROGENERATION

Ofgem has a strong commitment to embracing sustainability considerations in our decisions within the framework of our duties and powers, although our primary duty is to protect the interests of the consumer. Microgeneration is an important part of the sustainability agenda. Ofgem wants to ensure that there are no regulatory barriers that stand in the way of microgeneration and we are working to remove unnecessary regulation. I have enclosed a copy of our "Microgeneration: Next Steps" document which details our work in this area.

The microgenerator-supplier relationship should be as simple as possible with easy access to good quality information and one-stop-shop arrangements. The emphasis is placed on the microgenerator to establish a relationship with their supplier, just as any customer would have to make the initial contact. There are no legislative or regulatory reasons why a customer has to sell their energy to the same supplier from which they receive energy. They can, if they wish, sell it to anyone within the energy market, including traders. It does not have to be sold to a holder of a supply licence. However, it is highly likely that the customer would enter into a package deal with their existing supplier and this may provide them with a better price for their energy.

RENEWABLE ENERGY

Green supply deals are offered by most major energy suppliers to customers who want to use electricity generated from renewables. There are three types of green energy packages: suppliers who guaranteed all energy was generated from renewables; those who sourced a proportion from renewables; and those who did not use renewable energy but used offsetting mechanisms instead. Ofgem has been consulting on Green Supply Guidelines to suppliers providing energy from renewable sources which recommends criteria that suppliers should adhere to when advertising green energy packages to consumers.

Two key features of the Green Supply Guidelines are the need for suppliers to state clearly what forms of technology are used to generate the renewable energy and the need for consumers choosing a green supply deal to be sure they are contributing to the development of renewable generation over and above that which is legally required via the Renewables Obligation. In addition, suppliers must be able to verify all claims made in marketing material. However if a supplier was found to be acting dishonestly, it would be up to the Advertising Standards Authority or the Trading Standards to take action.

Ofgem is working to contribute to the development of renewables. For example in setting the electricity distribution price control for 2005–10 we initiated new incentives, the distributed generation incentive and Registered Power Zones and the Innovation Funding Incentive for distribution companies to reward generation connections—principally renewables—and to encourage innovation in network development. At the same time, we have set up a new scheme to reward electricity distribution companies who go beyond their licence obligations in serving more vulnerable consumers in their area, and will be looking at opportunities to tackle barriers to the extension of the gas network into non-gas communities in the future gas distribution control.

Through the transmission price control review we will be enabling significant investment to renew gas and electricity networks, to safeguard the quality and reliability of supplies and to connect new generation including renewables. In this package we are also proposing to initiate new incentives to reduce leakage of certain greenhouse gases and to promote innovation.

I mentioned during our conversation the economics of windfarms. Last year Ofgem undertook a review of the success of the Renewables Obligation (RO) to date. This included an analysis into costs.

The principal aim of the RO is to reduce carbon emissions through increasing the proportion of electricity supplied from renewable sources. However, this goal has to be balanced with the costs to consumers, who ultimately pay for the RO through their energy bills. The RO is designed to pay the same premium to all renewable technologies in order to encourage the lower cost technologies to come on to the market first. This means that to pay a sufficient subsidy to the most expensive technologies, the lower cost generators receive more than is required to make their output profitable.

According to our analysis, £1.18 billion of subsidy has been provided under the RO over three years, of which only £0.44 billion was needed to cover the economic costs of producing the output. The other £0.74 billion is the value of the deadweight subsidy in the first three years of the scheme so far. The RO subsidy has costs each domestic customer around £15 since the introduction of the RO. This cost will increase each as the volume of renewable generation rises.

Among renewable technologies, onshore windfarms are more likely to be a profitable business. In 2005 the National Audit Office published a review of the support systems for renewable energy,³ which included estimated internal rate of return (IRR) figures of 17–25% for onshore wind developments, compared with a hurdle rate, above which an investment makes sense, of 8%.

BILLING

You raised some very valid points about the current billing format and the need to utilise them as a source of information about energy efficiency and carbon usage. The Department of Trade and Industry launched a consultation on the 14 November into energy billing and metering. The consultation is seeking views on proposals within the Energy Review to use metering and billing to help reduce energy consumption. This includes the proposal that from 2007 onwards historic energy use by the customer be shown as a graph alongside information about energy efficiency. Our own research suggested that consumers would find historic information represented graphically as most valuable in improving understanding of consumption. As I mentioned, many suppliers are undergoing significant billing systems upgrades, such as EDF Energy,

Ofgem has already taken action to improve billing and metering. Following Ofgem's investigation into energy suppliers' billing practices, a new Energy Ombudsman with the powers to award up to £5,000 compensation in the event of suppliers making mistakes with customers' bills was set up energy industry this July. From July next year, where suppliers are at fault, they will no longer have the ability to back-bill customers for energy consumed more than a year ago.

Alistair Buchanan,
Chief Executive, Ofgem

December 2006

Memorandum submitted by the Institution of Civil Engineers (ICE) (CIT 42)

INSTITUTION OF CIVIL ENGINEERS

1. The Institution of Civil Engineers (ICE) is a UK-based international organisation with over 75,000 members ranging from professional civil engineers to students. It is an educational and qualifying body and has charitable status under UK law. Founded in 1818, the ICE has become recognised worldwide for its excellence as a centre of learning, as a qualifying body and as a public voice for the profession.

2. With regards to carbon emission policy, there has been ongoing debate whether the introduction of tougher carbon cap-and-trade regulations or the increased subsidisation of carbon-low (or free) technologies is the most effective strategy. ICE believes that the most successful way forward is a combination of these two approaches.

Any successful strategy to reduce carbon emissions should represent a clear timeline to gradually introduce further limits on carbon emissions, both in industry and for the individual, and a strong commitment to spending on immediately available, carbon-friendly technologies.

Ultimately, we must acknowledge that the current level of greenhouse gas emissions from the developed nations as well as the emerging economies of China, India and Brazil is the single most important issue facing future generations. The steps we commit to now will lay the groundwork for those generations' survival.

What is the real scope for individual and local community action to contribute to tackling climate change? Some areas for possible consideration include:

Reducing energy consumption—not only electricity, but also energy used in heating and transportation

3. The technology exists today to deliver significant reductions in energy demand and associated emissions, but such reductions will only be achieved if consumers and other market participants perceive sufficient reasons to do so.

4. Improving efficiency is crucial, but if consumers still have the same habits, they will simply do more for the same cost. People need to question why they do something. The same applies to local authorities; specifically, we would point to the failure to deliver the proposed energy certification of public buildings.

5. The government's success in promoting recycling shows that with a consistent message and the correct incentives for local authorities and other intermediaries, real progress can be made in "greening homes and business". There are a number of other areas where rapid progress could be made, especially as homes and non-domestic buildings account for roughly 40% of all UK climate-change emissions.⁴

³ Report by the Comptroller and Auditor General HC 210 session 2004–05 11 February 2005.

⁴ The figures are based on the Digest of UK Energy Statistics energy consumption data and estimates of energy use in building stock by the Building Research Establishment under contract to Defra,
<<http://www.publications.parliament.uk/pa/cm200506/cmhansrd/cm060301/text/60301w05.htm>>

6. There is a need to simplify the regulation and incentive structures applying to combined heat and power; the technologies exist to deliver more combined heat and power (CHP) capacity but barriers still exist, particularly at the small-scale level.

7. ICE encourages the Government to introduce a renewable heat obligation to promote biofuels and CHP. The current renewables policy misses opportunities by focusing exclusively on grid-connected power-generation.

8. However, the skills-base necessary to maintain and install a high number of small-scale CHP systems may be lacking. The market will address this, so long as there is sufficient incentive and certainty. The government needs to assist in creating these conditions.

9. With regards to the Government's stated goal of ensuring that all homes are adequately heated, we encourage the upgrading of thermal performance of housing stock and improving the efficiency of energy-using devices. Such a move would also make a significant impact on fuel poverty.

10. While the increase in recycling is a success story, ICE strongly cautions against a simplistic approach to waste management that judges success in terms of tonnes of material recovered. "The case for a resource management strategy" states that a tonnage based approach to recycling can actually contribute to higher levels of carbon emissions, if waste materials are diverted to energy intensive reprocessing options, for example the conversion of glass into construction aggregate.⁵ Subsequently ICE supports the idea of establishing a network of resource management facilities that would combine remanufacturing, energy re-capture, composting and other options to best reduce waste disposal's impact on the environment.

11. Additionally, government at all levels should make more of a commitment to reducing its own transportation emissions, through wider use of tele- and video-conferencing for "virtual" meetings. The technology exists to make this more and more common.

The provision of desirable low carbon alternatives, such as energy saving lightbulbs . . .

12. ICE suggests that the focus should be on proper sustainable communities, decentralised energy production and reducing the need for long-distance travel.

13. The delivery of low carbon technologies is dependent on innovation and engineering development, which clearly denotes a commitment to R&D. Innovation can be delivered, but we also encourage Government to define its priorities, and offer encouragement accordingly. Any spending on R&D should be focused on UK specific issues, such as identification of sites for safe geological disposal of CO₂.

14. Low-carbon options that could be considered for the local level:

- Ground heat recovery.
- Solar heating.
- Photovoltaics.

(Any technology options should be considered in terms of their lifetime cost and global carbon emissions.)

15. In addition, ICE strongly supports moves to encourage public transport, but remind government of its responsibility of legislating universal emissions standards for public-transport fleets. There must also be a continual program of improvement in public transport to insure both high standards and customer commitment.

16. The long-term objective should be to use a diverse mix of zero and low-carbon technologies, using mainly indigenous sources of energy. Not only will this lower emissions, it is a good strategy for managing potential risks to security of energy supply.

The potential for, and barriers to, microgeneration

17. Individuals can change behaviour to reduce their carbon impact, and therefore we believe that a grassroots move to microgeneration will have an increasingly greater impact as time passes. However, the vast majority of people will naturally favour personal (and immediate) cost benefits over their concerns for the environment. Therefore, the most effective means of promoting low-carbon living is likely to be increased funding of technological R&D that will contribute to producing not only carbon-friendly technologies for personal use, but make them economically attractive to consumers. ICE therefore believes the focus should be on implementation, perhaps initially at larger user level (ie commercial), to prove effectiveness, and also to let the network providers accept the technology in stages, rather than to open the network to everybody all at once.

⁵ Institution of Civil Engineers and the Institution of Mechanical Engineers, "The case for a resource management strategy", January 2006,
< http://www.ice.org.uk/downloads/ICE_Resource%20Management%20Strategy.pdf >

18. Businesses especially will be sensitive to the cost benefits of environmental improvements. Therefore, we propose that businesses that can demonstrate (through smart metering) their commitment to continuing reduction of carbon emissions should be rewarded through a tax incentive system.

We have identified earlier potential skills shortages that could slow the progress of microgeneration.

Awareness of climate change and availability of information about the role of the individual in tackling the problem

19. Whilst people are becoming more fearful of climate change, their knowledge of its causes, and therefore the impact they can make, is limited.⁶ It is not only a matter of education; rather, it is a sense of people feeling overwhelmed and wondering if their efforts are worthwhile. Government must encourage responsible living without appearing to harangue—a difficult balance. The perception that “we are all doomed” can lead people to conclude they can do nothing to make a difference. We are concerned that the concept of Local Agenda 21—“think globally and act locally, making a difference”—seems to have been lost.⁷

What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

20. These strategies are both excellent starting points. ICE supports them in principle, and believes that their long-term success will be their gradual increase (similar to the impact of landfill tax).

21. Clearly, financial incentives matter and a slow increase in taxes/penalties for high-carbon lifestyles would prove effective, while allowing people time to adjust and replace these high-emission choices.

How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

22. Schools and community groups are vital to “getting the word out”, but any such message must be consistent and easily understood. At the school level, children can have an influence on the behaviour of parents and other family members, but it is essential that they understand the concept being presented while in the classroom.

23. Earlier ICE has outlined steps that can be undertaken for homes and businesses to reduce their carbon emissions. ICE favours both a strong educational push in promoting these options, and also strongly favours financial incentives such as prize draws and tax credits for people who commit to using them. Government at all levels should realise that this will be a long-term shift in attitudes, and cannot be expected to happen immediately.

24. It is necessary that for successful implementation of any carbon-reducing policy, all levels of government, including agencies, must have open and clear communication and co-operation.

Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?

25. ICE has concerns regarding any move towards individual carbon limits. Beyond the obvious logistical barriers (cost, efficiency of the tracking card, pricing) individuals may consider this intrusive, and also economically unfair.

26. Such a system could lead to so-called “carbon poverty”, where those with the resources to buy extra credits simply will, and continue polluting at a high rate.

27. However, the current level of worldwide greenhouse gas emissions is the single most important issue facing future generations. There needs to be a steep change in UK policy, leading towards substantial reductions in emissions, and that the current carbon limiting measures (the EU ETS and the recent proposal for personal carbon allowances) are necessary first steps. ICE implores the government, however, to ensure this system is not only feasible, but fair.

28. ICE strongly supports the introduction of various measures to incentivise the construction industry to lessen its carbon emissions. Although progress has been made, there is still much to do. Carbon trading certificates can be used amongst businesses to encourage smarter carbon solutions. The government can lead the way with environmentally aware contracts which are committed to sustainable, low-emission standards. In Hong Kong government contractors are legally obligated to provide for emission standards and waste disposal in their bids.

⁶ David Suzuki, “Public Doesn’t Understand Global Warming”, August 2006, <http://www.greenbiz.com/news/columns_third.cfm?NewsID=33821>

⁷ “What is Agenda 21?”, <<http://www.lbhf.gov.uk/external/la21/>>

29. It is crucial for Government to build on its relationships with industry, and to continue to stress both the environmental benefits, but also the economic opportunity of resource efficiency and lowered carbon emissions.

30. Any attempt to address the issue of individual and community action will require considerable government leadership. For the government to effectively enact change, it must commit itself to regulation, incentivisation, and education.

Submitted on behalf of the Institution of Civil Engineers

September 2006

Memorandum submitted by the Royal Institution of Chartered Surveyors (RICS) (CIT 10)

RICS EXECUTIVE SUMMARY: CLIMATE CHANGE: THE CITIZEN'S AGENDA

Issues around climate change cannot be addressed by simply looking at energy generation. It is essential that we manage energy demand and consumption as well or we will be faced with a need for an impossible level of infrastructure provision.

The challenge for individuals is to understand how we all contribute to climate change when we switch on lights, take a bath, turn on the heating, buy food and travel by car. While people will take some steps to meet the challenges of climate change, more needs to be done.

How we construct and live in our buildings can make a major impact. Moves have been made in terms of building regulations and the code for sustainable homes that should help with the energy efficiency of new homes. More should be done and building regulations should be brought up to the highest international standards

Much can also be done to lessen the impact of existing buildings on the environment and people need to use more energy efficient products in their homes. The relatively simple measure of replacing all gas central heating boilers with condensing boilers would cut CO₂ emissions by nearly 12 million tonnes whilst saving £1.2 billion each year on energy bills.

As well as looking at the buildings we use we need to look at the whole of the built environment. Development should take place in Transport Development Areas around public transport hubs so people find it easier to commute to work via public transport. The growth of mixed use development, combining residential commercial and leisure facilities will also have an impact on climate change.

Many European cities have also had success in increasing the proportion of journeys made on foot or by bike. This has been achieved through a combination of better land use planning, safer streets and positive promotion of walking and cycling—all things that need to be put in place in UK cities.

To encourage people to take up energy efficiency measures and microgeneration the Government should consider introducing fiscal incentives like council tax rebates. Changes to the planning system should also make it easier to install microgeneration devices. One successful scheme run by British Gas has linked the installation of energy efficiency measures to council tax rebates.

More information should be provided to individuals to help them make informed decisions on energy products. An energy “one-stop-shop” could provide a single point of information on energy reduction and microgeneration and well as providing access to information on audit services, financial support and accredited installers.

The Government needs to set an example on energy issues in its own work. Public buildings should meet the highest energy efficiency standards and should have a minimal environmental impact.

Carbon allowances may need to be introduced if significant behavioural change is not secured in other ways. Any scheme must be clearly set out and not have a negative impact on the poorest people in society.

The Royal Institution of Chartered Surveyors (RICS) is the world's leading professional body dealing with land, property and construction issues. It has over 120,000 members worldwide, working in both the public and private sectors. Under the terms of its Royal Charter, RICS is obliged to act in the public interest in all aspects of its work.

Climate change and energy issues impact on the work of chartered surveyors in a variety of ways. Chartered Surveyors are involved in projects developing energy efficient buildings, manage existing properties in an environmentally sustainable manner, and plan towns and cities to make sure their impact on energy use is minimised.

Key recommendations

- People need positive incentives to make their homes more energy efficient.
- The Government needs to adopt a stronger leadership role in explaining the impact of climate change to business and society.

- The planning system should be changed to allow easier access to microgeneration
- Smart metering should be introduced so people can better understand their energy consumption.
- Access to information should be made easier through the introduction of an energy “one-stop-shop”.
- The Government should set an example through its own activities.
- A Cabinet level Energy Minister should be appointed to coordinate action across national and local government.
- Carbon allowances or carbon rationing may need to be introduced to secure significant behavioural change.

INTRODUCTION

1. There is now compelling evidence that carbon emissions are leading to rapid climate change and the UK has responded by setting some ambitious targets for reducing such emissions. According to Sir David King, the UK's Government's Chief Scientific Advisor, “Climate Change is the most severe problem we are facing today”.

2. However, too many of the high profile debates on climate change have focussed on how energy is generated, rather than addressing the question of how we use energy. It is essential that mechanisms and incentives are put in place to encourage individuals, households and communities to live a low carbon lifestyle.

3. Research carried out for RICS by sustainability consultants Brook Lyndhurst looking at how our cities need to adapt to meet the challenges of climate change shows the potential effects of ignoring questions of energy demand. One scenario in the report argues that in order to sustain current consumption levels whilst meeting the Government's target of a 60% reduction in CO₂ emissions by 2050, Brighton's domestic, commercial and industrial sectors would need the equivalent of:

- 475 wind turbines or;
- 1.49 million solar photovoltaic roofs or;
- 0.7 of a nuclear power plant.

4. These numbers would rise even further if there was an increase in energy consumption. It is impractical for every city like Brighton to have its own giant fleet of wind turbines, a dedicated nuclear or more roofs with solar panels than it physically has. Without action on energy demand, infrastructure development on an unprecedented scale would be required.

5. *What is the real scope for individual and local community action to contribute to tackling climate change?*

6. The challenge for individuals is to understand how we all contribute to climate change when we switch on lights, take a bath, turn on the heating, buy food and travel by car. People are prepared to take steps presented to them as simple no or low-cost carbon reduction measures which would have little or no impact on their lifestyles. However, evidence also suggests that many individuals do not take these measures even when they would “pay for themselves” in a relatively short period. For example, it is not difficult to turn off the lights but people still leave them on. Such inaction merely highlights the challenge facing the Government to communicate the dire consequences of the profligate energy culture that we have created.

7. One of the main places individuals can take action on climate change is by making their homes more energy efficient. Buildings account for around 40% of all CO₂ emissions in Europe and making them more energy efficient should have an impact on climate change. Building regulations have recently been reviewed with new standards which will improve energy efficiency by around 40% for new buildings. Further revisions are expected by 2008, and we would like to see the development of building regulations in line with leading international standards on energy efficiency.

8. It is imperative that homeowners are given an incentive to purchase energy efficient products and appliances rather than less energy efficient versions but the exact mechanism for doing this requires more in depth discussion. Whilst savings over time undoubtedly exist when energy efficient products are used, a more upfront incentive is often needed to encourage consumers to switch to these products.

9. For instance the relatively simple measure of replacing all gas central heating boilers with condensing boilers would cut CO₂ emissions by nearly 12 million tonnes whilst saving £1.2 billion each year on energy bills. However, the upfront cost of having the new boiler installed puts many people off who may be persuaded to do the work if they saw a more tangible reward like a reduction in council tax.

10. As well as making new and existing buildings more energy efficient, energy consumption can be reduced in other areas. Local food supplies, energy and heat generation using renewable energy needs to be given more attention. Encouraging the local production of food will help reduce transport emissions by removing the need to transport food long distances.

11. A positive step to reduce energy consumption from transport would be the promotion of Transport Development Areas (TDAs). Development should be encouraged in or near to town centres and around major transport interchanges incorporating high density, energy efficient accommodation with leisure and work facilities to help reduce the need to commute long distances. The proximity of public transport to homes, work and leisure facilities would also encourage its use.

12. This concept is of particular importance given the Government's house building plans for London and the South East. The opportunity to link large scale housing expansion with accessible services and integrated public transport should not be missed. It will be difficult to persuade people not to use their cars for journeys but accessible public transport going to the places people want and need to go to is an important first step

13. Many European cities have also had success in increasing the proportion of journeys made on foot or by bike. This has been achieved through a combination of better land use planning, safer streets and positive promotion of walking and cycling—all things that need to be put in place in UK cities.

14. We can reduce energy consumption by looking at the generation and transmission processes and thinking more about the total outputs of the process. Studies have shown that as little as 22% of the energy generated in large power plants is available to the end user due to inefficient heat generation, transmission and distribution and inefficient end use. Encouraging the use of microgeneration and local combined heat and power plants will help use this energy more efficiently.

15. We are pleased that the Government has made changes to its planning policy that should help encourage the uptake of microgeneration. In its response to the Energy Review, the Government said it will be introducing a new Planning Policy Statement to encourage the use of more sustainable energy sources, including microgeneration and Combined Heat and Power in new housing developments. It is also expected to require that a percentage of energy in all new developments will have to come from on site renewables.

16. The Government has also recognised that uncertainty over the planning status of microgeneration equipment, and the cost and time it takes to obtain planning permission, are real barriers to the more rapid adoption of these technologies. As a result they are proposing to ensure that, as far as possible, all such technologies are exempted from the need for a specific planning application through the General Permitted Development Order (GPDO).

17. These are sensible measures that should make it easier to install microgeneration equipment. Hopefully these types of local power generation will give local communities more involvement in the whole energy process and it will help encourage them to be more aware of energy conservation.

18. People will be more aware of their energy consumption if they are able to understand its impact more clearly. Smart metering is an important way of doing this as it will allow people to tell how much energy they are using and the effect their actions, for instance turning off lights or not leaving appliances on stand by are having. However, smart metering technology is still in its early stages and as a starting point energy companies should include more information on consumption and associated emissions in their bills. This would allow consumers to compare themselves to others, examine their own trends in consumption, and set themselves realistic targets. Currently too many decisions in this area are based on price, which may fluctuate regardless of consumption.

19. In addition, more information should be made available to consumers by the establishment of an energy "one-stop-shop". Currently there are a variety of different sources where people can obtain information about energy efficiency including energy companies, charities and different Government agencies. A single source of information should be created to provide access to a more coherent and clearly signposted set of measures aimed at energy demand, with information on free help for example audit services, financial support and information on accredited installers. This could take the form of a web portal supported by a comprehensive advertising campaign.

20. *What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?*

21. The main obstacles to the take up of energy efficiency measures are a lack of information about costs and benefits, an absence of appropriate incentives, and a lack of motivation among consumers. We are pleased that the Government has recognised these points in its response to the Energy Review and hope they will take action soon.

22. Hopefully the one-stop-shop initiative mentioned above would go some way to addressing the lack of information about costs and benefits of energy saving measures. Often information on these issues is difficult to find and can be scattered around various websites and organisations. Having a single coherent source for this information should go some way to addressing the problem.

23. An absence of appropriate incentives tends to tie in with a lack of motivation amongst consumers. It is difficult to sell energy saving products such as efficient boilers to consumers on the basis that they will pay for themselves from reductions in bills over 10 or 15 years. In order to encourage people to take up both these measures and microgeneration, the Government should consider a range of incentives. One scheme

that has been successful is a link up between local authorities and British Gas offering householders rebates worth up to £100 on their council tax if they install energy efficiency measures. The Government should consider extending schemes like this which encourage the uptake of energy efficiency measures to the whole of the UK.

24. *How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?*

25. The Government's failure to bring about the fundamental shift to move towards a low carbon economy is largely because it has not put in place the required drivers to wean households and businesses from their dependence on fossil fuels. It has lacked the political will and over relied on voluntary measures to raise awareness.

26. The Government's key role in this situation is to set an example. One good example of this has been the Government's commitment to ensure that all new publicly funded homes will be expected to reach level three out of five on the star ratings system introduced by the Code for Sustainable Homes. Initiatives like this are to be welcomed but thinking about climate change should inform all aspects of Government thinking.

27. This extends from ensuring lights are turned off in public buildings such as colleges and Government offices to building energy efficiency measures into the design of buildings. A good example of this is the new Home Office building which has motion sensitive lights which ensure that offices are not lit when they are not in use. This can be contrasted with a newly built NHS hospital which requires the use of a significant number of electric fans when temperatures rise as it was not designed to deal with large temperature fluctuations.

28. When the Government does introduce measures dealing with issues affecting climate change they should ensure they are the best they can be. Recent attempts at legislation and regulations in the building of homes is a prime example of this. The voluntary nature of Code for Sustainable Homes means that it lacks the impact of a mandatory code and can be ignored by house builders if they have no particular commitment to climate change issues. The Government has been keen to emphasise the revisions to Part L of the Building regulations dealing with energy efficiency in buildings but could still go further by bringing Building Regulations up to the best European and international standards.

29. At a high level the Government can get its own house in order. Currently different parts of energy policy are split between a variety of departments including the DTI, Defra, DCLG and the DFT. To deal with this the Prime Minister needs to appoint an Energy Minister at Cabinet level to ensure the co-ordination, development and delivery of energy-related policy. This would allow delivery mechanisms across government to be co-ordinated and streamlined to ensure an effective programme.

30. *What is the role of NGOs in delivering the "citizen's agenda" on climate change?*

31. NGOs have a valuable role in delivering the "citizen's agenda" but experience would suggest that forward thinking NGOs tend to have to carry out a considerable amount of lobbying and research before making any forward progress.

32. For example, WWF has been promoting One Planet Living to its members for some time and that Friends of the Earth and Greenpeace have been advocating that the Government adopts a Zero Waste/Zero Emissions strategy. However, the Government seems reluctant to adopt the strategies suggested by these organisations.

33. NGOs must play a central role in any Government programmes to encourage people to take climate change more seriously. They are often excellent sources of information and can provide real examples of how energy efficiency can be put into practice. Any unified source of information on energy saving should include input from NGOs and they have a key role in spreading the message on these issues through their work with the public.

34. *Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What economic and other incentives for behavioural change might also be considered.*

35. Carbon allowances or carbon rationing may need to be introduced if the Government is serious about securing significant behavioural change. We believe this would promote an understanding of each person's carbon footprint and inform them of their activities which create heavy carbon demand.

36. However, any development towards household or personal taxation based on carbon emissions would need to be introduced sensitively. Any scheme that is introduced must be made understandable by everyone so no one is caught out by its introduction. Particular attention must be paid to the fuel poverty issue, perhaps through reduced rates for those households that come into this bracket and a more coherent package of measures supporting investment in energy efficiency.

37. Other measures could be put in place to encourage the uptake of energy efficiency measures. The Government needs to look at successful schemes where there has been an uptake of energy efficiency measures and use them as widely as possible. The link up between British Gas and certain local authorities which offers a reduction in council tax for installing energy efficiency measures, should be offered to all households in the UK.

38. If Government policy can be re-balanced to encourage more personal and household responsibility on energy and climate change issues this should be done. For example, each household in the UK currently generates around six tonnes of carbon dioxide per year, the relatively simple measure of replacing all gas central heating boilers with new condensing boilers would cut carbon dioxide emissions by nearly 12 million tonnes whilst saving £1.2 billion each year on energy bills. An urgent sense of action and willingness to take decisions like this is essential if we are to meet the challenges of climate change.

The Royal Institution of Chartered Surveyors

August 2006

Witnesses: **Mr Jon Prichard**, Director of Engineering, Policy and Innovation, **Mr Seamus Heffernan**, Senior Policy Executive, Institution of Civil Engineers, **Mr Louis Armstrong**, Chief Executive, and **Mr Mark Griffiths**, Chartered Surveyor, Member of the RICS Countryside Policy Panel, Royal Institution of Chartered Surveyors, gave evidence.

Q294 Chairman: Can I first of all apologise to our next two sets of witnesses, the Institution of Civil Engineers and the Royal Institution of Chartered Surveyors, for the delay in coming on but, as you can see, we were getting carried away with Ofgem with all kinds of interesting things and I am sure we will be carried forward by the many interesting contributions you are going to make. Can I formally welcome, on behalf of the Institution of Civil Engineers, Mr Jon Prichard, the Director of Engineering, Policy and Innovation, supported by Seamus Heffernan, the Senior Policy Executive, and from the Royal Institution of Chartered Surveyors Mr Louis Armstrong, Chief Executive, and Mr Mark Griffiths, Chartered Surveyor and a Member of the RICS's Countryside Policy Panel. Obviously with two organisations, one of you draws the short straw in answering the first question, but just indicate to me if you want to come in on it, and we will sort of jump about. There are some which may naturally appeal to one and the other, but feel free, both, to comment on that. Perhaps we could start by asking a question about your perception of central government and its role as coordinator of work in the field of energy efficiency and of energy savings. Do you feel that it really is fully engaged and that it really has the will to make the kind of major infrastructural changes which are going to get to grips with the size of the problem we have in reducing our energy emissions? Perhaps that might be a good place to start with the engineers.

Mr Prichard: I think as it stands currently, you are seeing a lot of changes in government departments. There has clearly been a lot of research done and a lot of work is being done across different departments. Looking at your question from one particular angle, should there be perhaps one central coordination role in taking that forward, I think that is a distinct possibility. Whether that is a particular department or a subset within the department I think is open to debate, but I think we would welcome there being a central focus which has an overview across all the departments taking that forward. I think in terms of within each

individual department we have seen progress in the recent years in the way a lot of the issues are being handled and we are interacting with those departments.

Q295 Chairman: Do the surveyors have a view on that?

Mr Armstrong: If I may comment, Chairman, yes. RICS's views are—and I think you have touched on this with Ofgem—is this a war on climate change which requires cross-party consensus, a proper climate change czar, the Treasury actually on-side, or can we allow the normal democratic processes of planning inquiries, voluntary activities, a range of encouragement to make the difference? I think the challenge is to set targets, both by city, by region, by parish, by street or by estate even, to have those targets clearly set out, if we are going to meet the 20% reductions over the 1990 levels by 2010 and 60% over 2000 levels by 2050. I think the RICS's view—and I think it is worth saying at this point, if I may, with 125,000 members operating around the world right across the built environment, everything you can think of, 170 specialisms in all—seeing this from both the public and private sector point of view and best practice internationally, there is no doubt in the mind of the RICS that voluntary activities, worthy though they are, and encouragement and existing Government policy, worthy though it is and improving with the Climate Change Bill in the Queen's Speech and with the acceptance of the Stern Report's broad thrust, there is no doubt that we as a country are going to be woefully short and the gap between the current solutions and where we have to get to is not going to be bridged without a lot of political courage, without a much greater reliance upon regulation and naming and shaming on the carrot and stick approach to it being properly done, and without it being spread across not only Defra but also probably five or six other ministries. I think having Alistair Darling as a Minister in the Cabinet is a good start, but he will not have the levers available to him to produce the holistic plans which are going to be required. I think this is an

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absolutely fundamental issue for cross-party consensus, rather on a war footing, if the Stern Report is going to be genuinely taken seriously in the run-up to the next election. I think this is a critical cross-party issue.

Q296 Chairman: This particular inquiry is about the citizen, in other words how can the ordinary individual play a greater part, and in your key recommendations of your evidence you make an interesting point, which says, “The Government should set an example through its own activities,” and I presume that by that you are implicitly saying that Government leads by example?

Mr Armstrong: Yes.

Q297 Chairman: You have touched upon, if you like, the organisational structure within government, arguing that there should be somebody with greater clout to wage the war on this subject, but what else do you think Government should do to create the sort of example base which underpins that line in your evidence?

Mr Armstrong: I think there is a range of issues around government buildings, government land, government estate, owned by different departments, the way in which they are already making an effort to be more sustainable, but I think there is a lot more that can be done. It is all the simple things, everything from energy efficient light bulbs to new buildings like the new Home Office, which is a good example, I think, of what should be done, and just trying to make sure that as part of the education programme all employees of government and all those working with government are genuinely committed to doing what they can. It is trying to break this down into individual responsibility as well as local authority responsibility, as well as national government responsibility, we think is going to make as much difference as anything, people accepting ownership of the problem, a degree of personal responsibility. That includes, of course, all government employees, starting from the top, which I think would be a good start. Mark may have some thoughts here.

Mr Griffiths: Chairman, you raised earlier on this question of information, and people cannot act without information, at a citizen level and also at business and governmental level. If the billing really is as bad as you say—and I have exactly the same experience as you, that you cannot actually determine from the information coming from the energy companies what your trends are. The trends are incredibly important for knowing whether you are making progress or going backwards. Probably the most certain aspect of the bill is the amount of the standing order per month. Everything else is extremely difficult to understand. If you take, for example, some of the telecom companies, they will provide you with pie charts, with graphs, et cetera, showing what types of calls you are making and how they have fluctuated over time. These are the sorts of things which are generated from something as basic as an Excel spreadsheet. I was astonished to hear, although of course it was an over-simplification,

£450 million to try and get some sensible billing is an extraordinary situation. I think if people got with their bills comparative information about how they are doing in time, how they are comparing with norms in society and how they are comparing with where we need to be in the future, then people can start to make decisions. But without very basic information, you have absolutely no chance. The same would apply to government departments. It would be absolutely no different, you have to have some benchmarking, but whether we are citizens, professionals or businessmen, that information very often just simply is not there. I would imagine that in terms of cost-effectiveness it is much easier to get that sort of information than to invest in smart metering, for example. We have to make the biggest gains as quickly as possible. Where are we going to get the biggest bang for our buck? That is what I think we need as information.

Q298 Chairman: Okay. Engineers, what do you have to say about it?

Mr Prichard: First of all, clearly there is a lot of new build going on and despite the fact that the Building Regulations have changed and there have been improvements with the Part L regulations and the like, not all buildings “as built” end up with the desired performance levels. So actually looking at building performance as a client, Government being 40% of the construction client, we actually need to look at how that building certification happens. That is where there could be a potential leadership role for the Government. In other areas, in terms of the strategy as to how gradually over the last thirty years you have seen a dis-aggregation of central government departments moving out into the regions, one needs to look at whether that has or has not increased the overall travel required as a result in order to facilitate the meetings in the centre, so perhaps greater encouragement for the virtual meetings, using the internet and the like for the conduct of meetings, seminars, and the like, so that we can reduce the overall travel burden.

Q299 Chairman: We are talking about equipment which can be made available to the citizen to help in this task. Engineers, does Britain have the ability to be a world leader in the technologies which are involved in energy saving or in making better use of the resources which we have for the development of energy?

Mr Prichard: The current philosophy is that we certainly have a knowledge economy which would suggest that traditionally Britain has established itself as an innovator in the market. I think we have got to look at the broader picture and say, “What happens to the exploitation?”, because traditionally, as I am sure you are aware, exploitation is tending to happen elsewhere of that technology. So the ideas are happening here, but the exploitation tends to be happening elsewhere.

Q300 Chairman: Where do you think we have the technology which is under-utilised?

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Mr Prichard: I think I would have to come back to you in a written answer because that is not necessarily my expert area or field.

Q301 Chairman: Okay. Have you done any work at all in looking at the R&D input into this area, whether it be from government or private sources? Are we spending what we should be spending?

Mr Prichard: Our view on R&D is that more could be spent and I think we have stated in the past that if you were to, say, commit 1% of the overall worth of the sector into R&D then you would look at increasing R&D. We are encouraged by the expenditure on things like the knowledge transfer networks, although they are fairly young and are being established and some of them have yet to prove how effective they can be. So there is encouragement and we note that there has been a gradual move away from the discipline-led research and development, central funding research and development, particularly in construction, and a move toward the thematic research and development. Where that is leading us, certainly within the civil engineering construction area, is that it is possibly leading to a shortfall in what we call the near market-type research, which is the actual research which takes the technology to the deliverable through the development of standards.

Q302 Chairman: I want to bring you back to your evidence, paragraph 8, and I have to say I found just a hint of tentativeness in what you were saying. There is a sentence which I discovered where you said, "However, the skills-base necessary to maintain and install a high number of small-scale CHP schemes may be lacking." Well, it either is there or it is not there, and that is just an example. I wanted engineers to be a bit more forceful, so let us go to the area where again you are a little bit tentative, paragraph 14, where you say, "Low-carbon options that could be considered for the local level," which sounds as if you were saying, "I'm not prepared to back a winner here, but we are in this business." You say, "Ground heat recovery, solar heating and photovoltaics." Those all exist, but the big barriers, as you heard from our previous evidence session, is the cost of it. I want to hear from the engineers what is going to be done to lower the cost, to make these things more acceptable as investments by the citizen for the purpose of reducing their energy throughput. What can you tell us engineers are going to do to achieve that objective in a relatively short timescale?

Mr Prichard: Like any other sector in the UK, the engineers will be market-led, unless there are inducements to drive down the unit cost—and that either comes from market take-up or it comes from a scheme such as the Renewable Obligations Certificate—then you are not going to get market inducement for that to happen. We cannot force the market. Picking up on that point on skills, I think that is a significant issue and when you look at the engineering skills base which is out there, there are undoubtedly current shortages.

Q303 Chairman: I hear what you say, but let me go back to your paragraph 14, the mouth-watering little sentence in parenthesis which says, "Any technology options should be considered in terms of their lifetime cost and global carbon emissions." Yes, I do not disagree with that, but what I do not see here is you saying that engineers in the United Kingdom are working on this, this and this, which could have the effect of dramatically changing the affordability of these things. For example, on photovoltaics, we went to Leicester to see the reality and the reality is £9,500 or a 46½ year pay-back period for the ordinary person to install this equipment on their house.⁸ Does engineering have anything to tell us that that bill could come down in a meaningful timescale to encourage the punters to save up and put photovoltaics on their houses?

Mr Prichard: There is nothing that I am aware of in the offing at the moment that will say that will come down. As I said earlier, you need to have the market conditions that will drive the price down. You cannot just expect the industry to commit to this at this stage because it has not yet broken into that virtuous circle that reduces price.

Q304 Chairman: This is a bit like the argument on computers or mobile telephones. People started off but the penny always drops with technology that if you start off with selling—my first computer when I arrived in the House of Commons 19 years ago was £1,800. It had a 20 megabyte hard disk and an eight megahertz processor and that was state of the art IBM PS2. Now, you would be an idiot if you paid that kind of money. You would get that in a games machine, and infinitely more. So what has happened is that people know by example that if you reduce the price of hi-tech it rapidly becomes acceptable technology and lots of people buy it, but I do not see the thing happening in an area which is currently the number one priority for goodness knows what body.

Mr Prichard: If you look at being the number one priority, I would question that because if you look at the amount of money which is going into the research budget in universities where you create these spin-off companies that start developing these technologies, then actually because the university budget has been spread so thinly across the board—and EPSRC⁹ I think are struggling in this respect—there perhaps is not enough funding going on to generate the innovation that you require.

Q305 Chairman: So you are saying that if we are going to make these tools more popular and more affordable, the ICE is saying that there needs to be more basic research done at universities to achieve those technological breakthroughs? Is that right?

Mr Prichard: We would encourage a review of how the EPSRC funding is committed.

Chairman: A review. All right.

⁸ The Committee visited Leicester on 18 September 2006. They visited the EcoHouse, Braunstone "Solar Streets" and Eyres Monsell Primary School.

⁹ Engineering and Physical Sciences Research Council.

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Q306 Lynne Jones: Can I ask something on photovoltaics, because the argument has always been that if there is a commercial market—and I note your point about basic research but generally on these technologies there is a technology which exists, just as there was with computers, and it is a question of improving and refining, and largely these are commercial decisions based on demand. I have been reading recently that the demand for polycrystalline silica for use in photovoltaics is actually increasing the price because there is a shortage of this material. I thought, well, silica just comes from sand, so why is there such a shortage of this basic material?

Mr Prichard: I am afraid I am not a materials engineer, so I cannot really comment on that.

Q307 Lynne Jones: I have heard that there is some new technology being developed?

Mr Prichard: I am aware that there is new technology, but I am not in a position to say what is the best—

Q308 Lynne Jones: Is there anybody in your Institution who might be able to answer that question?

Mr Prichard: I think you are talking about manufacturing and electrical engineering, and we are civil engineering. Therefore, we can find out for you, but I do not have that answer here.

Q309 Chairman: You are good at finding out. Mr Griffiths wants to give us an answer.

Mr Griffiths: I hesitate to tread on somebody else's territory—

Q310 Chairman: Do not hesitate, no, leap in, Mr Griffiths!

Mr Griffiths: —but I do try to read around this subject and you are quite right, there are some interesting developments taking place which may increase the efficiency of solar panels by a factor of five, using nano-technology and film technology. Clearly, if that happened it would have a very significant effect on the way we are able to generate electricity, but I think what the general discussion illustrates is that as far as the commercial sector is concerned it will be driven by the immediate cost of other sources of electricity or energy and broadly speaking fossil fuels are relatively cheap. I think where, as a society, Government can play a role is to say, "Okay, we are not at that point where these things are competitive and therefore we can't expect the private sector necessarily to deliver the goods immediately, but we can actually pump prime the research, in other words to encourage some risk taking which perhaps the private sector would not take," because the private sector tends to be relatively short-term in its outlook, returns to shareholders, and so on. So I think that is where we have to look at getting a move on and I think that is where Government can take a very strong role.

Q311 Mrs Moon: I am hearing some very interesting stuff about risk taking and pump priming, but at the same time the previous representation we heard talked about the subsidy which the existing energy companies are getting from their customers to roll out things such as the energy coming down from northern Scotland. If you are new and you want to get into this ballgame, if you are a new technology company, a new green technology company, the sort of company which people are looking for to sign up to to buy their energy from, there seems to be a huge, high level of risk. There does not seem to be an awful lot of subsidy from the consumer to them. So you have got to put the money up front to create the technology, you have to put the money up front to go through the planning system to get all of the different certificates you have to get before you can even put in your planning application, and then you do not know what you are going to get in terms of sale when you sell on your electricity to the grid. What can we do, what are the barriers which need to be removed to facilitate those green energy companies coming into the system and allowing us to get the technology, getting the plants on the ground so that we can actually buy the electricity they are seeking to generate? How are we going to move that along so that we actually get the market operating in a way which is effective for the new technology to operate? I am sorry, there is a lot there.

Mr Armstrong: Might I start, Chairman? One point strikes me here, and I think it is a bit of a chicken and egg because it seems to me if the Government says it is genuinely committed to forcing both companies and, if necessary, individuals to meet the climate challenge and deal with the issues of supply and demand of energy as two aspects of meeting that climate challenge, and if you can then get this bandwagon going which makes the companies, the venture capitalists, those investors who are investing in green technologies (some quite big names from Richard Branson to Robert Cambridge), take big slices of their investment money and put it into these technologies, it seems to me that the climate of risk which you rightly articulate will gradually evaporate. It is 30 years since Greenpeace was regarded as the al-Qaeda of eco-terrorism and beyond the pale. Every company worth its salt had anti-Greenpeace units within them, every oil company certainly did. I think now that seems like two hundred years ago. Now we are so different in our mindsets that I think the market forces will need to have it made clear, and Ofgem will clearly play a part here in saying, "This is going to happen. We are going to diversify. There will be incentives, whether they are different sorts of fiscal incentives within the Corporation Tax regime, VAT, whatever it takes." There will be ways, one hopes, where this will progressively, and quickly I hope, come to pass, but I think it is the chicken and the egg. You have to create the impression that this will be mainstream, that we will have cheap photovoltaic cells all over our roofs (except in conservation areas perhaps) within 10 years, and that we will be doing things completely differently from what we do now. We will

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have to do that. Then I think you will find those assessing the risk in their investment in new technology and their willingness to put money up front would have a different sum at the end of their calculations in a year or two's time than they would today. That would be my assessment.

Q312 Mrs Moon: When you started your presentation you talked about planning regulations, and one of the big barriers that you have to get over is the planning application and you have to take the risk of developing your new technology, getting your investors to back you, do all the planning applications and getting your certification. What can we do? What do you think are the important things to simplify the planning application process, bearing in mind that if Government actually says, "We are going to take away the power from local people to make their local decisions," there will be uproar. How do we simplify it while at the same time not removing local democracy and local decision-making?

Mr Armstrong: I think coming up with a national strategic framework for what is essential for the nation and where individual committees will have perhaps less of a say in the holding up of what is deemed to be strategically necessary is going to be part of the political debate, I expect, after Kate Barker's review and others have reported. I think you could do a number of things at local level to start with. Outside conservation areas you could remove the need to have individual planning permission for things on your roof, the micro-generation points you were talking about earlier with Ofgem. I think there will be a simple chain. It could be done under a general permitted development order. It would not need to be individually applied for. You would have issues with historic buildings in some sensitive conservation areas, but I think they could be dealt with under that legislation quite adequately. I think you could have presumptions in favour of certain things happening and make sure the Secretary of State is involved in supervising the power lines, the visual impact of offshore wind farms in your own constituency. I think you could have various presumptions. So we are having a presumption in favour of this, and the planning policy guidance could be quite clear, and we would need considerable persuasion that the local interests and the individual interests should prevail over this national war on climate change, because you will all be the losers if you are too NIMBY-ish or too selfish. So again it is part of this attitudinal and educational shifting of the mindset of the population. It is easier said than done, but I think we have to try. Mark has some ideas on specific issues. He is an expert on the countryside planning areas as to what might need to be done on power lines or other things.

Mr Griffiths: I think the question you have raised raises two contexts. One is the micro side, which relates to individual households. Then there are the major infrastructure schemes, such as offshore wind farms, or onshore, which are really two different kinds of question. I think the latter is going to be much harder to deal with because people support

green energy but they do not want to see the wind farms, and so on, and some of them are extremely large. Technically it is less of a problem with offshore. There is less impact on the landscape, but then you have got to cable it a long distance. We heard some interesting figures before about the potential for micro-generation and these types of apparatus are much smaller in scale. We have around the country even one or two industrial estates which have their own wind turbines and actually people have come to quite like them. So I think probably the micro end of things is easier to deal with than the very large infrastructure projects, but offshore wind is clearly a better bet than onshore, where there are some very contentious battles which take place.

Q313 David Lepper: Can we just concentrate for a little while on household energy efficiency? I am not sure, Mr Armstrong, I agree with you in leaving conservation areas out of the résumé you were giving us about changes in planning regulations. I represent a constituency which has conservation areas with some of the oldest, least energy efficient houses in them which might well benefit from some of the things we have been talking about. There was mention by Mr Prichard, I think, of a change in the Building Regulations for new homes and I think thermal efficiency, heat loss measurement, was one of the important aspects there. There is a bit of research which I think we were made aware of which showed it is likely that sixteenth century buildings leaked less air than many modern day ones. I am not sure how anyone made the comparison, but there we are. What do you think will be the effect of the revised Building Regulations and the introduction of energy performance certificates in helping to deal with issues of thermal performance in new housing? Will they both have a real impact?

Mr Prichard: I think in terms of our initial response to the Building Regulations, we felt they could have been harsher than they were, or more onerous than they were, and I think there was a little bit of disappointment that they missed one or two opportunities. At the end of the day they are an instrument which will start improving the levels of insulation in housing. The concern which we have comes back to the skills agenda in terms of the ability of Building Control to assess the performance of the quality of the construction, because it is all very well building and complying with the regulations, but if the building then subsequently does not meet high performance standards, if you leave cold bridges in the structure then actually you have wasted your time, and at the moment there is perhaps a lack of competence in some areas and a shortage of suitably qualified people within Building Control to sign off to say that this is being done. So that leads us, I think, to that next stage, which is where the energy performance certification comes in, because that is an opportunity to have proper assessment of the performance of the building to see whether or not it is performing as it was designed to. Of course, energy performance certification can also be applied at the

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point of sale to existing housing stock, so you can start influencing the market. So I think we are genuinely supportive of valid certification.

Q314 David Lepper: Is that going to be a slow process in changing things?

Mr Prichard: I think it probably is.

Q315 David Lepper: It sounds as if you are saying the skills base to ensure it is done properly in the first place may not be there, or there may be a bit of corner cutting, therefore it is when you come to the level of certification that the kind of policing comes into operation and that might put the pressure on the builders, the developers, or whoever, to ensure that they do the job better in the first place. But we are talking years, are we not?

Mr Armstrong: I think if you took the view that new housing is 0.2% of the existing housing stock each year, so you are only adding 1% of the housing stock every five years, it will have an effect, including the new Building Regulations, as the Minister for Housing and Planning has said, and I think the Home Builders Federation has agreed that they will meet the best European standards, or thereabouts, from January of next year. But the real challenge is the 22 million homes we have, and I agree, I think the sixteenth century homes with judicious use of all sorts of straw and various things have proved surprisingly effective in retaining heat. I think the real challenge is how you tackle that. As Jon has said, the energy performance certificates would affect perhaps 1.5 million homes a year, that sort of figure for the sale of homes. It would then be important to encourage everyone to have a performance assessment done, irrespective of whether energy costs rise much greater, so that they could see for themselves quite how inefficient their home was and be advised by the one-stop-shop advisory service you touched on with Ofgem, which I think is essential, the clear guidance which is going to be needed, to say, "Well, you could spend a certain amount and transform your energy performance." We should, I think, also look at council tax rebates. There is nothing like money to change behaviour, and the success of the scheme in Braintree with British Gas and offering up to £100 rebate on council tax should be extended elsewhere. I think it is something which would really capture the imagination of everybody if they could see a direct correlation between their taking energy efficiency in their homes seriously and the amount of council tax they paid, because otherwise the pay-back periods, 10, 14, 15 years, perhaps 20 years for some investments we have touched on, the cost of photovoltaic roofs and how long it takes to get that investment back in energy savings, people will not do it voluntarily and they will not do it quick enough. So it is much too slow on a voluntary basis. It needs some carrots, it needs some incentives, and the best way, we think, is to combine existing grants (which some local authorities still give for insulation) with a widespread use of council tax incentives. It need not be very great, symbolically is as much as anything, I think, with some reduced

price technology and some very good special offers and deals to get people interested and think, "Oh, my neighbour's got this and that. What a good idea. It will save me a fortune and why don't I do the same?" It is speeding up the process.

Q316 David Taylor: One of the objectives of the RICS is to catalyse the highest standards of education and training for those involved in land, property construction and environmental issues. That is right, is it not?

Mr Armstrong: Yes.

Q317 David Taylor: You were entirely supportive of the review of Part L which came in in April 2006, the various conclusions which were reached, were you?

Mr Armstrong: That is not my special area. We were broadly supportive, but I think, as Jon said, you can always do more with Building Regulations. Our housing stock is some of the worst quality in Europe. Our Building Regulations are still not up to the best European standards, and I agree with Jon, there is a long way still to go, I think.

Q318 David Taylor: Where professionally then lies the responsibility for things like healthy buildings and the aesthetics, the look of the finished product? Where does that lie between the two professions which are represented here?

Mr Armstrong: I think you would have to start with the Commission for Architecture and the Built Environment to put pressure on all the developers and the architects to have better quality design. On the planning committees of local authorities and the planning officers, the professionals, to raise their game in what they are prepared to accept aesthetically, and I think to accept that the home builders—and I think they would probably now admit this—have got away with some pretty tacky and unappetising designs because of the supply and demand where people are prepared to buy them. I think now they are improving, but the countryside is covered with things I do not personally—

Q319 David Taylor: I am sorry, Mr Prichard, do you want to say something?

Mr Prichard: In larger structures there are a number of schemes available for assessing the quality and the Construction Industry Council has a sponsored an initiative called Design Quality Indicators and that has been rolled out in the building skills programme and the Department for Education has signed up to that, and in fact it has been so successful in the UK that it has been exported to the United States. There are also building and performance certificate regimes, such as BREAM. So I think there are a number of performance regimes for larger buildings but there has not been one at the bottom end of the scale in domestic housing.

Q320 David Taylor: My colleague referred to possible backward steps since the time of the first Queen Elizabeth, five hundred years ago, and I want to put to you that one of the impacts, one of the effects of the now accepted Part L changes has been

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the death of the British chimney on small to medium size houses, which is not a risible issue. I think in terms of aesthetics, in terms of economics—and I declare an interest here—in the minerals extraction area there is a chimney and builders' material firms in our area have been severely hit by that and they would argue that we are looking at the position where houses and other forms of domestic property will be hermetically sealed living spaces, almost cells, which may well be efficient in an energy consumption sense but are both less attractive as buildings in their own right but, more importantly, are less healthy places in which to live because of inadequate ventilation and things of that kind. Do you accept the point which was put to me very vigorously and which I put to the Minister over the months but despite what I have said the regulations are now in place? Do you accept what I am saying?

Mr Armstrong: It would be wrong for me to express a view. I think one could cure the cosmetic one by putting a false chimney on and making it look better aesthetically, if that is what people felt was appropriate. I am not qualified to comment, I am not a chartered surveyor myself, on the quality of air which has to be balanced by, as you say, a hermetically sealed house for energy efficiency purposes.

Mr Prichard: There are methods and there is technology you can use through forced air ventilation systems which can, with heat exchangers in place, be energy efficient and provide a flow of air, and I think we do have to move more towards that regime in order to maintain the air flow available. Interestingly, if you install a gas appliance in a domestic property you have to install the air bricks in the room to the outside world in order to allow that free ventilation. So there are some contradictions within the system.

Q321 David Taylor: My final additional question is, taking all these things into account, the changes which have been made by the reform of Part L of the Building Regulations, do you feel that was the best method of upgrading thermal performance of the housing stock, or are there things which were options not pursued or which could be pursued now which would give a more effective movement forward on energy conservation?

Mr Prichard: If we are only talking about a small percentage of houses, new build—

Q322 David Taylor: I understand that. They are not fitting these things, I understand that.

Mr Prichard: —but Part L is not a retrospective assessment and therefore it does not really have an impact on the vast majority of UK housing.

David Taylor: I think it is a bit higher than 0.2%, but nevertheless it is a very low figure.

Q323 Sir Peter Soulsby: I think you made reference earlier to building schools for the future and the investment is going into those schools. It has been suggested to me that some big opportunities are being missed as part of that and that in fact energy efficiency is not being given the consideration that it

ought to be. Is that something you are aware of, and is that the responsibility of central or local government?

Mr Armstrong: I was certainly conscious of that in hospitals. I am not sure about schools. It is part of the PFI process, I suspect it is part of the compromise process which has been gone through with PFI being very often the way in which a lot of the schools and hospitals building programme has been achieved. There are clearly lessons to be learnt. I suspect when the original spec was done the climate change debate was not as vociferous as it is now and that in balancing out different, possibly mutually exclusive, issues and deciding what to build, at what cost, what it would look like, what functions it would fulfil and what its whole lifecycle costs would be over thirty years, my guess would be that the climate change issues now would have a much greater weighting factor in the decision-making process than they had perhaps five years ago when these projects were conceived. But I take the point. I agree, I think there is probably a number of issues there which for costs reasons, or for other practical reasons, because of competing priorities, did not make schools or hospitals as climate change friendly as they ought now to be demonstrated to be.

Q324 Lynne Jones: In relation to new build, Mr Armstrong, was I correct in gathering from what you said earlier that from next year all new house building will be at an energy efficiency level which is as high as the best in Europe?

Mr Armstrong: My understanding is that the Home Builders' Federation and the Minister, Yvette Cooper, have agreed between themselves that they will all abide by what I think is going to be a voluntary code to start with, which will bring new house building up to I think probably an acceptable European standard which will be very much better than it is now. Whether it actually is the best in Europe, I am not sure, but they have been trying to come up with as ambitious a formula as they could—

Q325 Lynne Jones: You mean as they could afford commercially?

Mr Armstrong: Well, as perhaps they could get voluntary agreement to. I am not close to the negotiations.

Q326 Lynne Jones: It would be interesting to know if you have got any comments on what ought to be done because we do have a very poor history in this country in terms of the quality of the energy efficiency of our stock. I do not know whether the engineers wanted to comment on that?

Mr Armstrong: Perhaps we could come back to you with a written view, if that would help, on what we think is the gap between—

Q327 Lynne Jones: Because if we were in a war we should be going for the best that we possibly can achieve, not what is an acceptable compromise.

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Mr Armstrong: Indeed.

Q328 Lynne Jones: In relation to existing housing, if I could put up the hypothesis that I think there is a lot of people in existing housing who could afford, without any subsidy, to do the most effective first stages, because putting on a wind generator or even photovoltaics is not the most important thing, but unfortunately it is the sexiest thing at the moment and a lot of people are perhaps spending money on that, whereas they should be spending money on other things, but what is inhibiting that is the hassle factor. We were talking earlier about the complexity of actually knowing what the best thing is to do, but even when you have decided what to do, actually having that new boiler installed and messing up your kitchen. Have you got any ideas of how we should address that, how we can take the hassle out of that so that somebody can say, "Look, I can come and do it for you"? That is what I would like. At the other extreme we have lots of people who, even if they were prepared to put up with the hassle, could not afford it. We have a lot of our social and council housing in very poor condition in relation to energy efficiency. What should the Government be doing about that? Are they doing enough about that, and what about that element of existing housing which will never really be brought up to a reasonable standard, and about new building for poor people? Where is the resource for that going to come from?

Mr Griffiths: Firstly, I do not think that it is a case that nothing is being done. My own council in Hampshire actively write to all residents offering significantly subsidised insulation and actually doing loft and wall insulation, as you rightly point out, is far more effective in the first instance in reducing energy consumption than going for micro-generation.

Q329 Chairman: Could I just ask in parenthesis, is that out of Hampshire's own budget or is somebody else funding that?

Mr Griffiths: When I say "Hampshire" I am specifically talking about the district of Winchester and I do not know the answer to your question, but I will be happy to find out for you.

Chairman: Thank you.

Q330 Lynne Jones: It will be Warm Front probably.

Mr Griffiths: So if one is trying to think strategically, you have to produce a list of targets where you are going to get the most bang for your buck, and you have to start with these very simple measures as opposed to micro-generation, or what have you. You make the point there are plenty of people who actually could afford to do these things, but for one reason or another it is not made easy for them. I actually think Winchester City Council are making it as easy as it possibly could be. They will supply the materials, they will supply the labour, all you have to do is write the cheque. The biggest problem is clearing your loft before you actually get round to doing it.

Q331 Lynne Jones: Will they do that for you?

Mr Griffiths: They will not, and that is often the practical obstacle.

Q332 Chairman: There will be a 300% increase in car boot sales!

Mr Griffiths: I think one of the things about climate change is that it starts off on a very grand scale. You have Kyoto, then you have your national energy review, and so on. I would personally like to see a lot more empowerment of local councils, local communities driving their own initiatives, giving them some flexibility to do this, deciding how they will spend the money and as part of that process increasing awareness of how people are wasting their money. We have mentioned this in terms of energy. We have discussed the bills. Another aspect is what that means in CO₂ terms. The RICS ran a conference last year where a member from its geomatics division, which is the division which deals with information technology as it relates to geography, did a fascinating presentation where he claimed that the technology was available now relatively simply whereby you could produce infra red photography from the sky of a whole street or a whole district and from that image you could see which buildings were emitting the most heat.

Q333 Chairman: You might have done it!

Mr Griffiths: So my question is, if we go back to what I regard as a very elementary thing about having decent information with your electricity bill or your gas bill, along with that bill, why do you not only get your pie chart but why do you not also get your satellite image which shows how bad you are in relation to your neighbour? The shaming effect of that alongside the trade information I think would do more for our reduction of energy consumption than any massive energy review right across the country. It is information that people want and they need peer and financial pressure to act.

Q334 Lynne Jones: Nobody has mentioned social housing.

Mr Prichard: No. First of all, dealing with the people who can afford to make the changes, clearly they are not valuing the resources, whether that resource is energy or water, which clearly has an energy component because all the water people get at home is treated water and therefore it has had very high energy inputs into delivering that water. So there are options which can be done, grey water recycling and the like, which perhaps more could be done about. I certainly have seen no domestic literature coming out in that respect and making that happen. People do not value the resource, so the price of the commodity at the point of use is too low, then people make the value judgment, "I don't need yet to do this because it is not going to be cost beneficial to my domestic tariff." I think in terms of social housing it is a much more difficult agenda because it can be, as you say, quite an intrusive experience. So if you are imposing it, then you risk being very intrusive, so I think you have got to go through the information exercise, making the information available in a

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readily understood format such that people can perhaps request that they have their house surveyed. I know Ofgem has encouraged them and British Gas has done trials on making that survey free of charge, but there still is not sufficient take-up from those who are in that social housing.

Q335 Lynne Jones: Should not the landlords helped to do more?

Mr Armstrong: I think it is an important area. I just think it is just not in the registered social landlords—I am thinking of the big social housing operations and indeed those still left in council ownership—but also it may be down to some tax incentives, which will not be popular with the Treasury, but I cannot see any way in which, if I was a landlord, I could be prevailed upon voluntarily to upgrade on energy efficiency grounds my premises if it was easily lettable as it was. It is just a market force, if no one is going to rent it because it seems cold or badly heated or cost a fortune in the running costs. I think you need to concentrate attempts on incentivising landlords, maybe in the tax payable on their rent, something where you would have to do that.

Q336 Lynne Jones: Just very quickly, the Home Energy Certification process. There are now people being trained up to be inspectors. Do you think the level of their qualifications is adequate for them to be able to do this work effectively?

Mr Armstrong: This is a difficult issue, which I have been discussing a lot with Yvette Cooper, largely because it would be better to have someone trained to do a home survey evaluation and an energy performance certificate all at the same time, one visit, a separate visit for an EPC. Using a car is not a good idea anyway in symbolic terms. So the answer to your question is, it is not rocket science and should quite easily be able to be done. The real question is, are there enough of them in the right places to do it quickly and efficiently? The answer is that by June 2007 there will not be, but the EU Directive allows us to, I think, by 2009 have this in place. But I think it is potentially an important weapon. As Mark said, if you have got the information readily available and you know how your house stacks up and you know what it was like 10 years ago when it was last done, progressively we will get a database which helps to show the progressive trends.

Q337 David Lepper: Mr Griffiths talked about the work Winchester Council are doing, and that was interesting. We hear about Woking and about Leicester, and so on. I just wonder whether either of your two organisations has a view about the role of the Local Government Association in promoting this kind of work amongst its members, and whether you have a view about how proactive or not it is, spreading good practice, and so on, or indeed in lobbying on behalf of its members? I think both organisations have talked about the importance of local councils and what they do.

Mr Griffiths: Potentially, clearly, it could have a very important role. What it is actually doing at the moment I have no knowledge of at all, but it could be a forum for establishing best practice.

Q338 David Lepper: Miraculously from the sky, the Local Government Association's Breathing Communities Campaign Kit, Ideas Into Action, has appeared before me. So they are clearly doing something! But you were not aware of this?

Mr Griffiths: I was not aware of this.

Chairman: A piece of good news!

Q339 David Lepper: I suspect that might say rather more about the Local Government Association than—

Mr Prichard: The ICE has a Municipal Engineering board and they would be aware, I think, of that information, but as I do not attend that, I am not.

Q340 David Lepper: My local college of further education is investing quite a lot and has been enabled by the Government to invest quite a lot in training for the construction trades at the moment. I suspect the same might be happening in other places as well. As civil engineers you, in particular, keep a watch on the kind of work that is going on in training of that kind, I imagine, and are the courses which are available at the moment sufficiently in tune with the need to deal with the kinds of issues we have been discussing in terms of housebuilding, and so on?

Mr Prichard: We accredit courses in civil engineering and there are 78 civil engineering departments across universities in the United Kingdom. We have a slightly more stand-offish approach in the further education sector because that is not a direct qualification which leads to professional membership, it is a subsidiary, and we have not got the resource to actually do that. We do take a view of it, but we tend to do it through bodies such as the Construction Industry Council and the Construction Industry Training Board Construction-Skills, who do take a close look at that level, but we certainly have a very good view on what is happening at the HE level and there are concerns with the funding of engineering at HE level which I can articulate if you wanted to hear more about it.

David Lepper: Okay. Thank you.

Q341 Chairman: Could I just bring our inquiry to a close with a little bit of questioning about large public and commercial buildings. That is where the citizens spend a lot of their time, if they are in employment, and the better the performance of that type of structure obviously takes some of the pressure off other sectors of the economy in terms of their contribution, in terms of reducing greenhouse gas emissions. I suppose the iconic building which in the last twelve months has caught the imagination has been the CWS Building in Manchester, which has got the largest array of photovoltaic cells on it and it has also got a lot of wind energy. They have taken the very responsible view of saying, "Right, we're going to incorporate that into our new

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building.” But then, on the other hand, you see a great deal of refurbishment work going on on existing sixties’ structures and seventies’ structures. I am not getting the sense—and maybe I am wrong—that those buildings are being brought up to the highest possible energy efficiency standards either from the point of view of insulation, external cladding materials, these kinds of things, or the installation of the most modern heating systems. One of the things which came out of our Bioenergy Report was the fact that heat accounts for a third of our emissions and the opportunity to use renewable sources of fuel in more modern boilers, or combined heat and power systems offers some potentially very interesting areas for savings. You commented about the lack of inducement, Mr Armstrong, for the social landlord to make changes. Can you give us some commentary about the environment for business and for property companies to become involved in this whole area? Is, for example, Schedule A structured sufficiently well to give the kind of inducement which you said the private landlord might need, and from the engineers, are we seeing building refurbishment being used advantageously to move the whole energy saving agenda forward?

Mr Armstrong: I think we are helped by the EU’s Energy Performance Directive in commercial buildings, and I think from memory all those extensions over 1,000 square metres have now to be the catalyst for bringing the whole building up to modern standards. So I think your point about whether refurbished older buildings are being brought up to standard is now covered. I think in terms of buildings as a whole, we are working on a number of levels. One is the value of green buildings. Are they intrinsically more valuable to the investor? Will the investor pay more for this? Are they more valuable to the company? The jury is still out as far as the market is concerned, but in theory there should progressively be—and we are working with the International Valuations Standards Committee on just this issue and there is a big meeting in Vancouver next March on this. One issue will be to get the value of buildings to be greater to the investor and appreciated more by users. Second is the evidence from the human resource community that those individuals who occupy green buildings like them, especially the younger generation, and the efficiency and productivity is improved, the retention is improved and there are very good people reasons why the building should be brought up to modern standards. Our facilities management faculty—and a lot of our members do this on a sophisticated basis—is trying to get best practice instilled in them to make sure that they are taking every opportunity for the good of the business as well as the value of the property and its running costs to bring it up to standard. You have seen those pictures, perhaps, in the *Evening Standard* recently of all those buildings at Canary Wharf with all those lights blazing, and we are trying to get, as the Home Office does, movement sensitive lighting so that lights are all turned off and you do not blame the cleaners for the fact that they are on all night over 40

floors, as was seen in Canary Wharf just last week. So I think the commercial sector, all the big landlords and developers, is taking corporate responsibility very seriously now, not just paying lip service to greening up their accounts, as might have been the case a few years ago. They are genuinely concerned about all the new developments being seen to be new standards. The best companies are equally concerned about occupying buildings like that and individuals are keen to work in them. So I think progressively things are improving.

Q342 Chairman: You have put a lot of emphasis on what is good corporate social responsibility. Are there any barriers to progress in this which government should remove?

Mr Armstrong: It is difficult off the top of my head to think of ones which government should remove. One old issue is the problem of VAT on refurbished building as opposed to the 5% rate—

Q343 Chairman: Does Schedule A need to be changed in terms of the way equipment in buildings is written down to encourage a more rapid turnover and re-engineering of the energy systems in buildings, for example?

Mr Armstrong: That is certainly a possibility.

Mr Griffiths: I think there is scope for that. One issue you do need to bear in mind is that within the existing energy infrastructure there is quite a lot of embedded energy and therefore if you replace things willy-nilly you generate a whole load of CO₂ in producing the replacement plant. That is quite a careful calculation and you have to think about that in some depth to make sure that actually you are not making losses in one area and substituting for gains in another. Really the point at which to do it is when equipment is obsolete and then to make sure that you have a very good high specification. One of the technologies which was mentioned earlier, which I suspect is under-utilised, is ground source heat technology. One of the interesting things about that technology is that it is almost universally available and whereas in the past the ducting for gathering that heat source was laid horizontally, so you needed somebody with a garden, for example, to deal with it, now they do vertical installations. So even in very dense urban situations you can make use of that technology and I think that is something which perhaps quite often gets overlooked.

Mr Prichard: Answering your question on building refurbishment and looking at that area, I think in terms of the leaps and strides which the best are now doing and introducing in terms of their sustainability policies and being impacted on by the fact that clients are beginning to ask more and more for an environmentally friendly treatment of an existing building, I think we are finding there is an increase of performance in this area. Those who are not being led in that way, and there is clearly a spectrum of performance in this area, are being impacted on by things like the escalating Landfill Tax so that they are now, having had the Landfill Tax increases, they are having to consider clever

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ways of dealing with the waste on site, recycling the waste on site and incorporating waste re-use into the structure. Those performance things are happening. I think overall any building which has had work done on it, as Louis said, will attain the standards because if you maintain the façade, the building behind it does now have to meet with the minimum standard. But the difficulty we have got is that it is a minimum standard and therefore you have to look at how often you start lifting the bar and taking that standard higher.

Chairman: Gentlemen, thank you very much indeed for your many and varied, and well-informed, comments. We have learnt a great deal from what

you have had to say. Can I also take the opportunity of formally thanking you for your written evidence. I was particularly interested in the little table in the RICS evidence, which I think David Lepper, representing his seat in Brighton, will have taken very careful notice of, of the amount of photovoltaics, the point seven of a nuclear power station, and the other measures of energy supply in the form of windmills which will be required to keep his city alone going in the future! So you have given us an awful lot to think about. If there is anything more you want to send to us, then we will obviously be delighted to hear from you, but thank you very much for giving evidence this afternoon.

Supplementary memorandum submitted by the Institution of Civil Engineers (ICE) (CIT 42a)

REQUEST FOR WRITTEN EVIDENCE

INSTITUTION OF CIVIL ENGINEERS

1. We welcome the opportunity to re-submit evidence to the committee, and thank them for the chance to do so. We have limited ourselves to three specific areas, and are available for follow up discussions or meetings on any issue we have raised in this and our previous submission.

GREEN TAXATION

2. ICE firmly supports the efforts of Government to influence behaviour and promote sustainability as regards to the environment. Green taxation, or eco-taxes, is one way in which to achieve this.

3. In our previous submission in September, we outlined our support for eco-taxes such as the landfill tax (which we believe must be raised at a higher rate than planned to affect real reductions in landfilling) and policies where contractors have to prove to the government that they are meeting recycling and sustainability targets (as the Government of Hong Kong demands). We also explained our support for the “polluter pays” principle, something eco-taxes can easily address.

4. Eco-taxation has been successful in other countries, such as Sweden, Germany and Norway. The UK should adopt similar measures soon, as the European Union has made it clear that it supports broad eco taxation targets from its member states.

5. In Sweden, they have been one of the forerunners of what will probably be the most widely accepted future eco taxing policy, the carbon tax.¹⁰ In the early 1990s, Sweden introduced a tax (roughly £50/per tonne) on the use of oil, coal, natural gas, liquefied petroleum gas, petrol, and aviation fuel used in domestic travel. Carbon emissions were cut, and biomass fuel use rose.

6. There were, however, problems that can and should be avoided to guarantee even further success. These include the fact that the overall tax level for industry users of fossil fuels was reduced as a result of the 1991 carbon tax. They also have noted that since energy costs represented only a relatively small percentage of a firm’s total costs, many industrialists were slow to modify or upgrade their existing plants as a result of the new taxes.

7. Another problem resulted from the tax exemption on the use of waste fuels. Before the introduction of the carbon tax, most industrial waste by-products were sent to hazardous waste dumps or recycled. However, as the carbon tax granted tax exemption on the use of waste fuels, many oil-based by-products began to be used by local heating districts for heating purposes. This resulted in large amounts of pollution.

8. Finally, perhaps the greatest flaw of the new Swedish tax code was its inability to truly tax carbon emissions. While most carbon-based fuels were taxed, this tax did not reflect the actual level of carbon emitted from these fuels. For example, low emission diesel fuel and high-emission diesel fuel were both taxed at the same level despite causing different levels of environmental damage. All of these problems could easily be experienced by a UK Government, so planning and foresight will be necessary.

9. ICE believes that green taxation’s effectiveness is best when the tax burden is constant. For example, Germany has introduced eco-taxation laws in 1998, 1999 and 2002, but at all times has reduced income taxes to maintain the same level of taxation.

¹⁰ <http://www.colby.edu/personal/t/thtieten/eco-taxation.htm>

10. Moreover, people will respond positively if they believe the money from these taxes is directly benefiting the environment. Noted Canadian economist Phillipe Ghayad has written that eco-taxes can create more efficient and comfortable public transportation, thereby encouraging its use.¹¹ Ghayad insists that everyone has a price they are willing to pay in order to use a car rather than public transportation. It is Government's job to convince those drivers whose price is relatively low.

11. We support the taxation of cars based on their fuel efficiency. This could be a sliding scale that could be adjusted to go lower based on how poor the vehicle's fuel efficiency is, with the base goal being increased every few years.

12. Yet households emit more harmful CO₂ than vehicles, through everyday activities such as doing laundry, boiling kettles or washing dishes. A tax on water usage, or a water meter, (such as Hydro-Quebec in Canada does with electricity) would create a deterrent to waste this precious resource. This is already practiced elsewhere in Europe. Additionally, in our response to the Energy Review and our State of the Nation report, we committed strongly to the idea of an "Energy Hierarchy" which promotes conservation and efficiency. We would also support a new household environmental rating tax, where homes not meeting standards would face more tax pressure than those that do.

13. In principle, we support individual carbon credit programs. However, we are aware that the possibility exists to create so-called "carbon poverty", wherein people with more money can simply buy up other people's allotted credits, and continue polluting. We are also interested to see how carbon credits would be allocated. Would it be a flat system, or would people be granted more credits based on needs—ie disabled individuals who are required to drive more due to inaccessibility of public transportation? We believe individual carbon credit allotment can work, but the planning involved will be considerable.

14. To encourage improved energy performance in commercial buildings, we support tax deductions for commercial buildings that exceed government standards for energy efficiency. We also support tax credits to encourage sustainable building practice. This should reduce natural resource depletion for both construction and energy bills of the structure. Credits allow early adopters in the market to overcome the early price barriers to new technologies and practices while increasing the market share of green buildings and technologies. Tax credits also validate green building practices through Government endorsement. As the market share for green building increases, the barriers to these practices will decrease and the credits will no longer be needed.

15. The money generated from these taxes can also be used to create incentives such as direct tax reductions. These incentives can range from tax reductions on the purchase of hybrid cars to the purchase of electronic and energy saving thermostats by households. Government must acknowledge the whole life cost of construction, and its policies regarding its own contractors and private contractors must reflect this.

SOLAR POWER

When ICE was invited to present evidence to the committee, we were asked why solar power (specifically, photovoltaic technology) was not cheaper and more readily available. The following addendum addresses that question.

16. The main appeal of solar power is its ubiquity. Solar is more diffuse than other renewable energy resources (such as wind), making it more expensive to extract, but it is much more evenly distributed over the Earth's surface. Despite this potential, solar still only produces less than 1% of the world's power. This is a result of the cost. The technologies needed to convert sunlight to electricity have been far too expensive, especially compared to readily available, far cheaper fossil fuels.¹² However the cost of solar power has been declining steadily since the first photovoltaic (PV) cells were made, and almost every serious analysis of the renewable energy industry suggests that PV technology will be cost-competitive within five to 15 years.¹³

17. Today, there are encouraging signs that solar power will become an increasingly important player in the future of energy diversification. The recently introduced California Solar Initiative, which has committed US\$2.9 billion to creating 3,000 megawatts by 2017, is one of the most ambitious attempts to bring solar to the American mainstream.¹⁴

18. Polysilicon, used by 90% of all photovoltaic cells, is still costly and energy intensive to produce, despite silicon being the second most abundant common mineral on earth. Shortages in supply result not only from its expense, but the difficulty in quickly producing mass quantities. It has been the recent and rapid growth of solar PV systems plans and installations in particular that last year left producers unable to keep up with demand. However this may soon change.

19. South African engineers and scientists have achieved a breakthrough in solar power technology. Low-cost PV devices can be created using cheap amounts of active semiconductor materials rather than the larger quantities required for crystalline-silicon cells. Using copper, indium, and diselenide (CIGS) has

¹¹ <http://centrerion.blogspot.com/2006/06/creative-taxing-can-save-environment.html>

¹² http://www.solartoday.org/2005/jan_feb05/chairs_cornerJF05.htm

¹³ http://www.innovations-report.com/html/reports/energy_engineering/report-46669.html

¹⁴ http://www.cpuc.ca.gov/Static/energy/electric/051213_casolar.htm

reached 18.8% efficiency under standard test conditions, meaning the best CIGS cell has exceeded the best efficiency of a polycrystalline silicon cell (17.8%). In addition to being light-weight and more portable than current panels, they also have a lifespan of about 25 years.

20. This research has created world-wide interest. Presently, more than a dozen organisations are pursuing full-scale production within the next six to 18 months. For example, Shell Solar Industries in Germany is marketing a new 80-W thin-film power module for a number of applications. Also, the world's second-largest manufacturer of solar cells, Q-Cells AG, again in Germany, is turning its attention to CIGS thin-film technology and plans to build a factory which will have an annual production capacity of 25 to 30 megawatt peak.

INNOVATION

During his original presentation of evidence, ICE's head of Engineering, Policy and Innovation Jon Prichard argued for a review of EPSRC's funding decisions. R&D funding remains a key area of interest for ICE.

21. One of ICE's goals for the engineering profession is to dramatically improve the sharing of knowledge across all of its areas. It is felt that the construction sector is an example of an industry that especially needs to improve.

22. Presently, construction R&D spending is extremely limited, representing no more than 01–02% of the industry's total value, where it should be closer to 1%–3% (an amount more appropriate for an industry that represents roughly 10% of the UK's GDP).

23. Private industry should be contributing more to research and development. ICE believes that 60% of all research funding should be coming from the private sector. Unfortunately, this has become an increasingly difficult proposition in the UK.

24. Construction lacks the immediate rewards that other industries provide, and many breakthroughs or innovations will only reap rewards five, 10 or 20 years in the future. These rewards also benefit the consumer much more than the provider, which therefore lessens the incentive for industry to commit to R&D.

25. Our challenge is “industry transformation”. This can be accomplished through a shortening of the innovation cycle. We urge Government to consider funding systems aimed at addressing this gap. It is the commercialisation of academic research that the UK has struggled to deliver, not the research itself. How do we get the information into everyone's hands, and not just high-tech companies? How do we speed diffusion of new technology across the industry?

26. ICE believes that one way of accomplishing this is through EPSRC. EPSRC must develop better relationships with industry, especially in creating incentives for universities to work with the private sector in such a way that hastens sector-wide, long-term relationships.

27. Through our research, we have found it difficult to get more recent statistics regarding construction R&D funding. Following our contacting a number of organisations, including DTI, nCRISP, EIC, BRE and EPSRC, it became apparent that this is an area of statistical analysis that needs to be addressed, considering construction's importance to the UK.

Institution of Civil Engineers

January 2007

Wednesday 29 November 2006

Members present:

Mr Michael Jack, in the Chair

Mr David Drew
Patrick Hall
Lynne Jones
David Lepper

Mrs Madeleine Moon
Sir Peter Soulsby
David Taylor
Mr Roger Williams

Memorandum submitted by B&Q (CIT 19)

1. EXECUTIVE SUMMARY

1.1 B&Q is the UK's leading home improvement retailer with a long history of innovation and leadership in the field of social responsibility. With 330+ stores in the UK and more than three in every four DIY shoppers visiting B&Q we acknowledge that we are ideally placed to help influence individual habits through the promotion of energy saving alternatives and customer education.

1.2 We take our responsibility towards our customers and towards the environment seriously. We are taking steps to harness our unique position in the home improvement market to engage with and influence our customers by promoting behavioural change in terms of improving energy efficiency in the home. In this submission we describe the actions we are taking and outline the steps we believe Government should take to help encourage further behavioural change in our customers.

1.3 Since we submitted our original memorandum of evidence, we have conducted a review of our position with regard to various policy issues. We have also launched our Energy Efficiency campaign via a mass advertising & PR programme backed by in-store demonstration material and point of sale. B&Q's energy efficiency product offer now includes domestic wind turbines and thermal solar panels, at the lowest available price-point on the mass market. We have also conducted additional research into consumer attitudes and purchasing decisions. This updated submission therefore contains our most up to date position and references our learnings from recent sales and marketing activity, research and consumer feedback. We look forward to providing further detail at the evidence session on 29 November.

2. INTRODUCTION

2.1 B&Q welcomed the opportunity to submit written evidence and is delighted to have been invited to appear before the Committee. We recently launched a major nationwide campaign aimed at encouraging our customers to take steps to reduce energy consumption in their homes. To further understand the influences and decision-making processes of our customers we have commissioned a number of pieces of consumer research and research with our customer facing staff. We detail some of the key findings from this campaign and research later in this submission and look forward to sharing further information with the Committee on 29 November.

2.2 B&Q is the UK's leading home improvement retailer. We have a long history of innovation and leadership in the field of social responsibility and have been recognised for our achievements in this area. We work hard to ensure that our stores, practices and products have the lowest possible effect on the environment. We do this by making our stores as environmentally and energy efficient as possible, through ethical sourcing of products, and by raising awareness among customers of the benefits of using products with a lower environmental impact through the sale of sustainable products and in-store demonstrations.

2.3 With 330+ B&Q stores in the UK and three to four million visitors every week (rising to seven to eight million over the Easter Bank Holiday) we believe we are well placed to comment on consumer habits and the individuals role in helping to combat climate change. Research shows that more than three in every four DIY shoppers visit B&Q¹ and as households contribute to 30% of the CO₂ emitted by the UK we acknowledge that we are ideally placed to help influence individual habits through the promotion of energy saving alternatives and customer education.

2.4 Our leadership in this area is reflected in the active role taken by our Chief Executive, Ian Cheshire, within the Corporate Leaders Group on Climate Change (CLGCC), which brings together business leaders from major UK and international companies who believe that there is an urgent need to develop new and longer-term policies for tackling climate change.

¹ Verdict, 2006. *How Britain shops 2006: DIY* Published by Verdict Research, London.

2.5 In submitting this evidence we have concentrated on providing evidence purely on the areas we are most knowledgeable about, namely our customers' shopping habits. Our response therefore considers the questions posed from this perspective and the one we feel will add most value to the committee's deliberations.

3. HOME IMPROVEMENT

3.1 In understanding the barriers to action it is crucial first to understand what motivates consumers to undertake home improvement activity, and then what considerations come into play when making purchasing decisions. Is energy efficiency a factor? If so, what factors are more important and thus outweigh the purchase of, for example, insulation?

3.2 Home improvement activity falls into two main categories:

- **Ongoing maintenance**—replacing light bulbs, appliances or individual fittings; and
- **Project work**—refitting kitchens and bathrooms; restyling and redecorating rooms.

3.3 In contrast with ongoing maintenance, which is prompted by the need to replace and repair fittings and appliances as they wear out, our research shows that customers undertake project work because they:

- Aspire to an aesthetic ideal;
- Are making a personal “style statement”;
- Aim to achieve peer approval;
- Hope to gain self satisfaction from overcoming a challenge;
- Want to increase the value of the property; and/or
- View these projects as an affordable means of evolving their lifestyle.

3.4 Improving the energy efficiency of their home is however not currently seen as a driving motivational factor for consumers in our stores.

4. BARRIERS TO ACTION

4.1 Feedback from B&Q customers suggests a variety of reasons for inertia to undertake changes within the home to tackle climate change. However, the main issues can be classified as:

4.2 Price

4.2.1 The perception that the cost of undertaking home improvements for the purposes of reducing energy consumption eg: installing loft insulation or micro-generation equipment is simply too high; and / or that energy efficient products eg: lightbulbs are more expensive than the equivalent non-energy efficient products.

4.2.2 Having made the decision to undertake a project or when visiting our store to purchase a new appliance or fitting (eg light bulb), our research suggests that the primary consideration is a focus on price. Research commissioned by the Energy Saving Trust (EST) and undertaken in a number of our stores this year² demonstrates that pricing is important, even on small-ticket items (eg light bulbs where each item is relatively inexpensive but the price difference between the efficient and “traditional” models can be relatively large). The research found that none of the people interviewed whilst buying/browsing lighting products actually bought an energy efficient product when in store. When asked why, one of the most common reasons sighted was the high price.

4.2.3 The importance of pricing is also reflected in the decision making process for larger energy saving projects. A report commissioned by B&Q shows that 61% of respondents identified capital cost as the major barrier to deployment when considering the purchase of energy efficient or microgeneration³ equipment. These findings are supported by research by London Renewables where, for example, 57% of respondents would be fairly or very likely to install photovoltaic panels if costs were not a consideration, but that figure dropped to 18% when cost was factored in⁴.

4.3 Benefits

4.3.1 The belief that whatever the cost of purchase/installation, it is considerably greater than the resultant benefits and/or confusion about the resultant benefits either for the environment as a whole or for the consumer individually (eg: reduced energy bills).

² Energy Saving Trust, 2006. *DIY Retailer Research*. Conducted by Accent on behalf of the EST, presented to B&Q in April 2006.

³ Sheppard, P & Darley, P 2006. *Analysis of microgeneration products for potential retail sale*. Centre for Sustainable Engineering, Peterborough.

⁴ London Renewables, 2003. *Attitudes to renewable energy in London: public and stakeholder opinion and the scope for progress*. Available from: www.london.gov.uk/mayor/energy/renewable.jsp

4.3.2 When considering cost, the individual is not focussed merely on price but also on the perceived effort required and disruption involved in adopting energy saving technologies within the home, relative to the perceived benefit associated with such activity. In terms of home insulation the recent EST research⁵ found that 29% (208) of B&Q respondents had considered upgrading or renewing their loft insulation but had not done so. A minority stated the considerable effort, hassle and mess as the main reason for not undertaking the work.

4.3.3 It is suggested “the balance between individual and collective benefits is also complicated . . . recycling household waste does not benefit the individual directly, except, perhaps, by generating a general feelgood factor. Most of the benefit accrues at the collective level.”⁶ However, individuals that take action to reduce their impact on climate change *are* able to directly benefit at an individual level, but unfortunately many of them do not recognise this (because of the disassociation between energy use and costs and the effect of rising energy prices in masking the impact of savings). We believe that reducing confusion and providing practical solutions are the responsibilities of both the Government and the business community.

4.4 Choice

4.4.1 At present, the range of energy saving products is less extensive than the alternatives and there is a perception amongst customers that they are lacking in style and/or the convenience and adaptability they have come to expect from their standard products.

5. B&Q ACTION: ENERGY EFFICIENCY CAMPAIGN

5.1 B&Q has a long heritage in environmental policy and our commitment to engaging on environmental issues is well-known and covers every aspect of our business. Instead of recapping our history, we have focussed on recent B&Q activity to promote energy efficiency thus providing the Committee with the most up to date and relevant information available.

5.2 On 6 October 2006 B&Q launched an increased range of energy efficient products in store. The accompanying communications campaign ran from 6 October to 11 November and included new point of sale, new marketing material, a nationwide advertising campaign with full PR support and new in-store literature.

5.3 The national TV advertising campaign ran from 11 to 18 October and reached an estimated 73% of the UK population. The commercial had an interactive overlay and nearly 12,000 viewers in Sky digital homes “pressed red” to request more information about how to improve energy efficiency in their homes.

5.4 The B&Q online campaign has generated nearly 70,000 clicks and display advertising online has reached over 9.6 million users.

5.5 As part of the campaign, B&Q developed a “special build” poster concept. Britain’s first “energy efficient” 96 sheet poster was designed to harness a wind turbine to the power supply that illuminates the poster site. This was posted on 24 October and runs for six weeks to 4 December at the prominent Heathrow M4 interchange site.

5.6 Overall B&Q aimed to promote awareness and understanding, supporting and empowering people to take simple, practical action to buy and use energy efficient products, and at the same time save money. The campaign, supported by the Energy Saving Trust, was therefore designed to address each of the fundamental barriers to action identified above by ensuring that:

- Products were available to consumers at the best possible prices;
- Consumers were made aware of the benefits of installing energy efficient products and improving the energy efficiency of their homes;
- Consumers were given the best possible range of choices and empowered to make informed choices about energy efficiency.

5.7 **Price:** B&Q has taken action to reduce the price differential between energy efficient and non-energy efficient products. By cutting prices on energy saving light bulbs to encourage people to switch we have seen an 80% rise in sales since this time last year.

5.8 Whilst much of our focus is on smaller, everyday purchases that the majority of consumers regularly buy and can easily afford, we have not ignored the “big ticket” items. In order to help develop the micro-generation market we have introduced domestic wind turbines this autumn (2006) at a price point that will allow a far wider spectrum of individuals to participate than have previously been able to do so. The products have been introduced nationwide, and retail at £1,498 inclusive of VAT for a fully installed wind turbine.

⁵ Energy Saving Trust, 2006. *DIY Retailer Research*. Conducted by Accent on behalf of the EST, presented to B&Q in April 2006.

⁶ Collins, J et al, 2003 *Carrots, sticks and sermons: influencing public behaviour for environmental goals*. Demos/Green Alliance report prepared for DEFRA.

5.9 **Benefits:** B&Q developed simple and consistent messaging in our marketing to demonstrate the benefits of behavioural change to our consumers

5.10 B&Q's new in-store, point of sale material focused on the energy (and cost) savings available as a result of using relevant products. This material was trialled in our revamped Wednesbury store which opened in July and after only a few weeks had led to a 5% uplift in sales of energy saving lightbulbs in that store.

5.11 As part of our new product range, we offered consumers the means to make themselves more aware of their energy consumption and therefore their potential savings. Few consumers are truly aware of how much individual appliances cost in terms of energy consumption. This disassociation between consumption and cost is an important factor in preventing people from taking energy saving steps. We have introduced and heavily promoted a product called the "Energy Tracker" that is competitively priced and provides the user with quick, easy access to the type of monitoring information they have lacked until now. It is a simple plug in device, which calculates the energy used and calculates running costs (when in use or on standby) of any item that is plugged into it.

5.12 **Choice:** B&Q has increased the range of energy efficient products in stock and we are working to ensure that our customers are presented with an attractive and varied choice. For example, when considering our energy efficient lighting proposition we are both updating bulb designs whilst increasing the range of energy efficient light bulbs, from less than 10% of the range to approximately 40%. We are also looking at ways we can offer a range of stylish and attractive fittings and shades for energy efficient bulbs.

5.13 Over the course of the campaign, sales of energy trackers increased from 621 in week 36 to over 3,200 in week 40. Sales of goods that B&Q categorises as draught excluders (including door seals and other products referred to in our energy efficiency leaflet) also grew in the same period from 14,500 to over 27,200.

5.14 What this demonstrates is the validity of a model based on reducing price to the consumer, consistent messaging about benefits and improving choice. We are happy to share further information about sales with the Committee on a confidential basis.

6. ADDITIONAL B&Q CONSUMER RESEARCH AND CUSTOMER FEEDBACK

6.1 On 6 October, B&Q launched an online survey which was completed by over 7,000 individuals.

6.2 B&Q asked about the extent to which consumers felt that energy efficiency was important and we are encouraged to note that 94% rates energy efficiency as important. In keeping with earlier research, 87% of consumers identified cost/price as a primary barrier to take up of energy efficiency products and 26% felt that the quality of the products was not sufficient.

6.3 Overall, the findings of this research and exit surveys carried out at B&Q stores indicates that the campaign run by B&Q combined with extensive media coverage of climate change issues, has led to a high level of interest in energy efficient products. However, cost and availability are slowing the growth of the energy efficient products sector. With regard to micro-generation cost, planning permission and a lack of knowledge are the key inhibiting factors.

6.4 These are only preliminary findings and we hope to be able to share further information with the Committee on 29 November.

7. B&Q POLICY POSITION

7.1 Informed by our experiences over the past few months and by feedback from our customers, B&Q has reviewed its policy position. There are a whole range of policy initiatives that are the subject of extensive debate at present, including for example the setting of annual targets for carbon emissions, what we detail below however is the action we feel Government needs to take to remove barriers to behavioural change by consumers.

7.2 **VAT on Energy Efficient Products:** B&Q has been campaigning on the issue of VAT on energy efficient products since 2001 when the Government announced that it was reducing VAT to 5% on products such as loft insulation when installed by a professional tradesman but not if purchased for DIY instalment. *We believe that the Government should reduce VAT on all energy efficient products, including lightbulbs, to 5% immediately and lobby at a European level for the complete removal of VAT on such products.* Reducing/removing VAT from energy efficiency products would help to ensure affordability, help to reduce the price differential between EE and non-EE products and improve take up, especially amongst lower income homeowners.

7.3 **WEEE Regulations:** The Waste Electrical and Electronic Equipment (WEEE) Directive must be transferred into UK law by 1 January 2007 with the main requirements and obligations on producers and distributors coming into force from 1 April 2007. The regulations will require retailers:

- to provide a free take-back of WEEE from householders; and
- to actively encourage householders to separate WEEE from their normal waste streams and dispose of it in the spirit of the Regulations.

Filament lightbulbs are excluded from the requirements whereas energy efficient lightbulbs are classified as WEEE. The different treatment of EE and non-EE lightbulbs under this Directive means that additional costs will be incurred and thus passed on to the consumer for EE bulbs further enhancing the price differential and discouraging take-up. *Whilst B&Q understands the decision to include EE lightbulbs within the scope of the Directive, we believe that all lightbulbs should be treated equally under the WEEE regulations in order to avoid further distortions in favour of non-EE lightbulbs.*

7.4 Council Tax Rebates/Discounts: Centrally funded council tax rebates are supported by the Energy Saving Trust as the most effective mechanism for delivering household energy saving through fiscal incentives. British Gas is currently working with 38 Councils to offer customers who invest in home insulation from British Gas a £100 Council Tax rebate. *We are calling for HM Treasury to undertake a specific piece of work looking at the benefits and feasibility of fiscal incentives including a Council tax rebate scheme for EE homes.*

7.5 Micro-generation Planning: In selling wind turbines and solar panels to the public, B&Q has become increasingly aware of the obstacles to the take up of micro-generation represented by the costs and inconsistencies of the planning system. Our customers report that whilst planning permission applications cost approximately £135, charges for Building Control are taking the overall costs of wind turbine installation up to as high as £1,500 in some areas. Our customers also report that the process is overly complicated and can take several months. Some of the wind turbines purchased during the recent campaign are now being returned with over 35% of returns being attributed to the difficulties associated with planning permission. *We are calling on the Government to tackle this issue by ensuring that micro-generation products are the subject of permitted development orders.*

7.6 Micro-generation Funding: In B&Q's most recent customer research, 72% of customers stated that cost was the number one factor deterring them from taking up micro-generation. Subject to certain requirements, householders are able to apply for grants/subsidies to install micro-generation equipment including wind turbines/solar panels. The grants, administered by the EST under the low Carbon Building Programme can be worth up to 50% on solar PV and 30% on wind turbines. Unfortunately, the Government funding available for these grants was originally capped at £3.5 million in 2006 (up to April 2007). In 2007 the amount is set to be £2 million and £1 million in 2008. In October 2006, the funding for 2006 ran out. After lobbying, the Government announced that it was reallocating £6.2 million from other parts of the LCBP to the householder stream in order to ensure that the grants programme could continue running. *However, this incident simply underlines the need for further money to be made available for the grant scheme.*

7.7 Micro-generation Reverse Selling: The technical and commercial barriers to reverse selling have been consistently raised for many years. Most recently, Ofgem recognised the ongoing problems associated with reverse selling in October 2006 as follows: "The resolution of issues surrounding the arrangements for the sale of surplus electricity produced by microgeneration remains one of the barriers for the greater market penetration of microgeneration." B&Q is concerned that the reluctance of energy suppliers to adopt policies that encourage reverse selling, the high cost of metering and the low prices paid by energy suppliers to customers all combine to discourage reverse selling and *we are calling on the Government to work closely with stakeholders to address each of these issues via legislation if necessary.*

7.8 Government Procurement Power: Part of the programme of issues on which the CLGCC is campaigning. "many promising low carbon technologies need further investment to bring down costs and enable them to be commercialised. R&D is relatively cheap and leads to many prototype products but frequently these do not make it to market because the uncertainty of future sales makes it too risky to invest. Private sector supply chain management techniques allow suppliers to make these investments by clearly articulating future needs and providing a credible promise of future sales. Public sector procurement currently fails badly in this respect but has the potential to play a key role at little risk by using the forward commitment procurement techniques common in the private sector. B&Q encourages the Government to act on the recommendations of the business led work being done with the DTI Environmental Industries Unit, OGC, The Sustainable Procurement Task Force and the Sustainable Consumption and Production Task Force on how the proactive management of public supply chains can bring innovative low carbon products and services to market.

B&Q

November 2006

Memorandum submitted by the Micropower Council (CIT 34)

1. The Micropower Council is pleased to respond to the Committee's inquiry into the "citizen's agenda".

GENERAL OBSERVATION

2. The personal engagement of individuals in energy and climate change decisions is crucial if Government is to meet its long term climate change objectives and micropower is an important element of any strategy for achieving that engagement.

3. Microgeneration not only offers the consumer real choice about where the energy they use comes from, or how it is produced, it also reconnects consumers with their use of energy and results in positive behaviour change. We note the comment of the Sustainable Consumption Roundtable on the results of a recent study . . .

“The most striking finding is the difference in ‘energy intelligence’ between mainstream households with no micro-generation and those who have acquired the technologies passively . . . Having come from a similar starting point, these new DIY energy generators exhibit in general a wholly new grasp of energy issues and control over their energy use”.⁷

4. In the light of this, our submission focuses on the role of microgeneration in providing consumers with real, clean/low carbon, alternatives to grid delivered gas and electricity and the actions needed to ensure the delivery of a robust, thriving and cost effective microgeneration sector to support this.

5. We see four areas where urgent Government action is needed. To:

- ensure that the Microgeneration Strategy is delivered in full and on time. We are extremely concerned that six months after publication the government has yet to set up the body to oversee implementation, has not set a budget for the work programme, and has only one civil servant working on the subject full time—Government must provide adequate resources to ensure delivery of the Strategy. We have undertaken our own assessment that indicates that proper implementation of the strategy is likely to require a team of six people working in the Department of Trade and Industry, as well as additional budget for pieces of external work that will be required;
- develop and implement a fiscal strategy for promotion of low carbon solutions within the domestic sector. This strategy must clarify the tax regime for individuals with microgeneration, address the current distortions between the tax treatment of individuals and business installing microgeneration in domestic premises, and makes efficient use of fiscal incentives to promote the uptake of these technologies;
- provide tangible support for renewable heat. The residential sector accounts for 28% of carbon dioxide emissions within UK and heating and hot water accounts for 73% of residential carbon dioxide emissions.⁸ Despite this, and the statutory duty on the Secretary of State to promote renewable heat,⁹ Government does not have a strategy for providing the support needed to move micro-renewable heat technologies from their current niche market applications towards mass market delivery following the expiry of the Low Carbon Buildings Programme. This could be delivered in an efficient, simple, cost effective and focused way via simple changes to the next and subsequent phases of EEC—further details are given later in our submission and our policy paper which is attached for information; and
- provide a clear timetable for the development of Building Regulations as a mechanism for mandating the inclusion of microgeneration within all new homes and developments. Microgeneration is ideally suited to inclusion within new build where it can be “designed-in” at minimum cost and zero disruption to householders. Both the building sector and the microgeneration sector need clear and early guidance of the proposed timetable for changing building regulations in order to ensure that both sectors can develop to meet the requirement in a timely and efficient manner.

RESPONSE TO THE QUESTIONS POSED BY THE COMMITTEE

1. *What is the real scope for individual and local community action to contribute to tackling climate change?*

1.1 Energy efficiency and the Energy Efficiency Commitment (EEC)

6. There are enormous synergies between energy efficiency measures and microgeneration within the home. Micropower technologies offer real opportunity to reduce consumption of grid delivered gas and electricity and the installation and use of these technologies has been demonstrated to increase consumers’ awareness and understanding of energy use within the home leading to further energy savings through improved energy understanding.¹⁰

7. Government is proposing challenging targets for EEC3 and beyond and there is already real concern about the scope for energy efficiency measures to deliver the proposed level of savings at reasonable cost in the longer term. Concerns about the ability to deliver half of the EEC3 target within the fuel poor sector, using insulation measures, has already led to proposals to set a lower percentage target for this sector.¹¹ These concerns are likely to increase for all sectors in the period beyond EEC3.

⁷ Sustainable Consumption Roundtable *seeing the light: the impact of microgeneration on the way we use energy*. October 2005. Available at: http://www.ncc.org.uk/responsibleconsumption/seeing_light.pdf

⁸ The Energy Review July 2006 (taken/derived from section 2 Charts 4 and 5).

⁹ Section 21 Climate Change and Sustainable Energy Act.

¹⁰ Sustainable Consumption Roundtable *seeing the light: the impact of microgeneration on the way we use energy*. October 2005. Available at: http://www.ncc.org.uk/responsibleconsumption/seeing_light.pdf

¹¹ DEFRA consultation, July 2006: The Energy Efficiency Commitment April 2008 to March 2011.

8. It is therefore essential that current efforts focus on developing the capability to deliver other energy reduction technologies such as microgeneration, and other new and innovative options, to ensure that suppliers are able to deliver the energy/carbon reductions targets being contemplated under later phases of EEC even if this means incurring higher cost under EEC3 in the short term.

1.2/1.3 Reducing energy consumption and the provision of desirable low carbon alternatives

9. As part of our response to the Energy Review, the Micropower Council undertook a high level assessment of energy/carbon reduction capability of micropower technologies and their ability to displace conventional sources of heat and power.

10. Our analysis indicated that, for example¹² ~1 MtC of annual carbon savings can be achieved by installation of:

- 1m biomass-fired heating systems or heat pumps (one in every 26 homes); or
- 3m gas-fired microCHP (one in every eight to nine homes); or
- 7m (~1kW) micro-wind, (~1kW) PV or solar hot water (one in every three to four homes)

11. This amount of microgeneration will also displace the output from a 1GW gas fired baseload power station (or the annual gas consumption of such a station). However, the benefits of microgeneration go beyond the direct effects of carbon/fuel displacement. Fuel consumption,¹³ and therefore cost, can be either eliminated or permanently lowered, particularly when micropower technologies are combined with energy efficiency measures. Micropower also:

- reduces both economic and energy waste leading to greater economic competitiveness; and
- enhances competition in the energy sector as the only real alternative to network-based, gas and electricity supply.

12. It has also been shown to result in increased awareness of energy usage leading to further environmentally beneficial behaviour change.¹⁴

13. Further details of the analysis supporting the above figures is provided in the tables in Appendix one.

1.4 The potential for, and barriers to, microgeneration

14. The rate at which micropower technologies are installed and the eventual market size will be dependent on many factors including Government market transformation policies, the removal of barriers to the development of small scale heat and power technologies, and future movements in fuel prices.

15. An indication of the potential market is given by a number of recently published studies:

- the SBGI's updated projections for micro-chp (micro-CHP Updated projections SBGI)¹⁵— indicates that this technology can take 30% share of the boiler replacement market by 2015 and that 5.6 million homes could have microCHP installed by 2020;
- the EST study (Potential for microgeneration Study and analysis)¹⁶ has been quoted as saying that and 30–40% of the UK's electricity demand could be met by microgeneration devices by 2050; and
- in a more ambitious and environmentally focussed scenario, the report on the 40% House (40% house project report (*Environmental Change Institute of Oxford University* March 2005)¹⁷ suggests that there could be more than 50m low and zero carbon technologies providing heat and hot water in the domestic market, under the "40% House" scenario, by 2050.¹⁸

16. Taken together these studies demonstrate that the market potential for micropower is very substantial.

17. However a full understanding of the potential for microgeneration, across all technologies, requires an in depth project to investigate consumer attitudes and market potential using market research and economic modelling.

¹² All of these figures are below the mid to long term market potential for most of these technologies and these values make no allowance for technological developments that could lead to major performance enhancements in the future (in particular the potential for fuel cells CHP technologies).

This analysis only considers the smaller end of the micropower market—the market for domestic scale appliances. The total potential contribution from decentralised generation which includes microgeneration (in the home and in larger applications) and community schemes is considerably greater.

¹³ Many renewable heat technologies rely on wind and solar energy where the fuel is free. Other technologies such as, for example, biomass and heat pumps use clean fuels and/or use less fuel than the heating source they are displacing.

¹⁴ Sustainable Consumption Roundtable *seeing the light: the impact of microgeneration on the way we use energy*. October 2005. Available at: http://www.ncc.org.uk/responsibleconsumption/seeing_light.pdf

¹⁵ <http://www.sbg.org.uk/index.php?fuseaction=sbgi.viewFile&tid=8013060>

¹⁶ <http://www.dti.gov.uk/energy/consultations/pdfs/microgeneration-est-report.pdf>

¹⁷ <http://www.eci.ox.ac.uk/lowercf/40house.html#report>

¹⁸ Table 7.2.

18. This research is also essential to informing government decisions on targets under the Climate Change and Sustainable Energy Act. In order to ensure timely provision of appropriate research information, the Micropower Council is seeking to establish a consortium to fund and steer a research project to meet these requirements. It is anticipated that this consortium will comprise members of the microgeneration industry and bodies involved in promoting sustainable use of energy. We have also approached the DTI to provide funding and participate in the steering group.

19. We believe it is essential that a high quality research project of this nature is undertaken in time to allow appropriate discussion and consultation on the findings in order to inform both Government and industry's thinking on the appropriate level of targets and the factors that affect these important decisions.

20. There are currently a number of barriers to the industry's development—many of which could be addressed by measures within the microgeneration strategy—provided it is fully implemented. However, we are concerned that the microgeneration strategy has not addressed the issue of the role of fiscal measures as an incentive and a deterrent to the take up of these technologies, nor has it provided any tangible measures to deliver the support necessary to grow the micro heat market (indeed this is an omission across the renewable heat sector). We also believe that more needs to be done to ensure early delivery of microgeneration in all new build via changes to building regulations. We expand on these points below.

Implementation of the Microgeneration Strategy

21. There is much in the Microgeneration Strategy and Climate Change and Sustainable Energy Act that will help to remove regulatory barriers and provide an appropriate framework for growing the microgeneration sector. However, despite Government's commitment to "aggressively implement" this strategy, we have serious concerns that there are not enough civil servants working on its implementation. The Strategy represents an ambitious programme of work which, if implemented properly and in genuine partnership with the industry, should make a real difference. However, six months after publication, Government has yet to set up the body to oversee implementation, has not set a budget for the work programme, and has only one civil servant (rather than the six that our assessment of necessary resources would suggest) working on the subject full time. It is vital that this is given adequate attention and the necessary human and financial resources as part of the forthcoming reorganisation of the Department of Trade and Industry's Energy Group.

Develop and implement a fiscal strategy for promotion of low carbon solutions within the domestic sector

22. Government has stated¹⁹ that the "*principle that fiscal measures can play a part in achieving our environmental goals has been established*". We agree with this whole-heartedly, but despite this statement and following two successive rounds of consultation by the Treasury on fiscal and economic instruments to promote household energy efficiency, considerable fiscal barriers remain to the uptake of microgeneration, and no fiscal incentives have been introduced.

23. To address this shortcoming Government needs to commission a thorough review of the fiscal treatment of microgeneration to remove current inequities and assess the fiscal measures that could be deployed to promote both energy efficiency and microgeneration within the domestic sector. The output from the review should then form the basis of a fiscal strategy for promotion of low carbon solutions within the domestic energy sector.

Develop and implement a mechanism to provide tangible support for renewable heat

24. As noted above, the residential sector accounts for 28% of carbon dioxide emissions within UK and heating and hot water accounts for 73% of residential carbon dioxide emissions. Despite this, and the statutory duty on the Secretary of State to promote renewable heat,²⁰ Government does not have a strategy for providing the support needed to move micro-renewable heat technologies from their current niche market applications towards mass market delivery in an orderly way following the expiry of the Low Carbon Buildings Programme.

25. We believe that there is a simple, efficient, and cost effective way to deliver an appropriate level of support for micro-renewable heat by allowing it to attract a larger credit towards suppliers' EEC targets than some other forms of qualifying actions, via use of appropriately set weighting factors.

26. The weighting factors would be expected to decline over time as the cost of energy efficiency measures increase, and the market capability for renewable heat expands, bringing down costs. This approach is directly analogous to proposals being developed for "banding" under the RO and recognises that different technologies may need differing levels of support at different stages of their evolutionary cycle and that no technology should expect to rely on subsidies once they have moved to full mass market industries.

27. Further detail of our proposal is provided in the policy paper attached to our submission.

¹⁹ Energy Review, July 2006 (paragraph 6.35).

²⁰ Clause 4, Climate Change and Sustainable Energy Act 2006.

Deliver a clear timetable for the development of Building Regulations as a mechanism for mandating the inclusion of microgeneration within all new homes and developments

28. Microgeneration is ideally suited to inclusion within new build where it can be “designed-in” at minimum cost and zero disruption to householders. Consumer “pull” is already encouraging innovative developers to start to include it in new homes but widespread early take up will require changes to building regulations that make it mandatory at the earliest possible opportunity. Both the building sector and the microgeneration sector need clear and early guidance of the proposed timetable for changing building regulations in order to ensure that both sectors can develop to meet the requirement in a timely and efficient manner.

1.5 The potential for “smart metering”

29. Smart metering has a key role to play in facilitating efficient collection and processing of consumer consumption (and microgeneration) information and data. It may also be a crucial component in improving consumers’ understanding of their energy use.

1.6 Awareness of climate change and availability of information about the role of the individual in tackling the problem.

30. Please see our submission under the next section.

2. What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

31. For individuals to engage in the climate change debate and make their own personal contributions to carbon reduction they need four things:

- access to accurate and reliable information and better understanding of the carbon consequences of individual decisions;
- incentives to encourage them to act responsibly (both carrot and stick);
- access to cost effective technologies that give them real choice on how to meet their own energy needs whether for transport or the provision of heat and power; and
- where consumers need to engage in industry arrangements (for example, where selling electricity exports and accessing ROCs), simple, transparent and easy to understand arrangements.

32. Micropower is a key element of any strategy to give the individual real choice in how to meet their energy needs and deliver better informed energy use and real positive behavioural change. We note the comment of the Sustainable Consumption Roundtable on the results of a recent study . . .

“The most striking finding is the difference in ‘energy intelligence’ between mainstream households with no micro-generation and those who have acquired the technologies passively . . . Having come from a similar starting point, these new DIY energy generators exhibit in general a wholly new grasp of energy issues and control over their energy use”.²¹

33. Our submission has focused on the actions needed to develop the micropower industry to deliver the technologies that will give the individual real choice about how the energy they use within the home is provided. We have commented on the barriers to uptake in our submission under 1.4.

3. How can Government and Other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? what is the role of community projects in schools and other public institutions?

34. There are a number of measures Government can and must take in order to encourage domestic emissions reductions. Critical amongst these is the need to ensure that consumers understand the energy consequences of their actions and have access to technologies that enable them to meet their energy needs using renewable or highly efficient low carbon technologies within the home. This in turn requires action now to ensure that there is a thriving, robust, and cost effective market for microgeneration, and other demand reduction technologies, to complement more conventional energy efficiency measures in the longer term.

35. Government must also lead by example and we support initiatives to include energy efficient and microgeneration measures within Government buildings; we also strongly support initiatives to include microgeneration within schools.

²¹ Sustainable Consumption Roundtable *seeing the light: the impact of microgeneration on the way we use energy*. October 2005. Available at: http://www.ncc.org.uk/responsibleconsumption/seeing_light.pdf

4. *What is the role of NGOs in delivering the “citizen’s agenda” on climate change?*

36. We have no comment on this issue.

5. *Are domestic tradable quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?*

37. We believe the principle of domestic tradeable quotas should be supported. The potential benefits are significant and include:

- raising individuals’ awareness and promoting understanding of carbon consequences of actions;
- incentivising behavioural change (via the stick as opposed to the carrot); and
- delivering real carbon reductions.

38. The challenge is to ensure that any such arrangement is implemented in a cost effective, socially acceptable, and workable way.

The Micropower Council

September 2006

APPENDIX ONE

CARBON REDUCTION CONTRIBUTIONS FROM MICROGENERATION

The following tables summarises the results of the Micropower Council’s analysis of the potential carbon (and energy) savings that can be delivered using microgeneration to displace the equivalent electrical output of 1GW baseload CCGT or, for heat measures, the amount of gas that would be consumed by a CCGT in a year. It should be noted that the number of installations quoted is well below the mid to long term market potential for most of these technologies and no allowance has been made for technological developments that could lead to major performance enhancements in the future (in particular the potential for fuel cells CHP technologies).

Table 1

COMPARISON OF MICROGENERATION WITH CENTRAL SUPPLY AND ENERGY EFFICIENCY MEASURES

Technology	Electricity produced centrally TWh pa	Electricity delivered to customer TWh pa	Gas burn TWh pa	Number of units	MtCO ₂ pa	²² MtC pa	Comments
CCGT	8	7	16	1	3 ²³	~ 1	1 GW CCGT operating at 90% load factor. We have assumed 50% conversion efficiency and 10% T&D losses.
Wind (grid connected)	8	7	0	~ 1,000	0	0	Large on-shore ~ 3GW
Domestic PV	n/a	7	n/a	7,000,000	0	0	We assume installation of 1–1.5 kW producing ~ 1MWh pa—this is a conservative assumption domestic systems can be larger.
Domestic wind	n/a	7	n/a	7,000,000	0	0	Current, near market, roof top sized turbines produce up to 4MWh pa. We have used a conservative assumption of machines of approx 1kW (~ 1MWh pa).
m-CHP	n/a	7	7	3,000,000	1 ²⁴	~ 0.5	The gas burn is the additional gas burnt above that required to meet the heat load using a condensing boiler. ²⁵

²² All figures are rounded to the nearest whole number (or whole millions) except for Carbon which is rounded to the nearest 0.5MtC.

²³ Based on emissions factors used by CTI/DEFRA for benchmarking generation for Phase II of the EU ETS. (http://www.dti.gov.uk/energy/sepn/proposed_benchmark_phase2.pdf) 51.45 tCO₂/TJ.

²⁴ Based on SAP 2005 (table 12) figure of 0.194kg of CO₂ per kWh at premises.

²⁵ Developers figures based on trials. It should be noted that the comparator for the m-CHP is a condensing boiler whereas we have used current national average for other technologies.

Technology	Electricity produced centrally TWh pa	Electricity delivered to customer TWh pa	Gas burn TWh pa	Number of units	MtCO ₂ pa	²² MtC pa	Comments
A + Fridge	n/a	7	n/a	28,000,000	0	0	Replacing an old fridge with an A + rated fridge
light bulbs	n/a	7	n/a	280,000,000	0	0	Using low energy light bulbs

Table 2

COMPARISON OF MICRO-HEAT TECHNOLOGIES DISPLACING THE NEED FOR CENTRALLY DELIVERED GAS OR/ELECTRICITY (I.E. DISPLACING EITHER 16TWh OF GAS (THE AMOUNT NEEDED FOR 1GW OF GAS FIRED CCGT OPERATING BASELOAD) OR THE SAME AMOUNT OF ELECTRICITY AS WOULD BE PRODUCED BY SUCH A CCGT

Technology	Electricity saved (point of use) TWh pa	Gas saved at point of use TWh pa	Number of units	MtCO ₂ SAVED pa	MtC SAVED pa	Comments
CCGT	0	0	1	0	0	1 GW CCGT operating at 90% load factor. For simplicity, we have assumed 50% conversion efficiency and 10% T&D losses.
Wind (grid connected)	0	n/a	~ 1,000	3	1	Large on-shore wind-farm ~ 3GW
Solar thermal	n/a	16	7,000,000	3	1	Based on an estimated output of 1–2MWh of useable heat. This displaces some 2.4MWh ²⁶ of gas after correcting for efficiency of gas burn and losses in the hot water system.
Biomass	n/a	16	1,000,000	3	1	Based on displacing gas used to service average typical heat and hot water load (19MWh pa). ²⁷
G or A heat pump	7 TWh pa	0	1,000,000	3	1	Based on delivering a heat load of ²⁸ 15MWh per annum using a COP 3 heat pump in premises previously heated by electricity (ground source should do better than this air source less well), saving 10 MWh of electricity per annum.

APPENDIX TWO

EXTENSION OF THE ENERGY EFFICIENCY COMMITMENT TO CREATE AN EFFICIENT AND FAIR SUPPORT MECHANISM FOR RENEWABLE HEAT

Renewable Heat is a major component of the micropower portfolio and can be used to displace fossil fuels through domestic installations and/or via renewable fuel based CHP and community heating systems. Renewable heat technologies can play a major role in meeting all four of Government's White Paper objectives through, for example:

- *Reducing Emissions:* ~ 1MtC of annual carbon savings can be achieved by any of:
 - 1m domestic biomass-fired heating systems (one in every 26 homes); or
 - 7m solar hot water systems (one in every three to four homes); or
 - 1m heat pumps displacing electrical heating systems (one in every 26 homes);
- *Supply Security:* ~ 1GW of new CCGT baseload power station's electricity (or the gas to needed to produce this amount of electricity) would be displaced by any of:
 - 1m domestic biomass-fired heating systems (one in every 26 homes); or
 - 7m solar hot water systems (one in every three to four homes); or
 - 1m heat pumps displacing electrical heating systems (one in every 26 homes);

²⁶ Information from the Solar Trade Association.

²⁷ In line with recommendations from the Carbon Trust (Section 4), we have not included any Carbon emissions from transportation of fuel (http://www.thecarbontrust.co.uk/carbontrust/about/publications/Biomass%20Sector_FINAL.pdf).

²⁸ Average gas consumption of heat and hot water is ~ 19MWh pa (source EST), converted to a heat load using an average efficiency of 79% (the value used by Ofgem when estimating efficiency savings under the EEC).

- *Home Heating and reducing fuel poverty*: fuel consumption, and therefore fuel costs, may be either eliminated or permanently lowered,²⁹ particularly when micropower technologies are combined with energy efficiency measures. In addition, many micropower technologies are particularly suited to tackling fuel poverty in hard-to-treat and off-gas network properties;
- *Competitiveness*: The use of micro renewable heat technologies enhances competition in the energy sector and has the potential to provide a real alternative to network-based, gas and electricity and other conventional heating fuels.

This analysis only considers the smaller end of the micropower market—the market for domestic scale appliances. The total potential contribution from renewable heat production which includes larger applications and community schemes is considerably greater.

The Micropower Council considers that it is essential that new measures, tailored to the needs of the renewable heat industry, are introduced to support its development for two critical reasons:

- first, the heat market in the UK is enormous and the potential for energy and carbon savings that can be delivered by tackling even a relatively small proportion of the heat market using renewable heat is a prize that must be won; and
- second, to enable the renewable heat market to evolve quickly into a mainstream industry delivering early access to the benefits of economies of scale and consumer choice that will make low energy/low carbon heating solutions a real, cost effective, alternative to conventional fuels.

Such measures could also be used to address some of the current disparities between the treatment of renewable heat and other renewable solutions—leading to more efficient long term outcomes and the removal of short term distortions.

Therefore the Government needs to act quickly to implement a support mechanism (or mechanisms)³⁰ for renewable heat to help catalyse the development of this important part of the energy industry. We are supportive of work by the Renewable Energy Association to try to find an appropriate mechanism for supporting larger scale renewable heat technologies.

Based on our experience of other mechanisms, the Micropower Council believes that to provide effective support for domestic-scale renewable heat any support mechanism must:

- *be simple, transparent and cost effective*. It is essential that transaction costs are kept to an absolute minimum so that any value is not lost in administration (this is a key and critical lesson we have learnt from the operation of the RO for small players);
- *have a clearly defined future* (at least 10 years and preferable much longer) and should not be subject to the stop start vagaries of Government funding requirements in order to create long term market confidence. This implies an internally funded scheme independent of Government funding;
- *provide an upfront cost reduction for customers*. A key barrier to uptake of renewable heat, particularly for domestic consumers, is the higher capital cost of renewable heat technologies. Even where economic, long pay back periods (real or perceived) can act as a barrier to uptake. It is therefore essential that, for small customers, any support is accessible at the point of installation and does not take the form of a future, variable, small annual revenue stream. Again this is a major disadvantage with the RO for the smaller player;
- *deliver an appropriate level of support and alleviate current market distortions*. Support should be sufficient to catalyse the development of the renewable heat market and ensure the evolution to a mass market demand/capability as early as possible. This would also help to alleviate current distortions between the renewable heat and renewable electricity markets; and
- *ensure there is a clear route to market for these products through installers and product suppliers*. The majority of domestic scale heat systems are replaced when a system fails rather than as part of a planned replacement—it is therefore essential that any support mechanism also ensures that there is a clear route to market for these products through installers and product suppliers.

A PROPOSAL FOR RENEWABLE HEAT

Working with our members, other industry players, and trade associations the Micropower Council has developed a model which meets these criteria based on the simple expedient of extending the current EEC arrangements to include additional provisions for renewable heat technologies that displace conventional fuels for heating in domestic premises. The key elements of this model are summarised below:

- Installation of new renewable heat to meet domestic heat demand will qualify for inclusion in the EEC based on an assessment of the net carbon saving over the expected life of the renewable heat system compared to the heating system being displaced. For premises that are currently unheated,

²⁹ Many renewable heat technologies rely on wind and solar energy where the fuel is free. Other technologies such as, for example, biomass and heat pumps use clean fuels and/or use less fuel than the heating source they are displacing.

³⁰ Our proposals focus on the needs of the smaller, domestic scale, end of the renewable heat industry. A different mechanism may be more appropriate for larger scale renewable heat technologies.

the savings would be assessed against an assumed carbon burden for a typical heated household. All forms of renewable heat would be eligible, subject to meeting appropriate accreditation requirements and forming part of a “scheme” approved by the regulator.

- Renewable heat solutions are currently less cost effective, for suppliers, than other forms of action available to them under the Energy Efficiency Commitment. Therefore, to ensure that renewable heat can compete with other energy efficiency measures (or other carbon reduction actions available to suppliers under the EEC), renewable heat measures should automatically qualify as a specific form of innovative action—attracting a larger credit towards a supplier’s EEC target than some other forms of action via use of some form of weighting factor(s). This approach is directly analogous to proposals being developed for “banding” under the RO and recognises that different technologies may need differing levels of support at different stages of their evolutionary cycle.
- Over time, as the cost of energy efficiency measures increase, and the market capability for renewable heat expands, bringing down costs, the weighting factors would be expected to decrease. In order to facilitate this we suggest there should be a regular review, say every five years, of the weighting factors. This review would also be used to ensure that the mechanism does not lead to an unnecessarily high reward for any technologies that are, or are almost, competitive without support.
- To give confidence to the market, Government should commit to a long term future for the scheme. We note Government commitment to extending the EEC to at least 2020.
- The overall EEC target, for EEC3, should be set to a level that recognises the contribution micro-heat technologies can make to reducing carbon emissions under this proposal, with any additional obligations being allocated between the domestic gas and electricity markets in proportion to the total carbon contribution from use of gas and electricity to provide heat to the domestic sector. It will be essential to ensure that the targets are set at a level that ensures that the EEC brings forward both energy efficiency and micro heat measures and delivers real market transformation.³¹
- The mechanism could be introduced fairly easily using the provisions within the Climate Change and Sustainable Energy Act, together with appropriate changes to the EEC secondary legislation.

Cost of mechanism

The cost of the support to renewable heat will depend on the weighting factors that are set and the total energy savings delivered using heat rather than measures available to suppliers under EEC.

The relative costs of different mechanisms for displacing carbon are shown in the table below.

<i>Measure</i>	<i>Cost of Carbon (£/tonne C)³²</i>
Renewables Obligation (NAO/Oxera)	180–510
Renewable Heat displacing gas (EEC with weighting factor 3— cost to suppliers only, ignores benefits)	~ £200
RTFO (DfT)	Slight – ve 350
Social Cost of Carbon (DEFRA)	£35–£140

Benefits of the proposal

The move to mass market capability should deliver lower costs to consumers earlier than would otherwise occur and allow micro-renewable heat technologies to contribute to meeting Government energy and environmental policy objectives.

- It is simple, transparent and cost effective with minimal transaction costs. Use of an existing mechanism will allow early adoption and reduce the administrative costs of creating and maintaining a new scheme. Suppliers are expected to be keen to ensure that costs of providers and installers of equipment are maintained at a competitive level ensuring that the benefit of the scheme is shared with the consumer.

³¹ Longer term targets should reflect any statutory targets introduced under the provisions of the Climate Change and Sustainable Energy Act.

³² Current costs quoted for EEC 2 indicate that energy efficiency measures cost ~£10/MWh per fuel standardised lifetime discounted TWh saved (based on an assumed cost of £1.25b and a total supplier target of 130 fuel standardised lifetime discounted TWh²⁶). This equates to ~£3.50/MWh of gas displaced once the fuel standardisation factor has been taken into account implying a cost to suppliers of carbon saved in the region ~£65/tonne (the effect of discounting has not been taken into account). The calculation does NOT take any account of the costs and benefits to consumers installing these technologies.

- It provides a stable long term funding framework independent of the stop start vagaries of Government funding requirements providing confidence to the market to invest to expand capacity and bring down costs in the longer term. The weighting and review mechanism ensure that the benefits of cost reductions can be passed through to customers over time.
- The use of a lifetime discounted energy saving delivers the value up front which can be used to mitigate the higher upfront cost of renewable heat technologies that currently act as a barrier to uptake.
- The use of appropriate weighting factors can be used to provide appropriate rewards to ensure the take up of renewable heat measures; weighting factors can also be used to deliver parity with the existing support mechanism for renewable electricity.
- It creates an incentive for gas and electricity suppliers to promote the installation of micro renewable heat which will help to deliver a route to market for these products through creating commercial alliances with installers and product suppliers.

Wider Issues

Looking beyond renewable heat, if this proposal is adopted, it may be appropriate to consider expanding it to accommodate renewable electricity in a similar manner—with weighting factors designed to give an equivalent reward to that would have been available under the RO with substantially reduced transaction costs—and possibly allowing the EEC to evolve into an efficiency and microgeneration (heat and power) commitment.

Witnesses: Mr Ian Cheshire, Chief Executive, Ms Rachel Bradley, Social Responsibility Manager, B&Q, Mr Dave Sowden, Chief Executive, and Dr Keith MacLean, Scottish and Southern Energy, Micropower Council, gave evidence.

Q344 Chairman: Good afternoon, ladies and gentlemen, and welcome to our further evidence session on the Committee's inquiry "Climate change: the citizen's agenda". I would like formally to welcome to this session Ian Cheshire, the Chief Executive of B&Q, and Rachel Bradley, their Social Responsibility Manager and, from the Micropower Council, Mr Dave Sowden, the Chief Executive, and Dr Keith MacLean from Scottish and Southern Energy. You are all very welcome. I would like at the outset to congratulate B&Q for doing their homework twice because, having sent one written submission in, for which we were very grateful, they then rewrote it and updated it and sent another one in. Normally, it is a struggle to get anybody to do one; we do not often get such keen students who want to submit two. You get a gold star rating. We are also grateful to the Micropower Council for your informative submission as well. I want to start off, perhaps, on more of a macro level with B&Q because a lot of your evidence, quite rightly, focuses on what you have been doing with your customers but you are a business that prides itself on its overall social responsibility, particularly in the wider environmental field. I just wondered if you could flesh out a remark or two in the evidence about what you, as a business, do in terms of energy efficiency, particularly at store level, and perhaps tell us about the use of micro-generation across your business.

Mr Cheshire: First of all, Mr Chairman, thank you very much for the opportunity to come along today and talk. This is a subject we are very passionate about and it forms part really of a heritage of interest in environmental sustainability which we have had going back to the Nineties, so this is the latest iteration of a long series of interests that we have had. We think we can play unique role in helping move this debate forward and we have some specific

proposals to come back to. In terms of your direct question in terms of the stores and also our distribution network, which are the two areas where we obviously use energy and create a footprint, we have had two initiatives going over the last 12 months, which will take another 12 months before they bear fruit in detail. One is around store design, where we increasingly look for much more sustainable levels of energy usage, which has involved a variety of techniques, including, on new stores we are building, micro-generation, which is firmly built into it. The new store at New Malden which will open in late 2007 or early 2008 has a wind turbine and a series of roof-based technologies, heating technologies, which are all designed to be very low impact and, again, we think it is a good mixture of self-interest in terms of saving money on the energy bills and showing that these technologies work. On new buildings it is relatively easy and we have received lots of awards in terms of our energy efficiency on new buildings. The challenge for us more in our 330 stores around the country, some of which are fairly old, is how we can retrofit to improve—and in some ways that is the challenge with much of the housing stock in the UK. It is not the new house build; it is how you make the old houses more energy-efficient. There we have a couple of working parties looking at all aspects of energy usage, primarily focusing on technology which we already know works, like computer control of lighting, so we have a lighting grid system called Trend, which allows us to tune the lighting through the day depending on daylight levels, what we are doing in the stores, so we replenish in lower light than we do for trading with customers. They have a remit now to examine including micro-generation, including wind turbine and a few other technologies, which we have tested in the past and

we now think the technology has moved on to the point where we can re-examine that. Obviously, in the bigger stores we can go for slightly bigger solutions and we have a range of stores, so that team right now is looking at more radical solutions. Over the years we have progressively looked at solutions that will bring down energy usage and as micro-generation specifically has become more economic, that has come into play in all our newer designs.

Q345 Chairman: I asked that question for two reasons. One, the corporate tax structure allows you effectively to get a tax subsidy for the pounds you spend on that in your business but also it gives you an opportunity to show to your customers that you are putting your money where your mouth is. So you are going to be able to tell your customers that you are doing what you are asking them to do at a retail level.

Mr Cheshire: Yes, and the challenges in the buildings are significantly different, in the sense that, for example, the domestic wind turbine is specifically designed around a set of parameters for the household to be of a certain size and a certain power output, and we would need quite a lot of those if we went for that design on a big store, so we will go with different solutions, but the principle is the same. We have been looking very hard over the last 10 years at the amount of, for example, CO₂ emission per cube of material we move around the business, which has been halved, and we have looked very hard at the degree to which we can run our logistics chain more efficiently.

Q346 Chairman: Have you done an audit of the amount of carbon which B&Q actually produces?

Ms Bradley: We have started auditing in areas. We have done an audit of the logistics, the moving of trucks from distribution centres to stores. We have looked clearly at the stores and the amount of energy they use, and we are now extending that auditing approach across the rest of our business. We are increasingly asking the factories that produce products for us how they measure and monitor their energy usage, we are working more and more closely with the vendors who supply us with products in terms of their management structures, and also looking at our head office. But we do not have one number at the moment.

Mr Cheshire: The ambition we would have, and we are not there yet so I do not want to make a false promise, is that we have a defined picture of our carbon footprint, and that will allow us to set a reduction target more explicitly than we can at the moment. What we have is great detail in certain areas, which are, to be fair, the areas we create most carbon in, so we have probably covered most of it, but I would like to see a total picture and I would hope that we would have that early next year.

Q347 Chairman: Retailing is about a lot of things but, at the end of the day, it is about what the bottom line looks like. You have had a very high-profile launch of your range of energy-efficient products, from light bulbs to wind turbines, and it has

certainly caught a great deal of public imagination. What was it that made you think that now was the right time to go as high-profile as you have done in this area?

Mr Cheshire: Firstly, we felt this really does play back to our heritage, and it has been part of the B&Q brand to have an environmentally sustainable theme back to the early Nineties, with sustainable timber, peat, chemicals in paint, and increasingly, we have been looking for where we can next make a difference and have an impact because in some cases, as with timber, we are now 90% certified. We saw increasingly from the customer's point of view that both the energy costs and the sustainability interests were converging to make it more of a mass-market topic and customers were beginning to be interested, not in whether it was a good idea or not but what they might do about it. We identified that B&Q has a unique place because we carry such a broad range, over 35,000 products, and the climate change issue is not typically addressed by a magic bullet. You cannot produce one product and solve the issue and, although the wind turbine itself is the most iconic product, actually, insulation, better boilers and better light bulbs are for the mass market more significant in terms of total impact. We felt the combination of customer interest in it and the fact that we had an ability to take what might have been specialist products and bring them to the mass market was the thing that we could do. We are democratising some of this from a special interest to a mass-market. We did take a conscious risk in some areas. We had not sold wind turbines before and we were not sure, but we felt that the consumer interest, based on talking to our customers, was there, and that we should take a position of leadership on it and start to try and drive this area. I think we have learnt a lot from that and we are very keen to share some of that learning with you but what has become absolutely clear is that customers have now made this a mainstream issue in a way that may be five to 10 years ago this was a specialist interest. I think the time has come that they are now looking for practical answers as opposed to talking about the theory and, as a result, that is where a retailer like us steps in and we can start helping people find practical answers.

Q348 Chairman: At paragraph 3.4 of your evidence you say, "Improving the energy efficiency of their home is however not currently seen as a driving motivational factor for consumers in our stores."³³ My simple point on that is: why?

Mr Cheshire: In the last year we have seen a 29% increase in household electricity bills, and over two years it is even more pronounced. People are beginning to see that but I think this is still an emerging trend, and what we are seeing is two different trends in customers' minds coming together. One is an awareness of the cost and the second is the interest and the climate change argument, but the two have come together this year really for the first time to move the situation

³³ Ev 145

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forward. There are then some barriers that people have in their minds as to “What can I do and how can I do it? This is a good idea but I’m not sure, compared to being able to paint a room, how I go about it.” For a lot of people, it is in the too difficult category.

Q349 Chairman: Has your research into this area shown any connection between the growing awareness of your customers that high energy bills need some kind of response and the dialogue, if you like, the background noise of much of the high-level discussion of the big climate change issues? Is there a connection between the two in your customers’ minds?

Mr Cheshire: I believe there is. I think they are two slightly different starting points but what has become clear is that customers do feel this is the right thing to do, in addition to the fact that they are interested in saving money. Where I would draw a parallel possibly is that we have customers who come in interested in something like a wind turbine who are perhaps saying, “Look, I’m not entirely sure about the payback because it might be difficult, but I know it is the right thing to do and I want to do it anyway.” In the same, way you could argue some of the issues around organic food are not completely clear-cut about how much better it is, but people believe it is the right thing to do and they are willing to pay for it. Again, as a retailer, what we are seeing is customers starting to show that they will make the effort even if all the facts are not completely there because they think it is the right thing to do. I think that is different this year.

Q350 Chairman: I gather that the television advertising has really worked and about 12,000 Sky Digital viewers have pressed the appropriate button and have asked for lots of information. How do you follow that up to see if they actually do anything with it, or is it just a question of monitoring sales to see whether there has been a lasting effect from the advertising spend?

Mr Cheshire: We reached about 73% of UK homes with the advertising, and it was probably our best, in terms of research we do on advertising, and most productive advertising in terms of creating of reason to visit the store. Clearly, we know from the research it struck a chord and customers in-store—and I was in stores a lot—were telling us much the same thing. We do believe the information issue here is very much the beginning of a marathon rather than a sprint. This is not the case of a one-time leaflet, here you go, you are now informed, and really, what will happen is, as the services and technology evolve, which they will undoubtedly do, at some speed, people will look for more and more information. What we are trying to do at the moment is to make sure we keep our information up to date because the situation does change, keep a base of knowledge in the stores through a couple of specialist people who will be the contact points, and then come back to this at appropriate times in the year. We will obviously leave websites and other forms of information available to customers. We are also going to do a full

evaluation of the campaign, which will be done in December, which will have our customer data, our financial data and our operational experience, and that should allow us to step back and say what we find worked, where we need to give more information, where there are issues with information, and we believe that should then give us a regular armoury of information going forward, and we will look to develop it as we do further events and continue to sell the products.

Q351 Chairman: I appreciate that some of that research may contain material which is commercially sensitive but if we were, as a Committee, able to give you an assurance that that material would not enter the public domain, would it be possible for you to share with us the post advertising findings? We are very interested in what works and why.

Mr Cheshire: Absolutely, I am more than happy. It might have to be in written, confidential form but certainly the headlines are beginning to emerge. There are three things that people quite clearly say. One is that this is now a mainstream interest subject, which is different from what it was. There are a lot of barriers for people in their heads to adopting this and they are looking for a bit more help from us and to some extent from government to make the step forward but this is the beginning of a trend. This is not a one-year flash in the pan. This is clearly something that appeals across the board. It is not just a trendy London phenomenon. We have sold wind turbines all over the country and increasingly I think the younger generation and the children are acting to some extent as “pester power” on parents to do the right thing as well, and I think this is beginning to develop a much more broad appeal.

Q352 Mr Drew: It is not that you are having to step in and provide advice and support because there is a vacuum in the case of central government, local government and indeed the voluntary sector, who you would have thought would be very keen to get out there and sell the idea of how individuals could make a difference to climate change by making—not gestures but making a genuine move towards new forms of energy use and, more particularly, ways in which they are changing their lives. How would you comment on that and what do you think should be done better?

Mr Cheshire: There are probably two comments I would make. Firstly, I think there is a low starting point of awareness about what customers and what people in the country can do. This is starting from relatively low levels of understanding. People are not even sure where to turn to for an answer. The advantage that B&Q has is because we have three million people, 330 stores. The fact that we talk about it means people say, “They might have an idea.” It is much easier to find a single point of contact. It really also plays to the fact that there tend to be lots of bits of information available. It is quite hard to find anywhere where you can put the whole thing together. For us, our advantage is that we talk about the whole home, so we talk about the Energy

Saving Trust work, we can talk about different aspects of technical product which are outside the EST's area, we can talk about the whole thing as a unit, whereas a lot of the advice tends to be either quite specialist or is industry-driven. I think there needs to be a broad church point, and to some extent we are the obvious party. The second point I would make is that I think there is a lack of consistency, particularly across the country, and this is one of the points we would want to make generally. One of the major barriers to moving forward, which has made our job incredibly difficult, is trying to write, for example, information material, because we could not say, "The situation on planning is X" or "These councils will support you but these will not", and we have everything from Eastleigh Council, near where we live, refunding people's £150 application fee if they successfully put up a wind turbine, to Sunderland charging £1,500 for an application because they do not want you to put it up. As a result, customers do not know how to deal with that. The same is, I am afraid, true around things like grants. The grant arrangement is very opaque for people to try and get a handle on. If we could have more consistent, clear schemes and consistent practices across the country, we could do a lot more both directly and with other partners to help communicate it, but people are starting from a very low base of knowledge and they are finding it difficult to find one point of reference, and that is one thing we think we can provide.

Ms Bradley: The other thing that we have done that has been slightly different, is that a lot of the work and information that we have been putting out to customers has not been about climate change. Some of our customers have been saying climate change is a huge problem and they cannot understand how putting a small amount of water into their kettle can have any kind of impact on this enormous issue, but they can understand that small actions can address their own individual energy bills and, actually, a lot of the work we have been doing is very much about the personal return on investment.

Mr Cheshire: Seven pounds back on a light bulb is more compelling than "you must save the planet", although if you can save money and save the planet, that is a great message.

Q353 Mr Drew: Clearly, you have been very generous, in a sense, about your role and you are not being too critical of where there appears to be a genuine vacuum of information. You could say "Why doesn't the Government pay us? We could do that job". You obviously do not want the Government to pay you. Do you want someone in parallel with you? I am going through this experience at the moment of trying to find what I should do with my house, and I know other colleagues have also had their energy audits. It is not straightforward, and it is very confusing in terms of the information you are given and, to be honest, the people I have talked to have said, "We would not be starting from here. Most of the work we do is unfunded, so the work you are doing is unfunded." How do we sort this out?

Mr Cheshire: We have talked about this with the Energy Saving Trust in particular. There is some mileage in trying to get a unified set of work and information pulled together. We would be very willing and keen to join in on that. We are researching a couple of ideas in particular for next year, including things like a green concierge service, so you can have an audit but with solutions rather than just "Here is your problem" and what on earth do you do about it? I think there is a bit more work to be done there and while I would never, ever turn down any form of government cash if there was any going, because that is all always helpful, I think what our customers are saying is we can do quite a lot at a very basic level at this stage which actually will make quite a big difference, and even getting some of the basics done is something we are happy to get involved with, along with bodies like the Energy Saving Trust. What is interesting is when we came to develop for next year something we are going to do with water recycling, which is about grey water and waste water, particularly in the drought areas, there was not nearly the same level of funding and knowledge in that area that we had already with the EST. There is patchy knowledge but can we bring it together? It would be a great initiative if that could be made to happen. We would definitely like to get involved with that. We have done our information around what our customers have asked us for, and we have kept it very basic. Even that, I think, is a huge step forward. I would welcome it. I would just say you need to start fairly basically and then build on it.

Ms Bradley: Even when people have information, they are then confronted with a price difference, which is where cash could be really helpful. If you are going to buy a light bulb, the traditional incandescent light bulbs are considerably cheaper than energy-efficient bulbs at the moment. You might know it, and you might understand that it is good for the environment and good for your bill, but actually, when you are in the store, it is quite a different decision to make and so anything that would help to reduce that and to narrow the gap and incentivise people to buy energy efficient products, light bulbs, appliances, would be money well spent, I think.

Q354 Mr Drew: You have some samples.

Mr Cheshire: It is 78p versus £3.49 for the same 60 Watt output. On the other hand, you will get your money back and more within a year with the energy-saving light bulb, but the up front cost difference is massive, unless you do something like this, where GE contributed and we are able to put out the same light bulb through the manufacturer essentially contributing money, for 98p, and suddenly this takes off as a mass-market product. We are now seeing 10% of our total light bulbs sales are now energy-efficient, and that is up from only 4% three years ago. It is growing very fast, but the pricing differential in people's minds when they see that is colossal, and that is before you get to the usability issues, for example, "I can't put that hideous big bulb in my lovely little lampshade." Some fittings do not take

them and they do not work with dimmer switches. So there are other issues but the cash element is fundamental.

Q355 Chairman: Do you have any specialised point-of-sale equipment which effectively gives people the investment decision so that they can work it out for themselves?

Ms Bradley: We are working on two. We are working very hard on how we communicate these messages. This is the sort of messaging that we are starting to put around the store to flag environmental energy-saving products.

Q356 Chairman: Could you read out the text, please.

Ms Bradley: This says, "Our energy-saving light bulbs could save you up to £9 a year and last 12 times longer than normal bulbs."

Mr Cheshire: "Our insulation could save you £180–£220 a year off your heating bill." Obviously, insulation is in a different part of the store from light bulbs.

Q357 Chairman: If it is as clear as that, what do you think is the inhibiting factor in the consumer's mind that says, "Here is this honest retailer, telling me they have worked it all out for me, I know I'm going to be in pocket over this period of time but I'm still not sure I'm going to buy it today"?

Ms Bradley: There are two things on that. First of all, this is really quite new for us. Following this research we have really tried to get to the bottom of why people do not take these actions, and the result of some of our findings is that this barrier is too big. This is to try and help broach that barrier. Also, people are quite disconnected from their energy bills, so although they might know that the bill comes in whenever it comes in and has to be paid, this is a choice; it is money now.

Q358 Chairman: When Fairy Liquid came on to the market, it was a premium washing-up liquid and I remember the commercial which said "Here is the thimbleful of Fairy Liquid and here is the other", a big pile of plates, all shiny, hands that do dishes, and everybody was happy because they were prepared to pay a premium. It is exactly the same as this.

Ms Bradley: But this information is proving to increase sales. We have seen a 5% increase in sales just by putting better, clearer information out, so it does work.

Mr Cheshire: Going back to what I said earlier, this is a marathon, not a sprint. A lot of this is something that people have vaguely heard before, and particularly with certain topics like light bulbs, they have had the sense that you could not use it because it was too inappropriate, and the extreme example is the small standard candle bulb. That is the energy-saving equivalent. It is huge. My wife would not let me replace *that* with *that*. They do tend to have this picture and the issue for a lot of people is that buying the first bulb is the real big barrier. Once they have got over that, they start looking for other things they can do. This is something we are going to have to keep repeating and keep working on and it is going

to keep growing. The area where we think there is a lot of opportunity is to sensitise people. This is an energy tracker which we have introduced first in the UK this year. You plug it into your device and it tells you, once you dial in your costs of electricity, how much that is costing you on standby and in usage, and it has genuinely shocked people how much their phone charger or their TV costs them just on standby every year. Until you show people the costs—and we have had people running around their house, plugging this in, plugging all sorts of things in, and we are working hopefully for next year maybe on one which actually in real time shows your electricity bill for the whole house and you can see if you turn all the lights off what happens to your costs. It is, again, about information, showing people what you can do. If we can get that product into the mass market, that is one we would be very keen on.

Q359 Lynne Jones: When are we likely to have the small candle bulbs? I have replaced all my light fittings where I can but I do need a number of candle bulbs and I would like to replace them but there is no way I am going to have great big things like that.

Mr Cheshire: The smallest ones are probably about *this* size at the moment. There is a lot of work going on in factories all over the world that are going to shrink them.

Q360 Lynne Jones: No, the candle-shaped ones.

Mr Cheshire: I think the problem with those is that you always have a twist or a vacuum, a cloud-type product. They are going to, I think, end up with a smaller twist as a better compromise, which is still not perfect. I think there will be situations where people, on aesthetic grounds, will just say, "That is very nice" but actually this is a different decision. The manufacturers are clear that that is one of the key areas and they are very aware of it and are working hard on it but I would not like to predict you will have it for next year.

Ms Bradley: If I could add to that, the other way we are trying to skin this cat is by looking at lighting design, looking at the fixtures and fittings we are selling. There is an issue with these types of fittings that require candle bulbs, so how can we make them a different sort of fitting that does take these kinds of bulbs?

Mr Cheshire: The challenge is the retrofit. People have lamps that they like and want to keep. There is new technology coming through, particularly with things like LED, which I think will change the game again, but that is not much help if you have a treasured light and you would like to have it on, in the same way that a new build house you can do a lot to but it is the existing houses we need to retrofit. We do recognise it is a real challenge and there are probably some limits on the decorative end that we are going to find difficult.

Q361 Patrick Hall: One of the reasons you cite in your evidence at paragraph 4.3.2 for people not going ahead to install, in this particular example, home insulation, is hassle—effort, hassle and mess are barriers to going ahead with putting in these

technologies. What do you think retailers can do to overcome that fear of hassle? If you want to buy a fitted kitchen, you choose the design but the package you buy is somebody that comes to measure up and then comes back and fits it.

Mr Cheshire: There are probably two things we can do and, along with boilers and light bulbs, insulation is our biggest contribution we can make, so it is a subject close to our hearts and we have sold a lot of it over many years. We can do two things. Firstly, the technical product. I am afraid the other prop I have not brought today is our new insulation. The existing insulation technology is 270 mm traditional fibreglass. If it is done in standard rolls, it is quite unpleasant and if you have any sort of breathing difficulties, you should not go anywhere near it. It is not a great product in that sense and you need that much. The latest product we are coming out with is a laminate insulation, which is more expensive, but it is literally *that* thick and it gives you the same insulation benefit and does not degrade in the way that the thick sort of insulation does. We are quite convinced that that type of product, although it is more expensive, and we are working to bring it down in price, will allow people to very much more easily themselves do all sorts of areas, including walls on angles, instead of just having to lay stuff between the joists. So making the product more user-friendly is one area. The other area is installation. We are currently developing a whole range of installation offers for next year. Insulation installation is high on the list of the ones we are looking at. We currently do not have a national network and we are looking at it as a trial. I would expect that to form the backbone of the energy-saving concierge service because it is the single quickest and best thing that you can do.

Q362 Patrick Hall: People installing not just insulation but the micro-wind generator and that sort of thing?

Mr Cheshire: Yes.

Ms Bradley: The micro-wind generator is installed at the moment.

Mr Cheshire: As are solar panels. We say they have to be installed as well. What we are trying to see is what package of installation services we can provide. Modern products are better than the old products, and there was this perception that sitting up in the loft, wrestling with a role of fibreglass, was a pretty unpleasant way to spend a day and so people were not very keen on doing it. I think they have increasingly understood that the products are now better, you get these space blankets which are more contained, or the very thin foil, and the better off customers will pay for some form of installation service but we are not able to offer it just yet.

Lynne Jones: Would you also remove all the stuff from the loft and put it back in again?

Q363 Patrick Hall: I would like to bring in the Micropower Council, who have been dutifully listening for the last half an hour or so. What we have just been talking about is the existing stock, which is the single most important element of what

we have to deal with. However, if we want to move on, we have to set standards in the new build. You have said in your evidence that it is very important, for cost-effective reasons, that we build in high standards with new housing. The Building Regulations were upgraded last year, although less than some people hoped for but, nonetheless, they were upgraded and I think the Government's plans for the growth areas, for housing in growth areas, is to see various steps up in higher standards over the years. However, we are still far short of national minimum Building Regulations standards for having things like PV, photovoltaics, on the roof, or solar water-heating panels. Do you think that the Building Regulations should be moving in that direction? Are you prepared to or do you have any contact, not only with government but with, say, the house builders, who are almost cited as the people who do not want more demanding Building Regulations because it might put up the cost of a house by £10 or so.

Mr Sowden: Thank you for the invitation to come and give evidence. On the Building Regs point, the primary legislation, the Building Act, was amended during the last parliamentary session by the Climate Change and Sustainable Energy Act to create a new power, which the Government has not yet exercised, and in fact, we do not expect them to exercise it just yet. That new power would allow them effectively to regulate micro-generation into existence, much in the same way as they have done recently for condensing boilers. We certainly see that as an important long-term driver for the industry, and although we very much exist to promote the micro-generation industry, we would not advocate moving straight to that stage immediately, because this is a fledgling industry, it is just getting going, and if we were to introduce that level of volume into the market immediately, it is unlikely that the industry could cope with the demand that that would create. However, the Government has committed to introducing what it calls the Code for Sustainable Homes, and it intends to publish that, on the last count, before the end of this year and we are expecting around mid-December. The Code for Sustainable Homes will have a mandatory requirement that it is applied to all publicly-funded new homes and within that Code the exemplar level, or level 5, carbon neutral, is very difficult to achieve without the existence of some form of micro-generation technology.

Q364 Chairman: If I can interrupt you, Mr Sowden, could you just, in parenthesis, give a quick definition for the benefit of the Committee and anybody else who is not overly familiar with what we mean by the term "micro-generation", because we have just been talking about windmills but there are combined heat and power systems and there may be things that I do not know about. Could you just help us to make certain we do understand what it is you are talking about.

Mr Sowden: Yes, of course. "Micro-generation" is a term which applies to a family of technologies, and there is a statutory definition, which defines it as less

than 50 kW of electricity production, or less than 45 kW of heat production from sustainable sources and it is the Energy Act 2004 that contains that definition and also a list of the technologies. When we refer to micro-generation or micropower, we refer both to heat and electricity technologies, and we tend to use a slightly less stringent definition than the statutory one, which is focused on sustainable heat and power solutions for the non-expert user and, at the very smallest end, of course, that means the householder but it can also mean small businesses and small commercial premises.

Q365 Chairman: To bring it down to the level of the citizen, which is what this inquiry is about—and I do apologise to Mr Hall for interrupting his flow of thought, but I just want to be clear on our terms. If I am a householder and I am buying a new house that meets the requirements that you were just discussing, what would I expect to see in my house that fully utilised all of the micro-generation techniques and technologies that are presently available?

Mr Sowden: I think you would expect to see a combination of technologies. I am not sure you would expect to see every technology available integrated in one building but, for example, if the property is not supplied with natural gas, running costs could be brought down to a very low level indeed with the use of something like a ground source heat pump, which uses the ground as a big solar storage system and extracts solar heat from the ground in the winter, the heat in the ground being supplied by the sun during the summer. You might expect to see a technology like that. It could be complemented by solar hot water panels, which would provide the hot water supply to a home during the summer, and it may have electricity generating technology such as the micro-wind turbine that B&Q have started selling recently or perhaps photovoltaic panels. You might see any combination of those technologies but I think it is important to emphasise that those technologies need to be used in a correct context, alongside proper levels of energy efficiency.

Q366 Patrick Hall: Is that what the Code is supposed to incorporate and encourage?

Mr Sowden: Indeed, and the Code is taking at its minimum level the Building Regulations and I think the Government's intention is now to go slightly further than the minimum level required by the Building Regs for energy efficiency, even at level 1 in the code. The mandatory level is about halfway between that and carbon neutral, level 3, so all publicly-funded new homes will be required to be built to level 3. You start to see at that level certainly the requirement for exemplar levels of energy efficiency, and if you have micropower technologies that it is appropriate to integrate and that are cost-effective to integrate, then you can use micropower technologies as one way of delivering that. It gives you a menu of options. Using a regulatory mechanism like that in a smaller subset of the market, which would be the publicly-funded, new

build sector, and also tightening the requirements across a period of a few years, we see as a nice, predictable glide path towards eventual inclusion of a mandate in the Building Regulations.

Q367 Patrick Hall: For all new build?

Mr Sowden: For all new build eventually, and we see that as a very measured and sensible way to give the industry a predictable uptake curve to get costs down and to increase its production levels.

Q368 Patrick Hall: What timescale do you think would be manageable?

Mr Sowden: In our submission to the Code for Sustainable Homes, if I recall correctly, and I will correct this after a check, I think we were advocating something across the course of five or six years from now to a point when we think the industry would be ready for a mandatory requirement across all new build.

Q369 Patrick Hall: That is for all new build. So that would require quite a radical amendment of the Building Regulations.

Mr Sowden: But the Government has put in place the primary legislation power to do that. Government does not, as you know, introduce primary legislation of that nature and leave idle enabling powers on the statute books that it does not intend to use. We are confident that it sets the right direction for the micropower industry and it signals a clear intent, and we are encouraged by that but we agree with the Government that it would not be appropriate to enact it immediately. To come on to your second point, about house builders and where they are, some house builders are certainly quite forward-thinking. Some of them have started placing reasonable sized orders for micropower technologies, but I think the sharpest illustration was perhaps given by the Housing and Planning Minister, Yvette Cooper, in the summer when at a conference she said she had gone back to a number of house builders who had participated in the £60,000 house challenge and asked them what it would take on a mass-market scale, at mass-market volume, to take the homes that they had proposed building at £60,000 to the requirements of the Building Regs and take those to being completely carbon neutral. The answer that came back was that it would cost an extra £5,000 per household.

Q370 Patrick Hall: It is a bit more than my £10 but you see the point; it is really insignificant compared to the cost of a whole house, never mind the industry as a whole.

Mr Sowden: And that is a function of scale economy, because if the whole new build sector was in that arena, the volume that that would pull through—and it is not just energy either, it is things like water efficiency too—technologies which are currently in a niche market would be taking a quantum leap into a mass-market and that will bring prices down.

Q371 Mrs Moon: It has been suggested that one of the ways forward to help people make the shift is that in fact we have environmental taxes on poorly performing electrical goods and lighting so that people appreciate the environmental impact they have. Would you agree environmental tax is the way forward or should we leave it to the retail sector to make things far more affordable rather than go the legislative route? Which would you prefer?

Mr Sowden: I will hand over to Keith in a moment because Keith chairs our members' Policy Development Group on Fiscal Policy Sir Keith can talk about some of the fiscal incentives side of things. It is a question of carrot versus stick. If we use the example of the move from leaded to unleaded petrol using fuel duty, using a revenue neutral mechanism, that is a good example of where the fiscal system can be used to change behaviour. Across a period of time, raising taxes on leaded fuel and cutting taxes on unleaded fuel in a revenue neutral way does not present the Exchequer with any serious difficulties. There are sometimes social policy consequences of doing it which we have to look at, but I think as well people can get into the mindset of fiscal incentives. There are in fact fiscal barriers that exist. The fact that non-contractor installed energy efficiency products attract a VAT rate of 17½% and energy supply itself only attracts a VAT rate of 5% acts in a perverse way if our policy objective is to reduce energy consumption. That is a well recognised problem. So we should not see 5% VAT on energy efficiency and micro-generation generation products as a fiscal incentive *per se*; we should see it as the removal of an important fiscal barrier.

Dr MacLean: On the carbon issue, underlying the whole transformation, whether at the micro or macro level, for the developments in the power industry at the moment, it is essential that there is a better reflection of the cost of carbon in whatever happens, and whether that is directly through the price that finds its way into energy or whether it is through some tax, there is some debate about that but I think what is absolutely essential is that there is clarity. There is a price of carbon, that is substantial and it has to be met in some way. Dave is right; there is a mixture of sticks and carrots which can help. In connection also with the earlier point that was made about buildings and how you can get builders to behave properly, ensuring that the value of what is being put into the property is reflected, so that consumers who are buying buildings from the builders are demanding these things, that there is a real need for that, and some of the measures that have been looked at, some of the fiscal incentives that could be used are based around the property. For instance, a Stamp Duty which, if you have a very inefficient building would be high and if you have a very efficient building would be low, is something which could be introduced in a revenue and inflation neutral manner if you are prepared to take the carrot and stick approach. Similarly, what was very interesting in one of the energy suppliers' experience of introducing incentives to make people more likely to take up energy efficiency measures was that you could pretty much offer them £100 as a subsidy

towards buying something but they literally would not take the money from you to do so, but if you offer them a £100 rebate from the much-hated Council Tax bill, suddenly it is a really attractive thing for them to do. Council Tax, again, is something relating to the property or which could be linked in as an entitlement. The behaviours around this—we have had the example there that you can offer a very sensible, wonderful payback on an energy-saving bulb but that does not incentivise people to do it. You have to find the right way of making the incentive attractive to achieve the end. We have put forward a number of examples of that and we feel it is important that Treasury are engaged in the debate around this, because a number of these issues will be dependent on getting Treasury support for the measures that are likely to be required to make the change.

Mr Cheshire: The research says 87% of customers say price or cost is the main barrier, so, broadly speaking, anything you can do to help remove that barrier will be most effective. Our sense is the relative incentive—and I take the point on the leaded petrol equivalent, but to have no incentive at the moment on VAT terms, for example—we have called for this on light bulbs, energy-efficient over incandescent—and then to have the unintended consequence because of the nature of the WEEE Directive means that the 35p per light bulb is going to go on energy-efficient light bulbs, which will not go on incandescent light bulbs, which seems, again, ludicrous. It is about trying to work through those things. The incentive to householders, and 30% of the carbon in the UK is household-related, I think if people understand they can make a difference and they get a Council Tax incentive, a Stamp Duty incentive, some form of recognition that their house is contributing more in a positive sense, I think that would be an important lever for people. It is all about finding the first few levers that will make this a more mainstream process.

Q372 Chairman: Before we move on to another area, I wonder if the Micropower Council could explain the table that is on page 14 of their evidence.³⁴ You were talking about having a stable price for carbon. This table has lots of different prices, I presume for carbon saving, but it was a bit confusing to try to understand what the message was that you were trying to convey to us.

Dr MacLean: Partly, it is to reflect that there is not an agreed cost on carbon and the measures that are applied to addressing that are very variable in their cost. It is absolutely essential that they are brought on to a similar basis.

Q373 Chairman: Can we be clear? I suspect there is some quite interesting material in here but I have been struggling to extract it. Are you saying that the renewables obligation, the cost of saving carbon by that mechanism, is anywhere between £180 and £510 a tonne?

³⁴ Ev 156

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Mr Sowden: We are not saying that. We have reported that but that is what the National Audit Office and Oxera are saying, which is the source of that information. The reason we put these numbers into the paper—this is the appendix that is our proposal on how to support renewable heat in the micropower sector—is really to give a benchmark in putting forward that policy proposal, which is to use what we call weighting factors within an instrument known as the Energy Efficiency Commitment, to give some idea to officials, as they do their calculations on our proposal, as to what they are paying for reducing a tonne of carbon now in various other policy mechanisms.

Q374 Chairman: The renewable heat one appears to have a minus. Is that a “minus” sign?

Mr Sowden: That is right, which is saying that there is a negative cost attached to that proposal.

Dr MacLean: It is a minus sign and it reflects the perception that there is a cost saving. If you are doing something which is saving you energy, you actually reduce your cost of doing it.

Q375 Chairman: When you say “reduce your cost”, whose costs are you reducing?

Dr MacLean: The cost to the consumer is reduced.

Q376 Chairman: So there is a consumer gain of £200?

Dr MacLean: If you can avoid using energy, you reduce the amount of carbon and you save money at the same time, so there is a negative cost of doing it. If you still use energy and you find some other additional way of reducing carbon, then that is the additional cost of doing it.

Mr Sowden: There is a good example from some years ago, what was the Performance and Innovation Unit in the Cabinet office, the precursor to the last Energy White Paper, was their Energy Review, and there is a table in the back of that—and I am afraid anoraks like me still remember that it is table 6.1, if that is of any interest—and that table looked at what they call a resource cost of various policy measures with energy efficiency, with a prominent negative overall cost effectively to UK plc, and that takes into account the capital cost of a particular measure versus the reduction in wastage in the economy, factors those two in together and produces a capitalised or a net present value of that. Certainly, for energy efficiency measures it is negative and that is what this table is reporting. I am not on entirely firm ground with these numbers so, with your permission, Chairman, what I would like to do . . .

Q377 Chairman: Would you like to give more of a layman’s commentary on that?

Mr Sowden: I will perhaps write to the Committee.

Q378 David Lepper: Gentlemen, from B&Q, one of the items you have not brought with you today is a wind turbine. You did have one here in the House of Commons just a few weeks ago.

Mr Cheshire: We could not get it through security.

Q379 David Lepper: They are retailing at £1,498 including VAT and installation. There, I have done the advert for you. However, there was an article in *The Observer* a couple of weeks ago where the headline was “Trendy roof turbines are not as green as they look”, where, among others, Friends of the Earth were saying that they do little to reduce greenhouse gas emissions, produce very little energy and may lead to disillusionment. They were not necessarily talking just about B&Q’s wind turbines but what is your comment on that?

Mr Cheshire: We did a fair amount of work with Windsave, the supplier, before launching this and the claims we made were based, broadly speaking, on the assumption that through the year, in a situation which, by the way, is deemed to be providing enough wind, because all the turbines that we sell are subject to a survey so if there is not enough wind in the location, we would not sell it.

Q380 David Lepper: So you carry out the survey?

Mr Cheshire: Yes, and 20% of the orders we have refunded we have cancelled the order because the survey has revealed that actually, it is not an appropriate location. Step one is to make sure it is in the right place. Step two is to say that, where there is a wind supply, the calculation is broadly speaking, best expressed as over the course of the year we think it will generate 1000 kW, the average UK household electricity domestic is about 3000, hence the up to 30%. The reality is that this is early days in the sense that this is the first mass-market adoption of this product. What we have undertaken to do is we have started a trial with 100 of our customers who were going to put wind turbines in anyway, and we are going to monitor them over the next year and try and assess their efficiency in real-time use and to get a sense of what is possible. The one thing I would say is that one of the other things we would like to get across is that some of those economics for people would be considerably changed if some of the reverse selling arrangements on electricity could be changed. We do believe that some of the economics in the early days are going to be more challenging and, frankly, in five years’ time, I am sure the technology will be that much better, but the early adopters want to start with it now. We think the product is absolutely appropriate and appropriate for a domestic situation, but we would not put it into a place where there is not appropriate wind.

Dr MacLean: It is an important issue and any industry introducing a new product like this, particularly something which is as high profile as this has become, has a difficult balancing act to do between creating the interest that is needed to pull it through and creating too much interest at an early stage. The important point to think about with the wind turbines, as well as the potential for reducing carbon and reducing people’s bills, which is clear; it is only how much that will be possible in each location. I think the important point, particularly with respect to the context of your inquiry, is how it engages people. This is not the first microgeneration

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technology to be out there, there are some others that have been around for a long time, heat pumps and solar thermal solutions have been on the go for a long time but for some reason they do not engage the public in the same way that the windmills have. There is an added benefit of the micro-wind solution in that it is really re-engaging people with the idea of their power production, where it comes from, how much it is and what contribution it is going to make and stimulates the debate about all of these other issues which are very important. Even if it is doing only that, it is a very important factor at the moment.

Mr Sowden: We accept as an industry, and Windsave is one of our member companies and I do not think I am speaking out of turn in saying that they support this position, that these products should not be oversold and it is important that when selling products like that the hierarchy of energy efficiency first followed by microgeneration is explained clearly to the customer. I do not want to gainsay what Ian might say on this, but some customers, and in fact there is one Member of Parliament that I am aware of who was advised by Windsave that the location of his house was inappropriate because there was not enough wind and he said "I want one anyway". If you give the customer that advice and the customer chooses to go ahead then there is nothing wrong with that, but I think it is very important, particularly in the early stages of development of the microgeneration industry, that we are clear with customers, we are honest with customers that they need to pick the low hanging fruit of cavity wall insulation, loft insulation and energy saving light bulbs before they start considering microgeneration. Microgeneration has enough interest, it has a big enough market, there is no need for mis-selling and it will not do the industry any good five years down the line if we are on BBC *Watchdog* programme accused of mis-selling. It is important that we acknowledge as an industry, which we do, that microgeneration has a role to play, it is not the answer to everything, it has a role to play, it has a big market, but it needs to know its rightful place amongst other policy measures.

Q381 David Lepper: B&Q, have you got in first with marketing of this scale or are there others already doing it?

Mr Cheshire: We believe we are certainly the first mass market retailer to put together the whole energy efficiency programme in its broader sense and put that on national TV. We also believe we are the first to mass market the specific wind turbine. It has been on sale successfully for many years already so it is not in that sense a new product, but B&Q's role in all of this is this whole process of democratisation, so move it from niche to mass market, give it some exposure and the challenge is exactly what Dave says, to sell it clearly and responsibly and not make false claims for it and we work fairly hard to do that and will continue to do that with all the other products that we sell. It is a major exercise just to get some of these calculations and claims organised.

Q382 David Lepper: In your evidence you did talk about the difficulties of getting planning permission and we have already touched on that a bit this afternoon, not just the costs but the difficulty of getting the permission. I gather that something like 35% of the wind turbines that you have sold have been returned to you because of difficulties with planning permission.

Mr Cheshire: The way it worked was we have had about a third of the initial orders fall through, of those 35% were for planning and 20% were for survey reasons. We are going back to point on the wind front. We are still exploring this and frankly we might be a little bit early in terms of calling it because, for example, we found on the solar heating panels we have sold, that went off more slowly but we have had a higher hit rate in terms of going through, in terms of insulation. Going back to what I said before, we would be very keen once we have done our overall programme review in December to come back with a generic picture. Certainly when I have been in store and talking to our customers, we have had certain individual customers who have had major planning battles with local councils trying to get the principle established. What comes across is the need for consistency, it is clarity in explaining to customers what is possible. Obviously there are certain local issues and it has got to be sensitively handled, but there is not any form of joined-up thinking and in many cases we have got customers saying, "I phoned up the council and asked them what their policy was and they said 'We have not got one'." This is the start of something.

Mr Sowden: May I comment on this as well because the problem is very real, particularly given the mass market launch of our colleagues here, but there are changes on the way and it is important to acknowledge that. The Climate Change and Sustainable Energy Act placed a statutory duty on the Government to review the permitted development system for microgeneration. We are expecting the Government to publish its recommendations on the outcome of that. The DCLG is working to a timetable and we do expect wind turbines of less than a certain diameter and lower than a certain height to be let into what is called the General Permitted Development Order statutory instrument, which would avoid the need for planning permission. That is happening in England. Scotland is running slightly slower than England, there are two private Members' bills which will come forward after the Scottish Parliament elections in May and the Scottish Executive has now consulted on this and, in fact, we are seeing exactly the same initiative from a backbencher in the Welsh Assembly as well. Although I accept that B&Q and Windsave have a very live issue now because they are out there trying to sell units in volume, this is something that should sort itself out within the next 12 months or so because of Government action and that will level the playing field and remove this geographic inconsistency. In the meantime, it is no good for us to have the majority of sales caught up at the moment and installation not proceeding because of planning constraints.

Q383 David Taylor: We are all anxious to know who the persistent MP is and whether or not he lives in Notting Hill! If he did live in Notting Hill, it is, of course, a very windy place. You had a reception here on 25 October and I congratulate you on that, I think it was very, very helpful to MPs who attended. You wrote to me and to all others saying in part, "We are also looking to the Government to make the planning permission process for wind turbines as simple and as cheap as possible, in order to encourage take-up of domestically generated energy" and I understand that. In the very same post from a very attractive village in my constituency, a constituent who was having difficulty with planning permission wrote, "We note . . . that B&Q have started marketing the same product that we are hoping to install in our property. This move together with the Government's initiative through the Climate Change Bill . . . is giving mixed messages to the public", which is what you are saying Mr Cheshire. Do you think there is anything that retailers such as yourself can do or the manufacturers or, indeed, the Local Government Association or the Town and Country Planning Association to actually spell out what will be acceptable within permitted development? This is a very scenic village and I can understand anything that is very prominent might pose problems for the planners.

Mr Cheshire: At the moment my sense would be that this is, if you like, work in progress because we were informed that this was en route and in some sense it was unfortunate timing because at one point some time ago we thought it would be coming sooner and then it did not, so you still have this slight concern about when will it arrive and what shape will it arrive in and will it be sufficiently organised. I take the directional comfort that Dave refers to but I am still not there yet. I think even when we get the permitted development piece there are going to be issues such as "I live in a conservation area, I am trying to put a turbine up, I have got some particular issues, 'probably similar to your constituent', and I think it would be beneficial to do a bit of work together in terms of 'Here are the broad dos and don'ts that people have worked out'. Frankly, I went back into some of the archives and saw some of the debates over satellite dishes and there were an awful lot of the same sorts of issues being debated and that ended up with a rough practice and I think we will probably need to develop that. I certainly would be very happy to be involved in that as a process.

Q384 Lynne Jones: Notwithstanding people's reluctance to spend a couple of quid extra on an energy saving light bulb that will pay for itself several times over within 12 months—there seem to be people with more money than sense who are prepared to spend £1,500 on a wind turbine that will not pay for itself—is not the important issue perhaps for those people the amount of CO₂ that will be saved in the lifetime of such a turbine compared with perhaps the amount of CO₂ emissions in the manufacture of that turbine and should we not have that information? Is that information available?

Mr Cheshire: That is a very good question. Firstly, we are looking and this is not just an issue around the wind turbine, I think we are trying to understand now far more clearly the degree of, if you like, footprint the product has created and that is a live issue which, going back to what Rachel was saying earlier, we are trying increasingly to understand not just in the wind turbine but in other products, and that could be boilers, it could be other areas, how much has gone in and how much is saved, so you have got more of a lifetime value of product. Frankly, the information is not there in any great shape or form yet. As we work and develop it, yes, I think that is something that we should put in people's minds because I think increasingly people will take a more integrated view and we have seen it already with debates around electric hybrid cars, about lifetime value disposal issues and increasingly that will have to be a broader debate. Unfortunately, I think we are not quite in position yet.

Q385 Lynne Jones: I have a property with no electricity. Our only electricity is from a wind turbine and photovoltaics and we run the house, but we would not have one on our house in Birmingham because it is just not worthwhile and we need to look at those issues.

Mr Cheshire: I absolutely firmly believe that we will see a mixture of solutions and a mixture of both microgeneration and energy efficiency and there will not be a "one size fits all". I think the important thing is to have a breadth of options for customers and say, "In this situation this is an appropriate act or intervention", and, "In this situation it is completely different".

Q386 David Lepper: You touched on microtechnology and boilers just now as well. Perhaps Dr MacLean and Mr Sowden might want to deal with this more but B&Q might as well. There seems to be a delay in bringing forward substantial proposals for micro-CHP technology and boilers to replace the current domestic central heating boilers. What are the reasons for that?

Mr Sowden: I think the primary reason is that the companies bringing those products to market want to get them right. They have taken a very close look at what happened to condensing boilers and the way they were introduced in this country over 20 years ago and the industry got that badly wrong. There is a lot of investment being poured into the development of that particular technology, not just the ones that look and operate very similarly to conventional boilers, ie the sterling engine technologies, as it is called, but also fuel cells too. The developers of those technologies are absolutely clear that they cannot afford to "do a condensing boiler" and several of our companies are investing in these technologies and quite unapologetic about how long it is taking for them to come to market because they are determined to get it right first time.

Mr Cheshire: Just to add to that, I would be incredibly keen to bring forward the first mass market micro-CHP and I have been hassling my

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colleagues here asking, “When can I have one, please?” so it is a question of the supply coming through.

Mr Sowden: I think on a slightly larger scale, including the domestic scale in countries like Germany, there are, in fact, commercially available micro-CHP products. A subsidiary of one of our member companies sells units in Germany. In fact, they now have several thousand installations in this country, but it is not appropriate for smaller houses; it is appropriate for big houses. In Germany there tends to be many more houses of multiple occupancy and I believe their sales are up to 20,000 units over there now.

Q387 David Lepper: The right technology for the UK context rather than the technology in itself?

Mr Sowden: Yes, that is right. A personal view is that I think they will get there, but they need to get it right first time. It brings us on to another point that I did want to put forward which is we do not have collegiate industry standards across the microgeneration sector at the moment and we believe that is tremendously important because we do not want to get into the world that the double-glazing industry got itself into in the early years. We are keen that the micropower industry gets off to a good start, that we have decent products properly certified, installed by properly-trained and accredited installers and underwritten by sales codes so we get the industry off to a good start. We can perhaps look at underwriting some of those installations with industry-wide guarantees similar to the ones that the cavity wall insulation industry developed a few years ago. We think that taking our responsibility as an industry seriously, developing those sorts of initiatives, perhaps in response to some of the policy moves that the Government has made in recent years, are ways in which we can play our part to get the industry off to a good start and avoid the accusations of cowboys being involved.

Q388 Patrick Hall: One quick follow-up on the point that Lynne Jones asked about the lifetime carbon footprint of the wind turbine. Mr Cheshire, I think you said that you were looking into this. You are a big retailer, surely, if you ask the manufacturers I am sure they would be delighted to tell you because they want to sell you lots of wind turbines?

Mr Cheshire: It is a question we have asked which I am looking forward getting the answer to but we did not have at the start of this. There are some assumptions about lifetime as well which are a little bit sensitive to assumptions at the moment. I think this is going to come up with an answer shortly, but it is not one we have in the back pocket yet. As soon as we get it, I am more than happy to provide the information and we will do that.

Q389 Lynne Jones: If I have got a functioning, inefficient boiler that is going, what should I do? Should I replace it with a condensing boiler now or wait until I can get a CHP?

Mr Sowden: Are you on the gas network?

Q390 Lynne Jones: Yes, it is a gas boiler, 25 years old. I am ashamed of its inefficiency and I have been waiting to get CHP, so should I get a condensing boiler now or wait?

Mr Sowden: I will dodge that question and tell you what I am doing with mine, which is I am installing a condensing boiler supplemented by solar hot water.

Mr Cheshire: That is exactly what I would have said.

Chairman: Well, that is very kind of you! All round to Lynne’s place to install it!

Lynne Jones: It was the conclusion I had come to too.

Chairman: With that happy coincidence, we will move on to David Drew.

Q391 Mr Drew: We have dodged around this a few times, but let us now just hit it head-on which is the Government’s Microgeneration Strategy. You have mentioned this in your submission. Where is it in the expectation of its delivery time and, most particularly, I think what would interest us—and we keep coming up against this—is where is the leadership, which department and can you help elucidate what you think should be happening? Maybe we could then make some recommendations to Government.

Mr Sowden: I will start off and then hand over to Keith to comment. Broadly, the package of policy measures in the Microgeneration Strategy is something which the industry welcomed at the time of publication and we still think that, broadly, it is the right suite of policies. There are two important gaps in our view. One is policies to promote renewable heat and the Government has now committed in the Energy Review to setting out proposals on renewable heat by April next year. We have already fed in our ideas on how we think that should work in the micropower sector and catalysed the debate amongst the wider parties in the sustainable energy industry and got quite a significant buy-in to that. On fiscal policy, in fact the only significant clause in the original Climate Change and Sustainable Energy Bill that did not make it through into the Act was one on introducing a fiscal strategy for microgeneration and energy efficiency combined. That was the only clause that was removed from the Bill by the Government; the Treasury did not like that idea.

Q392 Mr Drew: I am not surprised.

Mr Sowden: That is why I said I would hand over to Keith because we still think that is an important area of work.

Dr Maclean: I think that there is certainly an issue for clarity. If you look at the Microgeneration Strategy that is being pushed through by the DTI, generally heat and energy efficiency are looked at within Defra and if you look at this very powerful piece of legislation that was put through, it was a private Member’s bill rather than a government bill that pushed it through. The leadership issue is quite difficult here because there are two departments involved in this and so far the main initiative has

not been a government one; it has picked it up afterwards. I think there is certainly something to be said for trying to join up the approach to it because heat, power and transport, for that matter, really have to be brought together in the approach to reducing carbon. If it is done in this fragmented way it just creates either confusion and/or perverse incentives to do one thing rather than another. At the moment, for instance, heat is not supported through the measures that support renewable electricity, so you will find that people are being driven to maximise how much electricity they can produce rather than to look at what may be more sensible, which is how much heat they can produce. The micro-wind turbine is a good example of that. If you used it to produce electricity for heat it would be much more efficient because you are not trying to change it backwards and forwards from AC to DC, to synchronise it up with the grid, looking at all of those, and you can get more energy out of it by making heat, but you do not get ROC support for that under the Renewable Obligation, therefore, there is no incentive to do it. If the measures were based on energy or carbon, that would help to even that playing field and get a joined-up approach. Finding the appropriate support mechanism for heat which sits in Defra is an important parallel activity to the promotion of the Microgeneration Strategy which is sitting in DTI.

Mr Sowden: On the nitty-gritty of implementation as well, the lead department there is the DTI and although they have made some improvements in the resources they are putting onto implementing the Microgeneration Strategy that is being led by a middle-ranking civil servant. We think this agenda merits more senior level attention, we have been lobbying for more senior Civil Service resource to be dedicated to implementing the Microgeneration Strategy. The consequence of that was when the strategy was launched the Government said that it would oversee implementation with an advisory group. The strategy was launched in March of this year and the first meeting of the strategy group takes place on 12 December, so that is how long it has taken to get the implementation framework in place properly. That is not to say things have not been happening, a handful of actions have been delivered and I think we should acknowledge that and give credit where it is due. To launch a strategy, the bulk of which has a two-year implementation timetable, and then to take the best part of nine months even to set up a steering group to oversee that, indicates that there is a lack of commitment and a lack of priority, of resource being allocated to this in the DTI.

Q393 Mr Drew: Has the legislation in Mark Lazarowicz's bill really helped? I know something about the ownership of it and the negotiation between different departments that had to go on to get it into statute. Is the legal framework now right in this area or is it really fiscal incentives that we should be concentrating on? I think we were discussing in private session the new Office of Climate Change, the guru or czar, or whatever we

are going to call that person. Is that something that you would see? Would that person have the championship role within government?

Dr MacLean: It is certainly fair to say that the Lazarowicz Act has paved the way for a lot of things to happen and that is very much to be welcomed. I think the issue is that a number of elements which Dave was referring to earlier on have yet to be properly implemented and that has to happen. The interaction with fiscal is not an either/or, both have to be there in place together. The measures that have been implemented through that and still to come through the Microgeneration Strategy go along in parallel with the fiscal incentives which will help with the uptake.

Mr Sowden: Just to give an example. I was fortunate enough to be invited by DCLG to sit on the steering group for the review of Permitted Development Orders for microgeneration and during that process I got to know some of the civil servants and asked them to what extent the Lazarowicz Act helped them establish the case within DCLG for the permitted development system to be reviewed and to quote an official, who I will not name, he said "It was more like sticking a piece of dynamite behind us". There are aspects of the Microgeneration Strategy and government activity which it is arguable whether they would have happened at all if it were not for the extremely heightened level of interest in Parliament that the bill created. I think one has to look at the Microgeneration Strategy and the act together as a package and question how much would be in the strategy if Parliament had not wound it up through the bill.

Q394 Sir Peter Soulsby: While we are on the issue of central Government, can I return again to some of the things that we have touched on. We have touched on the Low Carbon Building Programme, we have touched on reverse selling back to the Grid, we have touched on specific fiscal measures that might make a difference. Have you done, or are you able to do, a summary of your views as to what would make a difference in each of those areas? Clearly, the first one, the sum of £18 million was put in but ran out after a few months in the first year, commitment only for three years does not sound as if it is going to make a big difference over a considerable period of time. I think that it is true over all of these areas from what you have been saying to us that you have significant reservations about the extent to which government action is presently on course and is going to make a difference.

Dr MacLean: I will start on the Low Carbon Building Programme. The potential for that mechanism to make a big difference is great because the numbers of units that need to be built in order to start building up the volume to get the price down to get into the virtuous circle that we are wanting to get into is not so enormous. Therefore, something like the Low Carbon Building Programme, if it is properly focused and the money is spent in a way that it does give the certainty for the production of those first thousands of units in the different areas,

that can make a big difference. It is essential that it is spent in a sensibly, aggregated manner that will allow that to happen and there are negotiations going on as we speak and we will see how successful the outcome of those are in putting together the framework that was proposed around that for splitting the money into sensible chunks for the different technologies to support them. There are discussions ongoing at the moment about finding the most appropriate way of rewarding people for any electricity that is exported back into the network. I think the studies that have been done have shown that contrary to most beliefs at the moment people are being rewarded at a much higher level than is actually justified by what the suppliers are getting back from the energy that is exported onto the system, the main issue there being that there are so many losses in the transactions that need to be carried out in order to realise value from exporting it back onto the system, through metering, through settlement and all the various processes there, that whatever value there is at the start is eroded back down and often reduced to a level below zero. At the moment the industry is subsidising the process by providing a reward at whatever level for what is going on.

Q395 Mr Drew: Can you explain this a bit more because I do not understand what you are saying. I understand about the way that with net metering people put back into the Grid but you are saying that individual households are already getting a greater reward than is anticipated if the industry subsidised. Explain how that works.

Dr MacLean: If people are exporting power back onto the network which they are not using themselves then they are expecting to get a payment for that electricity and the value of that electricity is—

Q396 Mr Drew: Expecting, but they are not going to because legally they cannot.

Dr MacLean: They are at the moment. All the suppliers now have agreements in place, all of which offer the purchase of the power from that.

Q397 Mr Drew: There is no real money exchanged.

Dr MacLean: At the moment what people are getting is greater than the value to the supplier.

Q398 Mr Drew: How?

Dr MacLean: First of all the level of payment that is due is dependent, for instance, on the time of day. If electricity is being exported back onto the system, it is done at a time of day that the value of that electricity is low. Equally, if you have that net value, you have to subtract off that the costs of obtaining that value. Those costs include the metering and the settlement system and the administration that needs to be gone through in order to do that. Because there is a relatively low value per unit and there are a lot of individual systems to do that, those costs are disproportionately high and, therefore, taking away from the already lower value often of the units that are being exported back on. The easiest way of

overcoming that is to find a way of rewarding the whole thing which does not involve the complications of the metering and the settlement system and which reflects, probably better, the overall position of carbon and energy rather than trying to split it up. Again, as I mentioned before, with the other support mechanisms, like the Renewables Obligation, they can drive behaviour in the wrong way. If the export becomes something which is, as it is at the moment, not very attractive people will under-dimension the systems that they are putting in so that they can use it all to get the maximum perceived value out of it or there is the perverse behaviour that can go out of it, that is to say, "I am damned if I am giving that to somebody else, I am going to make damn sure I use it all myself and increase the consumption". The alternative extreme from that is one which if the export is too valuable, it then starts driving the over-dimensioning of everything to produce more and more electricity to then get the benefit. That was something which happened with the older CHP schemes where the real reward was for the electricity produced rather than the heat and the systems got bigger and bigger in order to try and get lots of money back from the electricity until the price collapsed and the whole thing went wrong. It has to be much simpler and it has to avoid the distortions that the current approach can drive.

Mr Sowden: Could I come back to the original question about the Low Carbon Buildings Programme and the link into longer-term policy measures, of which reward for power exports and getting that sorted out is an important one. The £80 million that exists for the Low Carbon Buildings Programme can be spent intelligently in a way that helps to get the industry more self-sustaining. We go through this exercise about every three years where the industry berates the Government for not providing enough grant subsidy. The mindset we really need to be in is that we are an industry that is so big that the Government cannot afford to support it any more through grants and we need longer-term, more enduring policy mechanisms to do that. I will give a tangible example. At the moment the household grant for a solar thermal system is approximately £400. The submission we have made to Defra and the DTI on a policy mechanism to support renewable heat in the micropower sector we calculate would yield a value of a few hundred pounds, but it is an enduring policy mechanism. What we are interested in is a design for the grant scheme that encourages the industry to become more efficient, which is important in the early years but we need to be weaning the industry off that kind of arrangement, leading us towards longer-term policy mechanisms that give equitable access to the carbon value of what those micropower systems are achieving, equitable access alongside other low-carbon solutions. Grants are an important support mechanism for the industry—

Q399 Chairman: Could I just be clear about what you are saying there. Are you suggesting that if the microsystems reduce the carbon outputs, for

example, of major power generators, that is a gain to them, for example, in the costs of meeting requirements under an Emissions Trading Scheme; in other words, they are gainers from that. Therefore, if there is a gain, somehow that gain in monetary terms has got to be captured to come back round the cycle to enable the saving mechanism to work because at the moment what you have described is a mechanism where government takes public pounds and decides that those public pounds can be deployed in this area inevitably at the expense of something else which is a public objective. Your argument, if I have understood it, is to get away from that to the more virtuous circle, is that right?

Mr Sowden: That is the essence of it, except that rather than it just being public pounds, I would call them “policy pounds” because we have different policy mechanisms to support de-carbonising the economy.

Q400 Chairman: The Government is the steward of the taxpayer’s money and the Government takes decisions to change its spending priorities on behalf of the taxpayer and the citizen to enable a certain policy objective to be achieved, whichever way you want to play with the words and the numbers.

Mr Sowden: That is right, but it does not all have to flow through the Exchequer initially on tax take and then subsequently out through public expenditure, there are other policy delivery mechanisms: the Renewables Obligation is one; the Energy Efficiency Commitment is another. So essentially the cycle you described is correct, but the delivery mechanism that we are proposing is through the same mechanism which has successfully transformed, for example, the market for A-rated fridges, freezers and washing machines.

Chairman: I would like you to be kind enough to develop that in a piece of additional evidence because I think there was a great deal there and we were just beginning to understand it. It does come to a very important issue, again going back to the question we asked earlier, about what is the price of carbon. Clearly, this sustains an awful lot of work in this area and this is the complicated end of it. I am going bring this session to a conclusion, but Lynne wants to ask a very brief, and I mean very brief, supplementary.

Q401 Lynne Jones: You said that all the companies bought back electricity. We had some evidence which suggested that British Gas, for example, and Scottish Power did not buy back and there was a wide variation in the amount paid; the best being npower which bought back the same as energy sales. What mechanism do you think would be best to regularise that situation? In Germany it is

mandatory to buy back at a set price that the Government has set. Should we have such a scheme here?

Mr Sowden: Let me answer the disparity point because I think in a very brief summary of what Keith was saying the buy-back prices that suppliers give at the moment are a subsidy, they are doing it because they want to be seen to be involved in this market. Suppliers cannot do anything tradable with that energy at the moment because of the way the energy trading arrangements work. We are working with the suppliers to try to change those arrangements, remove transaction costs, so that we can reveal a more economic value for power that is exported. In terms of what they call the “feed-in tariff” in Germany, the feed-in tariff has one significant advantage over the system in the UK in that it guarantees the delivery of all of the value to the customer because there is a requirement on the distributor in Germany to pay the customer a fixed amount of subsidy. The other important difference in Germany, particularly for PV, is the amount of money swimming around in that system is significantly more. There are two things going on here. The first is that there is a policy decision by the German Government to provide a significantly higher level of subsidy to photovoltaic, CHP and other forms of low-carbon technologies. The second is the delivery mechanism that ensures all of the value of that is delivered to the end customer and there is no scope to trade or share any of it in the value chain. It is important to distinguish those two.

Chairman: In the course of our inquiries, we came across a man who had the simplest solution of the lot to this. He had an electricity meter that went backwards and we were quite taken by this idea. I presume at some point if he generated enough electricity he would get back to the point where somebody was paying him and not the other way around, but there we are, these are some of the quirks that you discover when you go on these voyages of exploration. We will not tell you where we discovered this because I would hate somebody to be rushing around looking for this offending electricity meter, but I think as far as B&Q are concerned this might just be the product development you are looking for. Could I thank you both very much indeed for the evidence you have been able to give us. I also congratulate B&Q once again on their demonstration and their marketing acumen because, as we know, this session will eventually surface on parliamentary television and the cost of the free commercial is incalculable. I am looking forward now to the banner in the store under all this kit which says, “As seen on parliamentary television”. Thank you very much indeed for your contribution and we look forward to your further written submissions. Thank you very much.

Supplementary memorandum submitted by B&Q (CIT 19a)

During the session, I promised to provide you with two further pieces of information relating to the response to our energy efficiency initiative and the carbon involved in the manufacture of wind turbines.

With regards to our energy efficiency campaign, our TV advertising campaign reached over 73% of the population and of the viewers watching on Sky Digital, 12,000 pressed the “red button” to request further information. Our online advertising reached 9.6 million people and resulted in a major surge in visits to diy.com specifically looking for energy efficiency information. Our PR reached over 32 million people. You may also find it interesting to know that during the campaign, wind turbines were the number one selling item across the company, demonstrating that if you address the price barrier, educate consumers about benefits and offer them choices they find attractive, they will take up the gauntlet of energy efficiency.

Further evaluation of the campaign is underway at the moment with a final report due in December. I will of course send this information to you, along with the response from our wind turbine manufacturers on the carbon footprint of the turbine, to you once it becomes available. As you pointed out during our discussion, some of this information will be commercially confidential and I am grateful to you for your consideration in this.

I would also like to take this opportunity to offer Committee members the chance to visit one of our stores and meet with staff who can provide feedback on how customers have responded to the campaign and to the new products in-store.

Ian Cheshire,
Chief Executive, B&Q

November 2006

Supplementary memorandum submitted by the Micropower Council (CIT 34a)

Question 6 “*To what extent is ‘green taxation’ an effective driver of behavioural change?*”

1. The Micropower Council is pleased to provide an additional response to the Committee’s inquiry into the “citizen’s agenda” on the impact of green taxes as a driver for behavioural change.

2. We noted on our original response that we see four areas where urgent Government action is needed—this included the need for Government to develop and implement a fiscal strategy for promotion of low carbon solutions within the domestic sector—to cover both energy efficiency and microgeneration.

3. In this context we welcome the Chancellor’s announcement, within the Pre Budget Report, of measures to promote the uptake of microgeneration by clarifying the rules regarding taxation of domestic customers exporting electricity and the introduction of a time limited exemption from stamp duty for new zero carbon homes.

4. We see these as small but significant steps in the right direction. However, on their own, they are unlikely to have a material impact:

- clarifying the rules on income tax will remove a current uncertainty and hence removes a potential barrier. To be effective, this exemption will need to be sufficiently widely drawn to include income from ROCs³⁵ as well as from the sale of exported power and to cover all domestic installations; and
- removing stamp duty on new zero carbon homes will affect only a very small percentage of house movers and effective action requires the use of incentives (carrots and sticks) for all householders.

5. Government has stated³⁶ that the “principle that fiscal measures can play a part in achieving our environmental goals has been established”. We agree with this whole-heartedly and believe that, if the potential benefits are to be secured, it is critical that Government acts now to remove existing fiscal barriers to the uptake of microgeneration and develops and implements a broad based fiscal strategy for promoting low carbon solutions across the whole domestic energy sector.

CURRENT BARRIERS

6. We set out below two barriers that continue to frustrate the development of microgeneration (one relates particularly to business premises but has been included because we consider it to be a matter of considerable importance and we believe the Committee would wish to be made aware of it—there may also be implications for domestic premises).

³⁵ Renewables Obligation Certificates.

³⁶ Energy Review, July 2006 (paragraph 6.35).

Barrier 1—tax treatment of companies installing, and leasing, microgeneration in domestic premises

7. Where a business installs microgeneration within domestic customers' premises and either leases the equipment to the customer, or is paid for the energy delivered, it is liable for tax on any profits generated but does NOT have access to any form of capital allowances to allow it to offset the capital cost of the installation that would normally be available for business investments.

8. This limits the evolution of cost effective mechanisms for delivering microgeneration technologies to the less well off sectors of society.

9. We propose that all companies offering to lease microgeneration within domestic premises should have access to capital allowances equivalent to those available to businesses installing microgeneration within business premises.

Barrier 2—rateable value of premises with microgeneration

10. The installation of microgeneration equipment on business premises will lead to the rateable value of the premises being increased. The method that will generally be used (the "contractors basis") is likely to result in an increase in the rateable value of the premises of 5% of the replacement (or installation) cost of the microgeneration installation. Rates payable are currently ~43p in the £, meaning that the annual increase in rates payable will be over 2% of the replacement cost of the microgeneration. The potential for rate increases of this magnitude will act as a major deterrent to the uptake of microgeneration.

11. We are unsure how, or whether, installation of microgeneration would affect council tax liability and suggest that this issue also needs to be investigated to ensure there is no potential for installation of microgeneration to result in an increase in domestic households' rates liability.

INCENTIVES

12. There is a wide range of fiscal measures that could be used to provide effect incentives (both carrot and stick) to promote microgeneration within the domestic sector. Such measures can be used to:

- reduce the cost of low carbon energy solutions to consumers;
- raise awareness of microgeneration/energy efficiency options; and
- provide effective mechanisms for reflecting the cost of carbon into energy decisions and rewarding those that opt for low carbon solutions.

All of which are effective drivers for behavioural change.

13. The Micropower Council has identified a number of potential fiscal measures that can deliver these benefits and proposes that Government should implement a portfolio of measures that, in combination, ensure complete coverage of all potential domestic microgeneration/energy efficiency sectors.

COUNCIL TAX

14. Council Tax liability is currently based solely on an assessment of property values and ignores the environmental impact of energy use within a property.

15. As with vehicle excise duty, council tax payments could be set by reference to the energy rating of a property, as well as property value (leaving the total amount of income recovered unchanged so that there is no net cost to the Treasury).

16. In the short term to medium term, council tax rebates could be given for households installing energy efficiency and/or microgeneration (with higher rebates or rebates over a number of years for higher cost measures).

17. Experience of the Centrica/Braintree initiative, where a rebate is available for certain energy efficiency measures, suggests that this could be a particularly effective and potent measure.

STAMP DUTY EXEMPTION/REBATE

18. We note that the Chancellor is already proposing to deploy this measure within a limited sector of the new build market. We believe consideration should be given to extending this measure more widely to ensure that there is a strong incentive to promote low carbon solutions across the whole housing market—not just new build. We also suggest that the threshold for qualification should be lower in the existing homes market because of the higher cost of improving the energy performance of existing buildings.

TAX EXEMPTION ON EMPLOYER SUPPORTED GREEN LOANS

19. Allowing employers to provide loans to employees to cover the cost of installation of energy efficiency/microgeneration measures (repayable via “salary sacrifice”) without requiring any benefits accruing under such loans to be declared for tax and NICs purposes. Thus saving the employer the cost of employer’s NIC and the employee both NICs and tax.

20. Such measures have already proved very successful in other areas, such as home computers and provision of bicycles.

TAX ALLOWANCES ON CAPITAL EXPENDITURE

21. Allowing individuals installing microgeneration to claim tax relief on the capital cost of the installation. This measure would have the major benefit of reducing the capital cost of purchasing/installing some of the more costly technologies in a similar way to business which already benefits from similar allowances.

TAX CREDITS AGAINST LOANS

22. Allowing individuals obtaining loans (or mortgage extensions) specifically for the purposes of funding major energy efficiency/microgeneration installations (above a *de minimis* level) to off-set the cost of the annual loan repayments against their annual tax liability). Such mortgages are particularly attractive where any increase in mortgage repayment costs to cover, for example, investment in energy efficiency and microgeneration are, in effect, self-financing because they can be offset by lower annual energy costs.

MEASURES TO INCENTIVISE LANDLORDS

23. The “Landlord’s Energy Saving Allowance” currently provides up-front relief, for landlords, on capital expenditure for installations of loft, cavity, and solid wall insulation in rented accommodation. However, there is no equivalent relief for investments in other forms of energy efficiency and microgeneration.

24. The Treasury has advised that the current legislative arrangements cannot be extended to include these measures. Consequently new legislation is needed to extend this form of incentive to these measures to ensure that the benefits of improved energy efficiency and microgeneration can be extended to rented properties reducing carbon emissions and delivering lower cost energy to tenants.

REDUCED PLANNING GAIN SUPPLEMENT

25. Kate Barker’s 2004 report on housing supply recommended that the Government should actively pursue measures to share in the windfall development gains accruing to landowners when they sell land for housing. She suggested the introduction of a “planning gain supplement” as a way of doing this.

26. Developers could be incentivised through liability for a reduced supplement for new build that reaches certain sustainability criteria (including microgeneration).

A TAX ALLOWANCE FOR COMPANIES TRAINING INSTALLERS AND SPECIFIERS OF ENERGY SAVING/MICROGENERATION EQUIPMENT

27. There is an increasing need for trained and accredited installers and specifiers of energy efficiency measures and microgeneration. Many installers/specifiers are small scale or sole traders few of whom are able to take on and train apprentices as it reduces their own productivity while providing training.

28. The ability to offset training time and costs against their tax bill could be a useful incentive to overcome this problem. This could be achieved through a rebate on tax for heating, insulation, and microgeneration installers and specifiers if they take on apprentices.

The Micropower Council

January 2007

Further supplementary memorandum submitted by the Micropower Council (Cit 34b)

EXPORT REWARD AND FEED IN TARIFFS

EXPORT REWARD

1. The Committee has asked for clarification of the arrangements for “export reward”.
2. As Dr MacLean noted, the Electricity Networks Strategy Group (which is co-chaired by the DTI and Ofgem) established a project to consider the issues associated with payment to domestic scale generators for electricity exported to the grid.
3. The project team was drawn from a wide spectrum of industry players including suppliers, generators, trade associations, the EST, Ofgem and DTI. The initial phase of this project, to understand the current arrangements for export reward and identify possible options for change that would improve suppliers’ ability to offer a “fair reward”, is now complete and the final report from the project has been published. The report can be found at: <http://www.ensg.gov.uk/assets/dgdti0007701.pdf>
4. The conclusions that the Micropower Council draws from the work of this project are given below.
5. In summary:
 - most large suppliers and some small suppliers operating within the domestic market are offering to buy exported energy from customers with microgeneration but the structure and value of the tariffs vary considerably;
 - the tariffs for exported electricity range from just under 4p/kWh up to the price charged for the import (roughly 9–11p/kWh depending on region);
 - transaction costs mean that, in many cases, the direct commercial value to suppliers purchasing from domestic scale customers is much less than the tariff offered and can even be negative (particularly for the very smallest exports);
 - arrangements where suppliers pay more for the electricity than it is worth are unlikely to be sustainable in the long term; and
 - an additional payment may be available for renewable generators who are entitled to ROCs.³⁷ However, transaction costs and complexity of the Renewables Obligation mean that many do not claim the ROCs they are entitled to.
6. In light of the above, the Micropower Council believe that further changes are required to minimise the transaction costs associated with processing exports. However even if these measures are fully implemented the commercial value, to a supplier, of electricity exported from microgeneration is likely to remain relatively low. Consequently, further Government intervention is required to promote the uptake of these technologies. A mechanism, which we support, is to extend our proposals for the treatment of renewable heat under the Energy Efficiency Commitment (which we have previously shared with the Committee and which is also described in further detail in the accompanying Appendix Two) to micro-electricity.
7. Further detail on the current treatment of exported electricity to support these high level conclusions is given below.

WHAT SUPPLIERS CURRENTLY OFFER

8. The export of electricity from domestic scale installations is still relatively new and the volumes of electricity being exported make up an extremely small amount of the total electricity mix; consequently purchase of export from these generators has not been a major element of all suppliers activities and not all suppliers systems are designed to easily accommodate customers that export as well as import power at the domestic level. In addition, the arrangements that would allow suppliers to gain any direct financial benefit from the electricity they purchase are quite complex with high associated transaction costs (relative to the value of the electricity produced).
9. Nevertheless, most of the large suppliers and a number of smaller suppliers already offer to purchase electricity exported from microgeneration.
10. Separately, generators that produce electricity from renewable sources are also able to claim Renewable Obligation Certificates (ROCs) for each MWh of electricity they produce³⁸ and these also have a financial value to suppliers. Most suppliers that offer to purchase the export from domestic scale generators also offer to purchase their ROCs; in some cases the price offered is included within the export tariff and in other cases an additional payment is made for the ROC.

³⁷ Renewables Obligation Certificates.

³⁸ NB: ROCs are available for all eligible electricity produced, not just the electricity that is exported.

11. The following table provides a summary of the type of tariffs that are available although please note it is not fully comprehensive and tariffs do change.

Comment	Price per kWh
Bespoke price—depending on technology	Varies
For renewable electricity only—price for ALL electricity produced (not just export) no separate payment for the ROC	4.5p/kWh
Exported electricity	3.8p/kWh
ROCs (on total renewable electricity)	4p/kWh
Exported electricity	Export = import price (approx 9–11 p/kWh depending on region)
Separate additional payments may be made for ROCs (at least one of the suppliers offering this type of tariff will make an additional payment for ROCs)	
Quarterly/annual payment independent of actual amount of electricity produced/exported	£?/yr

COMMERCIAL VALUE OF EXPORT TO SUPPLIERS

12. The full commercial value of the export to the supplier is complex to analyse and assess. The ENSG project concluded that where a supplier registers the customer within the industry's settlement arrangements then the exported electricity is likely to be worth, very roughly, 4p/kWh.³⁹ However, this value has to be set against the costs suppliers incur when they register the customer. These costs include the costs of the agents they must use to process customer meter information (estimated to be somewhere between £10 and £20 per year) and suppliers' own processing costs (which are much harder to estimate but could be approximately £15 per year or even higher). The table below shows the net value of each unit of electricity exported as a function of the amount of electricity the customer exports, based on these indicative costs and values.

Estimated net commercial value of export to a supplier in p/kWh exported per year for different levels of export and cost assuming an energy value of 4p/kWh

<i>Costs to be covered</i>		
Units exported kWh/pa	Agent costs only (£15 pa)	Agent costs and supplier costs (£30 pa)
<i>Net commercial value per unit in p/kWh</i>		
250	– 2.0	– 8.0
500	1.0	– 2.0
1,000	2.5	1.0
2,000	3.3	2.5
3,000	3.5	3.0

13. As the table shows, the impact of the agent and supplier costs quickly absorbs most of the value of the exported electricity where export volumes are low. For comparison, 1kWp of PV produces approximately 800kWh of electricity not all of which would be exported.

14. In practice, for a variety of reasons, most suppliers do not register their customers' export and so receive no direct financial value for the electricity they buy.⁴⁰ Any value they do receive is likely to be indirect via the error smearing arrangements in the industry's settlement arrangements, customer retention, and the value of information obtained under customer trials.

15. A similar problem exists under the RO and one supplier has advised us that only approximately 1% of its customers with eligible renewable technologies actually claim the ROCs they are entitled to.

³⁹ The range of values is quite wide and depends on a number of different factors. It should also be noted that wholesale prices have fallen since this analysis was completed.

⁴⁰ We understand that by November 2006 only 17 export meters had been registered although that number may be higher by now.

GERMAN FEED-IN TARIFFS

16. The Committee has also asked for further information on the feed-in tariff arrangements in Germany. As the Micropower Council is not familiar with the detailed operation of the German arrangements we sought the advice of a Dutch colleague who has far greater expertise in this area and we would therefore like to acknowledge and thank Mr Michael Colijn for his assistance in helping us to prepare the following summary.

Legal basis of feed in tariffs

17. The payments that must be made for electricity from renewable and gas fired CHP are covered by two laws. The first (the Renewable Energy Law) covers payments to producers of renewable electricity and, at the householder level, covers electricity from PV and biomass fired CHP. The Act also covers wind connected at medium level voltages but, as yet there is no specific provision for electricity from domestic scale wind installations. The second (the CHP Law) covers electricity produced by gas fired CHP, including domestic scale micro CHP.

Description of mechanism

18. Both laws specify the amount that must be paid to the electricity producer and require suppliers to levy a charge on all consumers to cover this cost. The current charge is approximately 0.1€ cents/kWh, or roughly €10–€15/customer/year. This means that, as with the UK's Renewables Obligation, the cost falls on all customers rather than the tax payer.

Feed in Tariff

19. The tariffs are technology specific and are paid for each kWh of electricity EXPORTED to the grid system. The consequence of this is that where the feed in tariff is higher than the price the customer pays for imported electricity (PV and biomass fired CHP) the generators are connected so that all the output is exported to the grid. The tariff the customer receives is guaranteed for 10 years from the time at which the generator is connected, so that the customer/generator has a guaranteed income stream, per kWh, for the first 10 years. It is not clear what happens at the end of this 10 year period.

20. The domestic tariffs for the different technologies are summarised in the table below (with the price in p/kWh based on an exchange rate of £1 = €1.5).

<i>Domestic scale Technology</i>	<i>€ cents/kWh</i>	<i>p/kWh</i>
PV	50	33 p/kWh
Biomass fired CHP	25	17 p/kWh
Gas fired CHP ⁴¹	Approx 10	7 p/kWh
Cost of imported electricity	Approx 20	13 p/kWh

21. For comparison, the UK's Renewables Obligation subsidy (which is additional to any value obtained from the electricity produced) is worth something less than 5p/kWh for renewable electricity technologies.

Other European Feed-in tariffs

22. A number of other European countries also have similar arrangements in place including, for example:

- France which currently pays 53 € cents /kWh for PV (35p/kWh);
- Spain which currently pays 40 € cents /kWh for PV (27p/kWh);
- Switzerland (rate not known);
- Italy (although the administrative arrangements are very complex) ; and
- Netherlands which allows “net metering” up to 3000kWh/year for renewables.

SUPPLEMENTARY EVIDENCE FROM MR SOWDEN

23. When I gave evidence on 29 November to the committee under its “Climate Change: The Citizen's Agenda” inquiry, I undertook to follow up in writing on two specific points. With apologies for taking some time to do so, I hope the following helps.

⁴¹ The price for electricity from gas fired chp is made up of three different components: the f-i-t; a payment from suppliers (the law specifies what the minimum payment must be); and a tax rebate on the gas.

Micropower Council proposal to promote renewable heat—clarification

24. The first of these related to the table in our submission whose purpose was to provide an indication for comparison purposes of the relative costs of different measures to reduce carbon. There was some confusion during the oral evidence session, including on my part, that the “cost” of our proposed mechanism to promote renewable heat was negative. On further examination, I can confirm this is not the case, but that the cost of our proposed heat measure is indeed a positive cost—we simply included the approximation symbol “~” to indicate this was the case. This was incorrectly read, including by me, during the evidence session, as a minus sign, “-”.

25. Assessing that cost is quite difficult; a robust analysis would entail assessment of all the costs and benefits of the measure to determine the net cost of carbon saved. It is beyond the resources of the Micropower Council to undertake such assessments ourselves which is why, in part, we have relied on the analysis of others for the other support mechanisms.

26. Our own calculations are somewhat simpler and relate solely to the theoretical cost a supplier might incur in supporting a micro-heat technology under the EEC arrangements after application of the “weighting factors” we are proposing (see our second point of response below). Our analysis takes no account of the costs to the customer of installing such measures or the value of the benefits that they obtain from having installed them so the true cost of carbon after accounting for the cost and benefits to the consumer could be higher or lower than our quoted value. This uncertainty is why we were keen to ensure that our figures were shown as an approximation—in future we will write this in full to avoid this pitfall.

Micropower Council proposal on renewable heat—supplementary detail

27. The second follow-up relates to the chairman’s request to follow up with a more detailed supplementary piece of evidence on the precise nature of our renewable heat proposal. I have appended to this Appendix a copy of the proposal, now formally submitted as a joint proposal from ourselves, the Renewable Energy Association, the Solar Trade Association, and the Combined Heat and Power Association, to Government—an earlier version of which was also provided with the Micropower Council’s evidence to the Committee.

28. Based on our experience of other mechanisms, we believe that any effective support mechanism for domestic-scale renewable heat must:

- *be simple, transparent and cost effective.* It is essential that transaction costs are kept to an absolute minimum so that any value is not lost in administration (this is a key and critical lesson we have learnt from the operation of the RO for small players);
- *have a clearly defined future* (at least 10 years and preferable much longer) and should not be subject to the stop start vagaries of Government funding requirements in order to create long term market confidence. This implies an internally funded scheme independent of Government funding;
- *provide an upfront cost reduction for customers.* A key barrier to uptake of renewable heat, particularly for domestic consumers, is the higher capital cost of renewable heat technologies. Even where economic, long pay back periods (real or perceived) can act as a barrier to uptake. It is therefore essential that, for small customers, any support is accessible at the point of installation and does not take the form of a future, variable, small annual revenue stream. Again this is a major disadvantage with the RO for the smaller player;
- *deliver an appropriate level of support and alleviate current market distortions.* Support should be sufficient to catalyse the development of the renewable heat market and ensure the evolution to a mass market demand/capability as early as possible. This would also help to alleviate current distortions between the renewable heat and renewable electricity markets; and
- *ensure there is a clear route to market for these products through installers and product suppliers.* The majority of domestic scale heat systems are replaced when a system fails rather than as part of a planned replacement—it is therefore essential that any support mechanism also ensures that there is a clear route to market for these products through installers and product suppliers.

29. Our proposal on renewable heat for the domestic sector, we believe meets all these criteria and a brief overview is attached below, with the full proposal attached as a supplementary brief to this letter:

- (a) The proposal is based on the Energy Efficiency Commitment (EEC) the current main programme for delivery of energy efficiency in the household sector.
- (b) EEC operates by taking the annual energy savings from a measure (for example cavity wall insulation), and estimating a single value for them that takes account of the expected lifetime of the measure, the carbon intensity of the fuel they displace, and using a 3.5% discount rate. In this way, EEC is based on a “present value” of the expected, carbon-weighted, lifetime savings.
- (c) DEFRA estimated when setting out the statutory instrument for the current EEC programme that the 2005–08 cost of the programme would be £1.25 billion, delivering 130TWh of “fuel standardized lifetime discounted” savings. This equates to approx £10 for each MWh of so-called “EEC credits”.

- (d) On its own, this level of support would not yield sufficient incentive to make a tangible difference to the uptake of renewable heat micropower technologies.
- (e) The Micropower Council proposal is that weighting factors could be used within EEC in order to boost the level of support available to renewable heat micropower technologies to a level more likely to influence take-up (perhaps with current grant levels being a useful starting point).

EXTENSION OF THE ENERGY EFFICIENCY COMMITMENT TO CREATE AN EFFICIENT AND FAIR SUPPORT MECHANISM FOR RENEWABLE HEAT

30. Renewable Heat is a major component of the micropower portfolio and can be used to displace fossil fuels through domestic installations and/or via renewable fuel based CHP and community heating systems. Renewable heat technologies can play a major role in meeting all four of Government's White Paper objectives through, for example:

- *Reducing Emissions*: ~1MtC of annual carbon savings can be achieved by any of:
 - 1 million domestic biomass-fired heating systems (1 in every 26 homes); or
 - 7 million solar hot water systems (1 in every 3–4 homes); or
 - 1 million heat pumps displacing electrical heating systems (1 in every 26 homes);
- *Supply Security*: ~1GW of new CCGT baseload power station's electricity (or the gas to needed to produce this amount of electricity) would be displaced by any of:
 - 1 million domestic biomass-fired heating systems (1 in every 26 homes); or
 - 7 million solar hot water systems (1 in every 3–4 homes); or
 - 1 million heat pumps displacing electrical heating systems (1 in every 26 homes);
- *Home Heating and reducing fuel poverty*: fuel consumption, and therefore fuel costs, may be either eliminated or permanently lowered,⁴² particularly when micropower technologies are combined with energy efficiency measures. In addition, many micropower technologies are particularly suited to tackling fuel poverty in hard-to-treat and off-gas network properties;
- *Competitiveness*: The use of micro renewable heat technologies enhances competition in the energy sector and has the potential to provide a real alternative to network-based, gas and electricity and other conventional heating fuels.

31. This analysis only considers the smaller end of the micropower market—the market for domestic scale appliances. The total potential contribution from renewable heat production which includes larger applications and community schemes is considerably greater.

32. The Micropower Council considers that it is essential that new measures, tailored to the needs of the renewable heat industry, are introduced to support its development for two critical reasons:

- first, the heat market in the UK is enormous and the potential for energy and carbon savings that can be delivered by tackling even a relatively small proportion of the heat market using renewable heat is a prize that must be won; and
- second, to enable the renewable heat market to evolve quickly into a mainstream industry delivering early access to the benefits of economies of scale and consumer choice that will make low energy/low carbon heating solutions a real, cost effective, alternative to conventional fuels.

33. Such measures could also be used to address some of the current disparities between the treatment of renewable heat and other renewable solutions—leading to more efficient long term outcomes and the removal of short term distortions.

34. Therefore the Government needs to act quickly to implement a support mechanism (or mechanisms⁴³) for renewable heat to help catalyse the development of this important part of the energy industry. We are supportive of work by the Renewable Energy Association to try to find an appropriate mechanism for supporting larger scale renewable heat technologies.

35. Based on our experience of other mechanisms, the Micropower Council believes that to provide effective support for domestic-scale renewable heat any support mechanism must:

- *be simple, transparent and cost effective*. It is essential that transaction costs are kept to an absolute minimum so that any value is not lost in administration (this is a key and critical lesson we have learnt from the operation of the RO for small players);

⁴² Many renewable heat technologies rely on wind and solar energy where the fuel is free. Other technologies such as, for example, biomass and heat pumps use clean fuels and/or use less fuel than the heating source they are displacing.

⁴³ Our proposals focus on the needs of the smaller, domestic scale, end of the renewable heat industry. A different mechanism may be more appropriate for larger scale renewable heat technologies.

- *have a clearly defined future* (at least 10 years and preferable much longer) and should not be subject to the stop start vagaries of Government funding requirements in order to create long term market confidence. This implies an internally funded scheme independent of Government funding;
- *provide an upfront cost reduction for customers.* A key barrier to uptake of renewable heat, particularly for domestic consumers, is the higher capital cost of renewable heat technologies. Even where economic, long pay back periods (real or perceived) can act as a barrier to uptake. It is therefore essential that, for small customers, any support is accessible at the point of installation and does not take the form of a future, variable, small annual revenue stream. Again this is a major disadvantage with the RO for the smaller player;
- *deliver an appropriate level of support and alleviate current market distortions.* Support should be sufficient to catalyse the development of the renewable heat market and ensure the evolution to a mass market demand/capability as early as possible. This would also help to alleviate current distortions between the renewable heat and renewable electricity markets; and
- *ensure there is a clear route to market for these products through installers and product suppliers.* The majority of domestic scale heat systems are replaced when a system fails rather than as part of a planned replacement—it is therefore essential that any support mechanism also ensures that there is a clear route to market for these products through installers and product suppliers.

A PROPOSAL FOR RENEWABLE HEAT

36. Working with our members, other industry players, and trade associations the Micropower Council has developed a model which meets these criteria based on the simple expedient of extending the current EEC arrangements to include additional provisions for renewable heat technologies that displace conventional fuels for heating in domestic premises. The key elements of this model are summarised below.

- Installation of new renewable heat to meet domestic heat demand will qualify for inclusion in the EEC based on an assessment of the net carbon saving over the expected life of the renewable heat system compared to the heating system being displaced. For premises that are currently unheated, the savings would be assessed against an assumed carbon burden for a typical heated household. All forms of renewable heat would be eligible, subject to meeting appropriate accreditation requirements and forming part of a “scheme” approved by the regulator.
- Renewable heat solutions are currently less cost effective, for suppliers, than other forms of action available to them under the Energy Efficiency Commitment. Therefore, to ensure that renewable heat can compete with other energy efficiency measures (or other carbon reduction actions available to suppliers under the EEC), renewable heat measures should automatically qualify as a specific form of innovative action—attracting a larger credit towards a supplier’s EEC target than some other forms of action via use of some form of weighting factor(s). This approach is directly analogous to proposals being developed for “banding” under the RO and recognises that different technologies may need differing levels of support at different stages of their evolutionary cycle.
- Over time, as the cost of energy efficiency measures increase, and the market capability for renewable heat expands, bringing down costs, the weighting factors would be expected to decrease. In order to facilitate this we suggest there should be a regular review, say every five years, of the weighting factors. This review would also be used to ensure that the mechanism does not lead to an unnecessarily high reward for any technologies that are, or are almost, competitive without support.
- To give confidence to the market, Government should commit to a long term future for the scheme. We note Government commitment to extending the EEC to at least 2020.
- The overall EEC target, for EEC3, should be set to a level that recognises the contribution micro-heat technologies can make to reducing carbon emissions under this proposal, with any additional obligations being allocated between the domestic gas and electricity markets in proportion to the total carbon contribution from use of gas and electricity to provide heat to the domestic sector. It will be essential to ensure that the targets are set at a level that ensures that the EEC brings forward both energy efficiency and micro heat measures and delivers real market transformation.⁴⁴
- The mechanism could be introduced fairly easily using the provisions within the Climate Change and Sustainable Energy Act, together with appropriate changes to the EEC secondary legislation.

⁴⁴ Longer term targets should reflect any statutory targets introduced under the provisions of the Climate Change and Sustainable Energy Act.

COST OF MECHANISM

37. The cost of the support to renewable heat will depend on the weighting factors that are set and the total energy savings delivered using heat rather than measures available to suppliers under EEC.

38. An indication of the relative costs⁴⁵ of different mechanisms for displacing carbon are shown in the table below; the figures are not directly comparable because of difference in the calculational methodologies.

<i>Measure</i>	<i>Cost of Carbon (£/tonne C)⁴⁶</i>
Renewables Obligation (NAO/Oxera) ⁴⁷	180–510
Renewables Obligation (DEFRA) ⁴⁸ includes assessment of benefits and costs	175
Renewable Heat displacing gas (EEC with weighting factor 3—cost to suppliers only, ignores benefits)	approx £200
RTFO ⁴⁹ (DfT)	Slight –ve to 350
Social Cost of Carbon (Government Economic Service) ⁵⁰	£35–£140

BENEFITS OF THE PROPOSAL

39. The move to mass market capability should deliver lower costs to consumers earlier than would otherwise occur and allow micro-renewable heat technologies to contribute to meeting Government energy and environmental policy objectives:

- It is simple, transparent and cost effective with minimal transaction costs. Use of an existing mechanism will allow early adoption and reduce the administrative costs of creating and maintaining a new scheme. Suppliers are expected to be keen to ensure that costs of providers and installers of equipment are maintained at a competitive level ensuring that the benefit of the scheme is shared with the consumer.
- It provides a stable long term funding framework independent of the stop start vagaries of Government funding requirements providing confidence to the market to invest to expand capacity and bring down costs in the longer term. The weighting and review mechanism ensure that the benefits of cost reductions can be passed through to customers over time.
- The use of a lifetime discounted energy saving delivers the value up front which can be used to mitigate the higher upfront cost of renewable heat technologies that currently act as a barrier to uptake.
- The use of appropriate weighting factors can be used to provide appropriate rewards to ensure the take up of renewable heat measures; weighting factors can also be used to deliver parity with the existing support mechanism for renewable electricity.
- It creates an incentive for gas and electricity suppliers to promote the installation of micro renewable heat which will help to deliver a route to market for these products through creating commercial alliances with installers and product suppliers.

WIDER ISSUES

40. Looking beyond renewable heat, if this proposal is adopted, it may be appropriate to consider expanding it to accommodate renewable electricity in a similar manner—with weighting factors designed to give an equivalent reward to that would have been available under the RO with substantially reduced transaction costs—and possibly allowing the EEC to evolve into an efficiency and microgeneration (heat and power) commitment.

The Micropower Council

February 2007

⁴⁵ For example, the DEFRA methodology includes both costs and benefits in the analysis whereas the assessed cost of the proposed mechanism takes no account of the benefits delivered.

⁴⁶ Current costs quoted for EEC 2 indicate that energy efficiency measures cost ~£10/MWh per fuel standardised lifetime discounted TWh saved (based on an assumed cost of £1.25 billion and a total supplier target of 130 fuel standardised lifetime discounted TWh). This equates to ~£3.50/MWh of gas displaced once the fuel standardisation factor has been taken into account implying a cost to suppliers of carbon saved in the region ~£65/tonne (the effect of discounting has not been taken into account). The calculation does NOT take any account of the costs and benefits to consumers installing these technologies.

⁴⁷ http://www.nao.org.uk/publications/nao_reports/04-05/0405210_uk_renewables.pdf

⁴⁸ <http://www.defra.gov.uk/environment/climatechange/uk/ukccp/pdf/synthesiscppolicy-evaluations.pdf>

⁴⁹ http://www.dft.gov.uk/stellent/groups/dft_roads/documents/pdf/dft_roads_pdf_610329.pdf

⁵⁰ <http://www.hm-treasury.gov.uk/media/209/60/SCC.pdf>

Memorandum submitted by the Energy Retail Association (CIT 36)

TERMS OF REFERENCE

This inquiry will examine how the ordinary citizen can change his or her lifestyle to minimise the impact of climate change and to mitigate its effects.

The Committee welcomes written evidence on all aspects of how individuals can be encouraged to help tackle climate change, with case studies and examples where relevant. As part of the evidence-gathering for this inquiry, Committee Members will evaluate the opportunities available for citizens to reduce their climate impact.

INTRODUCTION

The ERA, formed in 2003, represents Britain's domestic electricity and gas suppliers in the domestic market in Great Britain. All the main energy suppliers, operating in the domestic market, in Great Britain are members of the association—British Gas, EDF Energy, npower, Powergen, Scottish Power, and Scottish and Southern Energy. Since its inception, the ERA has ultimately focused on finding ways to continually improve customers' experiences with their electricity and gas suppliers. This means that we lead on issues such as:

- Tackling fuel poverty and protecting vulnerable customers.
- Delivering energy efficiency schemes.
- Ensuring good sales practice.
- Developing hassle-free systems for changing electricity or gas supplier.
- Developing industry standards for customer billing.
- Preventing debt and disconnections.

The Energy Retail Association (ERA) welcomes the opportunity to respond to the Environment, Food and Rural Affairs Committee's inquiry into climate change and the citizen's agenda. This is a particularly timely inquiry what with the recent publication of the Energy Review, the review of the Energy Efficiency Commitment (EEC) and an Energy White Paper due for publication around the turn of the year.

In addition, there has been a noticeable increase in the Government's activity in this area. Proposals which have been floated in the past few months include: household carbon allowances; calls for more energy efficient brown goods; and a call for microgeneration and smart metering trials. This coupled with the Prime Minister calling for household energy audits points to a realisation on behalf of the Government that action has to be taken, and quickly, if the UK is going to manage and contain the increase in domestic energy consumption.

As you will see below we have answered your questions in the order you have set them out. If you wish for us to expand in any way, please do not hesitate to contact us.

THE ERA RESPONSE

1. *What is the real scope for individual and local community action to contribute to tackling climate change? Some areas for possible consideration include:*

- increasing energy efficiency, in particular the delivery of the Energy Efficiency Commitment;
- reducing energy consumption—not only electricity, but also energy used in heating and transportation;
- the provision of desirable low carbon alternatives, such as energy saving lightbulbs or using public transport;
- the potential for, and barriers to, microgeneration;
- the potential for “smart metering”; and
- awareness of climate change and availability of information about the role of the individual in tackling the problem.

The Energy Efficiency Commitment

(i) The ERA has led the movement for the revision of EEC. In terms of targets, it was clear that between 2002 and 2005, EEC was a policy success, given that the targets were exceeded, and an estimated 0.4 MtC will have been saved by 2010. However, the current EEC2 programme has resulted in measures such as lighting measures, charitable schemes, boiler upgrades and DIY loft insulation being deemed less attractive and more costly to suppliers due to additional requirements imposed by Ofgem and DEFRA. In essence, there has been a predisposition towards cavity wall and loft insulation under EEC2 and little flexibility for suppliers to make a telling contribution from other products.

(ii) In addition, the ERA has called for the Government to separate the twin goals of EEC (achieving carbon reductions and reducing fuel poverty) as this leads to conflicting priorities which has only served to reduce the effectiveness and success in each of the aforementioned policy areas. It would be fair to say that the ERA now believes that given the greater emphasis on promoting domestic energy reductions and incentivising households to embrace energy saving measures, the EEC model is nearing the end of its effective shelf life.

(iii) In the short term the ERA recommends that the Government should introduce additional incentive mechanisms (whether within or separate from EEC) to support the roll-out of new technologies (ie microgeneration or ground source heat pumps) which could include multiple EEC credits in the early years to subsidise the initial start-up expenditure. In addition, suppliers should be given the latitude to innovate and experiment (for the long term) in order to fully take advantage of technological advances and the evolving marketplace. This should be undertaken in conjunction with Government and related stakeholders.

(iv) In the longer term the ERA would like to see the Government embark on a project, along with industry, to ascertain the best vehicle for driving forward domestic energy efficiency in the next decade. It is only by engaging in such a process that the Government will fully appreciate the needs of the market, along with the complexities that will need to be overcome. To date the policy formulation process has been limited in its scope and only adequate in its outcomes. The energy retail industry strongly believes that the Government cannot afford to miss the opportunity given to it by the surging public interest in climate change and the forthcoming Energy White Paper to make a demonstrable, practicable and unequivocal up-shift in the roll-out of energy efficiency measures and policies. The ERA is pleased to note that a will be holding an EEC consultation event in late September.

Reducing energy consumption

(v) Too much emphasis is placed on the efficiency of houses compared to the potential of energy demand reduction by households and this should also be addressed by Government in any policy review. With new technologies constantly being developed the ERA believes that the Government has to be more willing to experiment in the field of energy reduction—especially in heating systems and other energy-intensive domestic appliances. Low Carbon emitting lightbulbs should now be the norm and not the exception and the ERA are disappointed that this is not yet the case, especially given that by replacing every light fitting in the home with a low-energy bulb, the average family could save up to £240 per year. In addition the EST has calculated that if every UK home installed three compact fluorescent lights (CFLs) it would save enough energy to pay for all street lighting in the UK.

(vi) However, issues over cost and apparent consumer reluctance have to be overcome and the Government could play a role by subsidising the cost of CFLs and promoting the benefits they offer more widely.

(vii) Similarly, the Government should increase pressure on manufacturers to do more to make their products more energy efficient. This should include:

- Introducing minimum standards for standby power consumption.
- The statutory removal of the least energy efficient products from the market on a regular basis which would incentivise manufacturers to routinely innovate and improve their products.
- The widespread use of energy saving recommended labeling.
- Voluntary agreements with retailers (though the ERA are aware that work on this has begun within DEFRA).
- Tightening a wide range of product standards in conjunction with the EU.
- Taxing luxury or grossly inefficient products at a higher rate.

Low carbon Alternatives and microgeneration

(viii) The Government has a significant role to play in the promotion and widespread take-up of low carbon alternatives. As mentioned above, the tax system is one vehicle that could be used. Other initiatives could include the development of an innovation fund which could encourage the development of low carbon alternatives to current day products.

(ix) The new market in microgeneration has also brought new opportunities and the ERA are pleased that the Government has been pro-active in its support and promotion of the technology—especially with its backing of the Climate Change and Sustainable Energy Private member's Bill (which has now become law). However, more still needs to be done and the average cost needs to be lowered in the marketplace or better subsidised if it is going to attract mass-market appeal. Nevertheless, as with many new developments, it should not be viewed as a "one size fits all" and the Government should do more to promote specific products to the appropriate markets and not be overly simplistic in its targeting strategies.

(x) Similarly, smart metering has received a fair degree of publicity over the past few months. The ERA welcomes the idea of smart meters and it is now principally a question of “how” rather than “when” they are introduced to the British market. However, there are some difficult questions that still need to be answered—most importantly, who is going to pay for them and what impact will they have on consumer behaviour.

(xi) Smart meters could potentially transform energy use in UK homes but research suggests that only 3% of people say they will change their long term energy use if they had a smart meter. The introduction of smart metering would require a significant change to the existing metering infrastructure and substantial investment to support sustainability. The ERA has established an expert group of advisers which is currently working towards agreeing a viable commercial framework to encourage investment in smart metering—although it should be stressed this is at an embryonic stage. The group has agreed a set of fundamentals for smart metering to be introduced:

- a need for industry agreements and standards of interoperability to ensure that assets and services are sustainable;
- additional refinements to the regulatory regime that is currently in place;
- solutions to support prepayment metering; and
- solutions to allow access for gas and dual fuel customers.

2. What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

(i) Barriers to the uptake of climate change mitigation strategies at the domestic level include the following:

- Inertia amongst householders in the role they can play.
- Cost of undertaking energy efficiency action (including short-term costs v long-term benefits and cost savings).
- Lack of knowledge regarding the energy efficiency measures available in the marketplace.
- Lack of knowledge regarding the amount of energy which could be saved by installing energy efficiency measures.

(ii) The ERA has recently called on government to redouble its efforts to modify consumer behaviour in the light of recent pronouncements on the need to reduce domestic energy consumption. The energy retail industry has already spent £800 million on energy efficiency measures over the last three years, which avoided 15.5 million tones of carbon emissions. Over the next three years, the sector is expecting to spend a further £1.2 billion on energy efficiency measures in households across the country.

(iii) We feel that the need to challenge and change consumer behaviour should be viewed as a core aspect of any strategy planned for the future. A dedicated research-based energy efficiency consumer awareness campaign to tackle the status quo is much overdue from Government and although we welcomed the 2006 Budget announcement that funding would be provided for local authority-led publicity and incentive schemes, we believe this should be viewed as only a part of the solution.

(iv) The ERA also welcomed the announcement on Home Information Packs (incorporating Energy Performance Certificates) and believes this will be a policy in driving home the need for properties to be as energy efficient as possible. The onus will fall on the property owner and as they have a vested interest in obtaining the best price for their property it is logical that they should be the group that are incentivised to carry out the work. In addition, we recommend that the Government work closer with the EST, local government, community groups and other relevant stakeholders to fully address the ambivalence and ignorance surrounding domestic energy efficiency and its benefits.

3. How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

(i) Government should once again explore the opportunities presented by fiscal incentives in order to further boost customer interest and willingness to invest in energy efficiency measures. Such measures could take the form of a reduction in stamp duty, or a reduction in council tax, for energy efficient housing (the British Gas/Braintree Council trial is a useful example). The ERA believes that the decision on these options should be taken at a regional and local level, within a national framework, in order to fully exploit the opportunities that currently exist and recognise the demographic disparities in different parts of the country. Central and local government should work in conjunction on fiscal measures in order to develop a suitable position in terms of what is required and how it can be delivered.

(ii) The ERA agrees that a wholesale shift in public opinion must be achieved to ensure that individuals and households are encouraged to install energy efficiency measures. It should be acknowledged that fiscal measures in this area could make a significant contribution to delivering the household portion of the Government's domestic emission reduction targets.

(iii) The ERA would also urge the Government to work with suppliers to create the necessary conditions where customers are not only incentivised to purchase energy efficiency measures tools but suppliers are encouraged to sell energy efficiency solutions within viable market conditions.

(iv) Suppliers have undertaken a range of initiatives to promote the importance of energy efficiency within the community including activity in schools and view this as an essential part of the education and endorsement process. In addition, suppliers run a range of schemes targeted at the domestic market but marketed and delivered through community groups, charities and third-parties.

(v) The Energy Saving Trust are also recognised deliverers in the field of emission reduction advice and run schemes including Community Action for Energy (CAfE) and the Energy Certification for Schools.

(vi) The ERA believes that the time is now right for some of these schemes to be more closely-coordinated and calls on Government to develop a strategy that would enable this to happen. The ERA would like to see the Government undertake a holistic approach to the issues regarding the promotion and dissemination of energy efficiency advice and carry out research in order to identify the models that would best deliver results on the ground.

4. *What is the role of NGOs in delivering the "citizen's agenda" on climate change?*

(i) The ERA believes that NGOs have a fundamental role to play in the design, management and delivery of a framework aimed at promoting personal responsibility in the area of climate change. Organisations such as Greenpeace, WWF and Friends of the Earth need to extend their role beyond lobbying government for more action and resources to changing consumer behaviour.

(ii) Other organisations including the Sustainable Development Commission and charities including Forum for the Future provide a vital independent role to Government and have been vocal over the past few years on the continuing dangers poised by climate change and the need for individuals to recognise and respond to their personal responsibility in combating its growth.

(iii) The ERA would like to see the relevant NGOs taking more of a lead in the decision-making process going forward and engaging more closely with suppliers in order to identify opportunities and develop tangible solutions to the current barriers which exist in the market.

5. *Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?*

(i) Although the ERA recognises the merit in a personal carbon allowance policy it considers this to be a long-term aspiration and a proposal that requires a sizeable fiscal and logistical investment. However, within the right context a model which combined the right balance of "carrot" and "stick" and took into account the numerous variables that exist—ie the infirmed who might be housebound and therefore forced to use more energy or large families on fixed incomes—should be welcomed if a feasible and workable model could be designed that did not penalise sections of society unfairly.

(ii) The future model of EEC (or its replacement) should be flexible enough to incorporate, and indeed promote, trading across the carbon-reducing policy measures suite. This could possibly include white certificate trading and its variations as well as the exploration of personal carbon allowances and cap and trade arrangements.

(iii) The government have to take time to work out the practicalities of any such scheme as it could easily be accused of sending out mixed messages because on the one hand it is supporting the growth in the aviation sector by expanding airports, and refusing to consider taxing aviation fuel, but on the other hand, it wants to compel people to reduce their emissions to combat climate change. In addition, the ERA believes that there might be a genuine view held by some that a personal trading scheme now would shift the responsibility to the individual and away from government without offering them a legitimate choice.

(iv) Other measures that the ERA has tentatively discussed include carbon loyalty cards, the use of carbon offsets at the point of purchase, league tables (regional and national) and appropriate carbon labeling on goods. However, as with personal carbon allowances, the right framework has to be in place and the appetite has to be generated for the policies to have any chance of being successful.

Energy Retail Association

September 2006

Witnesses: Mr Duncan Sedgwick, Chief Executive, and Mr Russell Hamblin-Boone, Head of Corporate Affairs, Energy Retail Association, gave evidence.

Q402 Chairman: Could I first welcome on behalf of the Energy Retail Association, Mr Duncan Sedgwick, their Chief Executive, and their Head of Corporate Affairs, Mr Russell Hamblin-Boone. Could I apologise, gentlemen, that we have kept you waiting a little bit beyond the advertised time, but, as you were kind enough to sit in on the earlier session, you will know that our time has not been wasted on our voyage of discovery in understanding this particular area and, hopefully, you have got an idea of some of the lines of inquiry the Committee wants to take. You represent what I call the trade end of the business, you are the sellers of power, heat and other products in the energy field. Would I be right in saying that over the last 12 months some of the people that you represent have seen a very steep increase in their profitability at a time when energy prices have been rising. Is that correct?

Mr Sedgwick: No, that is not correct. In the retail end of the market none of the retailers at this moment are making any form of significant profits at all. Any profits that are being made are in other parts of the businesses.

Q403 Mr Drew: Can I ask where?

Mr Sedgwick: A number of the companies have different parts of the groups so some of them, for instance, have energy networks so those are regulated businesses so they will be able to make a return on those.

Mr Drew: Can you spell it out absolutely. Which part of the energy business is making money out of this, because that is quite important to us?

Q404 Chairman: I just ask that because I see from the introduction to your evidence it says here: "All the main energy suppliers operating in the domestic market in Great Britain are members of the Association. British Gas, EDF Energy, npower, Powergen, Scottish Power and Scottish and Southern Energy". Some of the results of these companies that I have seen in the public print do indicate that in overall terms they have been increasing their profitability at a time when the price of power has been going up. Are you telling us that is not correct?

Mr Sedgwick: In overall terms if you look at their group results a number of them are continuing to be profitable, some of them have increased their profits. Those profits are not coming in the bit of the market that I represent them on, which is on the retail side. Where they may be doing okay is, as I said, in the networks businesses which are regulated businesses or, alternatively, in some of their businesses where they have generation assets some of those generation businesses are certainly continuing to make returns. That is a sizeable change over the course of, say, the last five years because if we had been sat here five years ago as far as the electricity generating businesses were concerned they were making next to no profit. One of the difficulties with that, of course, is that you are not making profits such that you can invest in new equipment and new plant for the

future. Certainly as far as the bits of the businesses that I represent them on they are not making increased profits.

Q405 Chairman: For the avoidance of doubt, would you like to define what "retailing" in this context means?

Mr Sedgwick: Retailing as far as we are concerned is the buying and selling of gas and electricity. What happens is that my members have to buy that and they then sell it on to the end customer.

Q406 Chairman: I think from the public's point of view they may not necessarily make that important distinction.

Mr Sedgwick: I do understand that and we accept the fact that there are issues like that. For instance, if we look at gas, if I go back over three years, on average retail prices that we would pay as end customers for gas have increased by something on average just below 100%. As far as wholesale prices, which are the prices that my members have to pay in order to buy the product, those have gone up on average by something like 170%. There has been a considerable increase in those wholesale prices which has not been passed onto the end customer.

Q407 Patrick Hall: Do you know what the networks are that Mr Sedgwick referred to, these are the profitable aspects of the business?

Mr Sedgwick: The networks businesses are regulated so they are restricted.

Q408 Patrick Hall: What are they?

Mr Sedgwick: That is the wires, the cables and the gas pipes that go under the road or in the air as far as infrastructure.

Q409 Patrick Hall: The infrastructure?

Mr Sedgwick: The infrastructure, yes.

Q410 Chairman: In your evidence in section 2(ii) you talk about: "The energy retail industry has already spent £800 million on energy efficiency measures over the last three years . . .", with a commendable saving of 15.5 million tonnes of carbon emissions. However, there was evidence that we received at our last session, I think it was from Ofgem, indicating that the pricing mechanism effectively meant that the customer had paid for that energy efficiency saving because the cost of that was incorporated into the price of the power that they bought. Is that correct?

Mr Sedgwick: Yes. What happens is that approximately £9–£10 per fuel is added on to a bill so £9–£10 for gas, £9–£10 for electricity, and that is collected from the customer and those monies are then spent by the companies through the EEC mechanism, the Energy Efficiency Commitment, and those are spent on energy efficiency measures.

Q411 Chairman: If we had been writing that paragraph with absolute pinpoint accuracy we should perhaps have made it clear that the public

were paying for this energy saving programme which is represented by EEC. When customers get their bills, are they aware that is what some of this money is being used for?

Mr Sedgwick: No, it is not put on as a separate line on the bill and that is certainly something that we have had some discussions with Government about on the current EEC mechanism which runs from 2005–08, that is the EEC2 mechanism, as to whether there should be a separate line and the eventual decision was no, that would not be the case. Certainly as far as what happens with EEC3, which will be kicking in in 2008, that may well be something that will happen and there will be that separate line entry to show to every customer that they are paying for energy efficiency measures.

Q412 Chairman: Do you think it is right as a policy, therefore, in respect of EEC that the Government should be the determinant of the way in which the customer's resource is deployed given that up to now the Government has defined a particular group of people who they want to see EEC have as its priority target audience and not a wider community of users of energy?

Mr Sedgwick: I think one of the difficulties here is the push and pull approach. Would this be happening if Government were not requiring this to occur? I think what we have seen, and we have heard from earlier evidence, is quite a changing marketplace in the course of the last 18 months. I think in the last 18 months, certainly as someone with years of experience within this sector, I do not think I have ever seen so much either internal or external discussion about issues to do with energy efficiency. My overall view would be that we should be looking for customers to be demanding these things. I think the EEC mechanism has done a very good job. Historically, it has seen considerable improvements as far as energy efficiency is concerned. I think that there is a lot more that can be done as far as EEC3 is concerned in 2008 to start changing some of the dynamics and some of the work that is done, but I do not think I would wish to sit here and say that I believe that the approach that has been followed in the past has necessarily been wrong. I think the EEC mechanism can and certainly should be changed now going forward because I think the fact that some of the dynamics in the marketplace, for instance we have been hearing from B&Q on some of the things that they are doing, I think that demand from customers are now starting to come through.

Q413 Chairman: You are talking about some of that demand and we heard from B&Q the difficulties they are having in spite of some very clear messages about payback on things like energy saving light bulbs. There is almost a sort of reluctance, perhaps I might even use the word "apathy", amongst the consumer to say, "Oh, it is all a bit too difficult this really". When you look at the hard work, in fairness, that some of your members are doing to try and promulgate the message to their customers through publicity material and the work of the Energy

Saving Trust, how do you overcome this apathetic, sluggish response from the bulk of the public to really get stuck in on this particular challenge in terms of reducing emissions?

Mr Sedgwick: I think the EEC mechanism has done some of that.

Q414 Chairman: But only in those areas where it has been applied, particularly those which are suffering from fuel poverty. I do not personally disagree with that because that is a good policy objective, but it does mean that all the others have not been touched by it.

Mr Sedgwick: Approximately half the EEC money that is spent on that is not necessarily just spent on that, 50% is spent on fuel poverty, it is spent in the priority group which is not quite the same footprint as fuel poverty. For the purpose of this, we can probably regard it as approximately the same though. The other 50% is very much spent in the able to pay. I think one of the challenges as far as EEC is concerned is EEC is a really a dual tool that is looking at carbon saving and also at fuel poverty. Our very strong view is that, although it has achieved a great deal in some of those areas, this may now be the time to divide that into two, to have a mechanism very clearly focused on carbon-saving and another mechanism very clearly focused on fuel poverty, because very often some of the work that is done in order to take a home and a family out of fuel poverty does not have the impact of saving carbon, for very good reasons, because people take that saving in comfort and that type of issue. I think going forward there is a strong case to divide those two up. As far as what we have had in the past though, the tool has been effective in making savings and in getting a number of properties into a much better position than they were before. There continues to be, if you look at fuel poverty, a much wider range of social-type issues, income issues, quality of housing, *et cetera*. I think for the first time probably in my 30-odd years in this sector though because of the amount of debate and discussion we are now having on how do we save energy, how do we educate people and what is the method by which people understand that there are things they can do, they do not necessarily have to go out there and buy expensive wind turbines for £1,500 to put on their houses, they can do things themselves, manufacturers can do things themselves. We have seen—and you have briefly talked about—some of the manufacturers' approaches. The white goods' manufacturers have been encouraged to do a great deal as far as labelling and that sort of thing. If we walked into an electrical store this evening the labelling on white goods would be very clear, we could see the efficiency ratings; look at brown goods, TVs and plasma screens, you cannot really buy a TV based on how much energy it is or is not using. Plasma screens, I know you will be aware of the amount of energy they use, the amount of energy that is used to make them, having a situation where standby buttons are on, having situations where if

you go into any city centre on a winter's evening and look at the table and chairs outside, next to them will be these stand-alone patio heaters.

Q415 Chairman: Mr Sedgwick, your analysis of the problem is fine. Have you moved on to providing some of the solutions about how you deal with the shopping list of issues, which you so clearly enunciated, in getting the connection to be made between the information that is there and consumer action, the citizen's action? How do they respond to that?

Mr Sedgwick: We have a current mechanism, the EEC2 mechanism, which is, largely speaking, based on insulating the home, insulating cavities, filling cavities and putting loft insulation in. That mechanism runs through to 2008. What it does not do is allow within the mechanism the flexibility for the suppliers to be much more innovative. If one goes into a home to put in insulation it does not enable you to do the other changes that are necessary in the home, like draught-proofing or putting in low-energy light bulbs.⁵¹ It is always interesting, we talk about low-energy light bulbs, perhaps what EEC should do is talk about high-energy light bulbs and ordinary light bulbs. Perhaps, again, we ought to start turning these discussions around so that standard light bulbs are low energy.

Q416 Chairman: In summary, you are saying that EEC3 has the potential to be developed in a more innovative way to address the issues which you put on your shopping list, so who is going to decide if EEC3 turns out the way you suggest it could be?

Mr Sedgwick: The ultimate decision-taker on that is government via Defra and we are talking to Defra in order to try and get them to come up with what we believe will be more innovative proposals, not just rolling from EEC2 to EEC3 and making EEC3 yet more of an insulation scheme.

Q417 Chairman: Are you able to share with us a list of what EEC3 should look like?

Mr Sedgwick: I suppose to be fair with you we are a little bit still in the early days as far as this is concerned, so at this moment the type of things we are looking for is we believe that lighting should be able to go into that, we believe that we should look and be able to get much more microgeneration into that. We also believe—and this may be a subject we will come on to later—that a lot of the things which can be done with smart metering can also be covered there. Perhaps I can ask my colleague to add something.

Mr Hamblin-Boone: Yes, I think there are some additional things around behavioural change. At the moment EEC is structured such that energy suppliers have to prove the energy savings of a measure in order for it to attract EEC credits, so they are, therefore, taking less risk, doing less experimentation because it is too costly to get to the point at which you can suddenly prove energy savings. Smart metering would be a good example

where you have got to go through a whole long process and then finally present it to the Government and say, "Right, here, we are making some savings, now can we have our EEC credit?" If there was some element of EEC which allowed that risk to be taken, so a kind of research and development credit could be given against trying to assess behavioural change, that would incentivise energy suppliers, and equally the Government, to look at more options rather than going for the safe option of insulation where the market is becoming smaller and smaller and the opportunities fewer and fewer.

Q418 Sir Peter Soulsby: Following on really from the last question you had there, Chairman, I would like to take up three bits of your evidence and ask if you would perhaps expand on them. I note that you said you: "... would like to see the Government embark on a project, along with industry, to ascertain the best vehicle for driving forward domestic energy efficiency in the next decade". What are you asking Government to do that goes beyond what you have just been telling us? Who needs to be doing what?

Mr Sedgwick: I think that the importance here is for Government to be very clear on setting on overall strategy as to what we are trying to do. I do think that, largely speaking, it is the things that I have been talking about, so I think it is allowing there to be more innovation within the market, allowing those things to be able to be counted against EEC. I do believe though that what we are starting to see now, and this is in the very early days, led by people like B&Q, they are prepared to start investing in new products and they are prepared to start seeing this sort of encouragement to a change of customer behaviour. You then get into the type of changes that if we are going to be able to take this forward, and I will give you a small example; if, for instance, there is a consumer where there will be some benefit in doing some work within their property, we start changing the way that energy services are given to the customer so what they then have is a longer-term deal. For that deal they perhaps get a smart meter fitted within their property. They get their property made fully energy efficient, I do not just mean the walls and the roof space done, so fully energy efficient, draught-proofed, low energy light bulbs, the whole package, and that sort of thing will start changing over a period of time the way in which people are using their energy. One of the challenges that Government is putting to us is that we move from being companies that are driven by selling more energy to companies who are incentivised to sell less energy. That is quite a challenge for any business because any business if it is seeing its income level go down, which is what that could mean, has got to be able to reduce its cost base in order to carry on as far as its shareholders are concerned. The way we can do that is perhaps by things like smart meters which can have a very strong business case for suppliers based around billing costs, meter reading costs, *et cetera*, and greater accuracy on settlement. All of those sorts of

⁵¹ *Note by witness:* This is not the case because EEC does include draught-proofing and low energy bulbs.

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factors are what we are now working with Government on but you have to change certain things because of that. You certainly have to move to a situation where you have this 28-day rolling contract for a customer to be able to say, "Thank you very much, I do not want to be with you any longer", because if that happens that is driving short-term behaviour, it is not going to see the long-term benefits.

Mr Hamblin-Boone: The other thing that has already been mentioned is fiscal incentives and it is clearly the carrot and stick approach, it is the stick for the non-energy efficient products and looking more closely, for example, things like tumble dryers and things like that are still very energy inefficient and we could do more to either reduce people's use of them or improve manufacturers' development of those products to make them more energy efficient. We could look at, as B&Q were saying, information at point of sale which is very important as well. Energy suppliers, as you have pointed out yourself, make a point of emphasising energy efficiency and emphasising energy savings in the products they sell. There are lots of other products available that are potentially energy saving that could be better communicated to consumers.

Q419 Chairman: You were talking about tariffs in commercial relationships. On the continent there are some electricity tariffs which are geared on a maximum demand basis, so that you buy the three kilowatt tariff or the six kilowatt tariff, in other words there is a constraint on the total amount of power that your home can consume and, therefore, you have to make the rationing decision as to how you sort that out in terms of making best use of the kit or the whole house gets plunged into darkness. If you move to the six kilowatt tariff you end up paying a premium for that. In the United Kingdom we do not have such an arrangement, you have the design of your electricity system which determines how much electricity you can push around the domestic ring circuit and you pay for as much of the power as you happen to use. Which do you think is the best? I am giving you two alternatives, but is there another way in which the tariff structure could be re-engineered to provide some energy saving incentives?

Mr Sedgwick: The tariff structure can certainly be re-engineered but to do it you need different metering technology in the home. Once you have different metering technology in the home you start opening up a number of these opportunities to limit how much.

Q420 Chairman: If that is the case, has anybody done any work to relate different types of tariff structure to potential carbon savings?

Mr Sedgwick: Not that I am aware of. I am not aware of any of my members having done that. Certainly, there has been work done, as you quite rightly say, in other parts of Europe, and I am only aware of parts of Europe they may do it elsewhere in the world but I am not aware of that, but certainly in Europe that is very much the way that it is done.

Funnily enough, many years ago when I first joined the industry they were called load limiters which was almost like the size of a fuse which was a little bit of a crude way of doing it. I think, once again, if one starts seeing the changes to the type of metering technology, because the concept of smart metering is that you can communicate to the meter and from the meter, so it goes both ways, once you can start communicating to the meter, and, for instance, in Italy they have spent considerable numbers of euros in the last five years in actually changing their electricity metering stock, there is a different type of challenge for us here because we tend to have electricity and gas packaged together, certainly sizeable numbers of customers have them packaged together. They have a different type of infrastructure as far as energy, it is a vertically integrated infrastructure. They have spent a lot of time and they can now communicate so they can take the supply off, they can reduce the amount that is being used. All of that type of thing is why it is important for us to have the levels of investment over the years ahead and to have the right infrastructure and to have a common approach within our competitive market for the way in which smart metering is used. If we lose that opportunity now to put smart metering into this country we will lose one of the best opportunities we have to revolutionise the energy that is used in the home.

Q421 Patrick Hall: In your evidence you refer in paragraph 1(vi) to only 3% of people in the UK say that they would change their long-term energy use if they had a smart meter. I am not sure what that tells me because the value of that figure depends upon people's understanding of what smart metering is. That figure may mean that very few people understand what it is or that we all understand what it is and would still not change our habits. I want to confess that I do not understand smart metering. I have heard it mentioned all afternoon and read about it but simply as a title, "smart metering". What does it mean? You have said something about it communicates in various directions, what does it actually do and can you give some principles behind what smart metering is supposed to do and how it will effect consumption?

Mr Sedgwick: I think you very neatly summed up the problem that the sector has at this moment, which is what exactly do we mean when we use those two words, "smart meter"? It is used extensively around the world but it does not necessarily mean the same thing. People will call a smart meter a meter where if you drive down the middle of the street as a meter reader with an electronic zapper you can download meter readings. That is regarded by some as a smart meter. Our view is that you have to be able to communicate to the meter to take information off it like meter readings. You need to be able to communicate to it to take information off and you have to be able to have a situation where you can go to it and it can come to you with information. You would be able to say it to it—

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Q422 Patrick Hall: Who is “you”?

Mr Sedgwick: Us being the supplier. One of the things we are currently doing in association with Ofgem is a piece of work to screw down completely the definition of what is a smart meter. That work is ongoing literally as we speak and is a project which is being run by my organisation, the ERA, and we expect to deliver that in the early part of next year. For the first time though what we are doing is not only just involving ourselves as suppliers in that, but we are talking to the meter manufacturers, the meter operators who are out there, to Ofgem, to the DTI and to Defra. What we are seeking to do then is to have a common definition and a set of standards that any meter which goes into the network has to have. If I give you one of the issues that we are debating—so I have not got the answer to this—it is does every meter that goes onto the network have to have a prepayment capability? Should it be able to be used as a normal meter as well as a prepayment meter? It is incredibly expensive and time consuming whenever one has to go out to change a meter from a standard type to a prepayment type. Some customers like one as opposed to another, and in some instances that is the appropriate way of dealing with it but it is very costly. What we have to explore with the meter manufacturers is if you make that part of the standard build—it is a bit like the difference between new build and retrofit—would the cost of that be tiny in comparison with doing any form of retrofit?

Q423 Patrick Hall: Yes. That is interesting because in my confused state I thought that smart meters were being portrayed as something the householder, the customer, would communicate with, look at or understand their own household domestic consumption better through being able to look at some device.

Mr Sedgwick: That is the second part.

Q424 Patrick Hall: That is another meter?

Mr Sedgwick: No, that is the second part of it, because one of the things that is possible to do is to put a visual display device and you could make it as part of the meter, but our view would be that probably is the wrong idea given where the meter is located. If the meter is in the cupboard under the stairs, you are not going to look at it very often; if it is in the garage, if it is an outside meter box, you are not going to have some form of visual display device. One of the things that we do not know, and there is very limited information really anywhere around the world, is what that will do to consumer behaviour. We heard, I thought, some very interesting things from B&Q as to the type of units they are starting to sell both in an individual “plug your product into this and show how much you are using” as opposed to some form of stand-alone device. Once again, we are talking to Government; our concern would be that we have heard from some of you, “Oh, we will just have the display devices”. If you just have the display device and you do not change the fundamental meter, the problem with that is you will never give to the meter the capability, say, for this

two-way exchange of information. Where the business case is as far as the companies are concerned for doing this is them being able to drive against their cost base. The point I made a few minutes ago to Sir Peter was to have a position where companies are going to be in a position of changing or reducing energy demand rather than being about increasing. That is a huge, radical alteration to the whole way our sector has operated for tens and tens of years. That requires very different types of devices in the home for us to be able to do that.

Q425 Patrick Hall: The reference to only 3% who said they would change their long-term energy use really suggests that your approach to smart metering is that the public either are not interested or do not know about it and, therefore, there is a whole job to be done there.

Mr Sedgwick: I think there is a job to be done, but I think smart metering is not the solution. Smart metering is part of an overall package of issues. Intuitively, we can look at this and say it feels like we should be able, with smart metering, better customer education and that sort of thing, to see a greater change in consumer behaviour and thus energy demand, but too much of that at this moment is intuitive feel.

Mr Hamblin-Boone: That is important. Feedback devices can be regressive if we are looking forward to a future technology such as smart metering and it is important to note that the Government is looking, for example in the EEC3 programme, for there to be two million feedback devices to be put in by suppliers in order to attract some EEC credits. That is a bit of a quick fix, and that is something they are also looking out for in the EU Directive on Energy Services, can feedback devices mean we can tick the box on providing real-time information to customers about their energy use? We need to be a bit smarter, if you excuse the pun, and future-proof the technology we are getting there and not just doing a quick fix which requires getting into properties and then in a few years’ time thinking, “Well, smart metering is a good thing after all and now we have got to start doing it all over again”. I caution that we do not end up going down that feedback device route as a short-term answer.

Chairman: Before Madeleine takes up her line of questioning I think, Peter, you had one further one.

Q426 Sir Peter Soulsby: Yes, it is your definition. A number of your members offer what are broadly described as “green tariffs” and I think some of them recently got into trouble with the Advertising Standards Authority over some of those descriptions. Do you think there is a need for more clarity in the definitions of those green tariffs and, indeed, perhaps some form of accreditation?

Mr Sedgwick: We operate in a competitive market and in a competitive market people want to have different offerings. From the point of view of green tariffs, I do not think that the suppliers would object to a situation where that is clarified as to what is green and what is not. What they decide to offer

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within a definition like that I think should be for them to decide how best to operate in that competitive market.

Q427 Sir Peter Soulsby: Has it not got to the point now where some form of external accreditation, perhaps with you playing some part in that accreditation, would be helpful for all concerned?

Mr Sedgwick: Yes. I think one of the things we would very strongly say is that self-regulation is far to be preferred and, certainly, I would have no objection to taking away a view from this Committee that might be something which perhaps we ought to look to try and ensure we do not have problems in the future.

Q428 Mrs Moon: Sometimes it feels while we are sitting here listening to the evidence that we are fiddling while Rome burns. You said earlier that we have sold electricity in the same way for tens and tens of years. Is part of the problem that it is the electricity companies which are trying to sell the message of energy conservation and there is almost a public distrust of the information they are getting with their bill that says, "We can reduce your bill"? Are the energy companies the people to be trying to sell the conservation and the consumption message? Are they efficient and effective at doing it and, if not, who else should be doing it?

Mr Sedgwick: Sorry, it will sound wrong, but that is a really excellent question because I think you have hit a genuine problem smack on the head. We do have a problem of public perception. There is a public perception of us that "You would say that, wouldn't you?" We found exactly the same issue in the area of fuel poverty where any one of the companies could say, "Look, we have got all these wonderful schemes that are available. We could do this, we could do that", and what we found was that customers will not come to us, they do not want to speak to us. We have been trying in the area of fuel poverty to do some things about that. We have got an initiative called the "Home Heat Helpline", which is an independent helpline that we run. It is funded by the six suppliers but we, as the ERA, run that in order to try and move this away from these public perceptions. I think that it is a sad but true fact that some of the challenges which the last two or three years have seen with prices increasing is that there is public scepticism. I do not think that we should sit here though and say, "Oh, well, that means that it is not down to us to be involved". I think what we have to be prepared to do is to say that on occasions we do not front things, so it may well be the best way of tackling the issue is for us to involve external third parties to do some of that work for us. What that has to be based on is incentivisation to us that there is not just the big stick to hit us with but to say if you are prepared to do that and it can, for instance in the area of fuel poverty, be government saying, "We would like you to do this, we are prepared to come in as well with some government money, perhaps largely supplier money", but there is a little bit of both, we have to be realistic that to move from a position of "Well, you are selling

energy and you are trying to sell more" to "We now wish you to become organisations who sell less" is going to be a considerable challenge to us as a sector. The one thing I would say is that we are very, very keen to be up to that challenge and involved in that. I believe we are prepared to be realistic about where those things are very much competitive market, need to be branded by the individual companies and where the companies, are prepared to say, "No, we will come together here, we will not try and brand this competitively"—as I say, I think the Home Heat Helpline is an example where it is new money coming into the sector, this is not recirculating stuff that we have done before—yes, I believe it is a challenge but I believe it is one where we, as an industry, can very much step up to the mark in order to do that.

Mr Hamblin-Boone: It is one where if you are going to create a market of energy reduction and it goes for all sectors, not just the energy sector, you have to look at cost savings elsewhere. One of the things that this industry can look at, and perhaps smart metering going forward can facilitate, is the cost savings you can make with billing and metering and debt recovery and all of those administration costs. Equally, other sectors that emit a lot of carbon, like the transport sector, might start to look at where they can reduce costs as well and then collectively you can get to the point where you have energy reduction over energy production.

Q429 Mrs Moon: One of the things I talked to my constituents about, which has just come to me, is that they get cold calls saying, "We can cut your energy supply, we can help you do that" and they are automatically switching off because they feel they were caught when they were asked to switch supplier. There is an overall distressed level that I am picking up and it is how you get over that barrier, information in the bill, people are so used to getting it, whether it is with their Sunday papers or their bills, this is the way to get a cheaper tariff, they do not even read them. I wonder how we get over that hump to create some trust and some understanding that that is a genuine role which you are trying to fulfil.

Mr Sedgwick: I would love to believe that if we did one thing that would solve the problem. Clearly it is nowhere near as simple as that, I think it is about doing a collection of issues. I think on occasions it is fair to say we are, certainly in the last 18 months or so, a sector that has had a certain amount of publicity. It is quite hard to pick up a newspaper or listen to the radio or television without having some story or another to do with energy. I think that as a sector we take our overall corporate social responsibility very seriously, we are doing a great many things. The challenge is always going to be on us, how do we change the public perception and, let us be fair, if you went back to when competition opened up we probably did not perform anywhere near as well as we should have done in the way that we did selling. We have fixed that and it is an ERA run code of practice in this area. We have hardly any issues now. Does that mean we have none at all? No, unfortunately, we do not have none at all. As far as

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billing is concerned there is always a challenge with how well one bills, how accurately one bills. We send out 200 million bills a year.

Q430 Mrs Moon: And how readable those bills are!
Mr Sedgwick: I completely understand that and it is a constant issue for every one of the companies. Every company when it puts these bills out does market testing. Does that mean that no bill is ever inaccurate or no bill is ever unclear, I would love to sit in front of you and say that is not the case. Out of 200 million, we perhaps do not have anything like the bad performance that some people sometimes say. We have to accept that is the marketplace in which we work. Our challenge is to try and ensure that, yes, what we do directly with customers is good and clear, *et cetera*. We have to then say we work with third parties in order to do that. A number of the companies have third party arrangements because one of the things that we do very strongly believe is that it is those third parties who are much more credible. With the Home Heat Helpline we have been working, and will continue to work, with third parties who we very strongly believe are the people who are trusted, whether that is Age Concern or Help the Aged, or Gingerbread who we have worked with for single parent families. What we believe is that by using their logo and almost keeping ours much lower, the credibility is stronger and we have things that we can offer to the consumer in order to help them.

Q431 David Lepper: I do not know whether my recent experience is common and helps to pinpoint that kind of distrust. I pay by direct debit and I got a notice from one of my suppliers a few weeks ago telling me they had assessed my energy use and they were going to suggest that I paid £25 a month more by my direct debit. I assessed my energy use and said that I would offer them a tenner. They came back to me and said, "We have looked at it again, what about a fiver?" Now, that does nothing to convince me as a consumer that that company is after anything other than my money. I suspect, because I have talked to a lot of people about this and I have discovered a number of people who have had exactly the same experience, that is an issue that helps to spread the kind of distrust that Madeleine has referred to and why your members have got a huge hurdle to overcome.

Mr Sedgwick: One of the things I have found in the three years or so that I have done this job is there are a number of issues where certain things could be done better and people do sometimes say to me, "Why are you doing this" and "Why are doing that"? Clearly, the problem with all of this is—cannot answer the specifics—is that common practice that you need to pay £5 but we have asked you for £25? No, I do not believe it is. Why would that be done? I really do not know. Is that a deliberate ploy to try and overestimate? No, it is absolutely not because if you overestimate and you are continually doing that, you end up with a substantial credit on someone's bill, it might give you a bit of a cash benefit but it sure as heck does not

give you a good PR benefit with that consumer and they will come on to you in fairly high dudgeon and say, "Look, you have got all my money, what are you doing about this?" That, as far as a supplier is concerned, can lead to, "I am fed up with you, I am going to switch". I think one of the things each of the companies has to do is ensure that they have accuracy in their procedures. It is not about being prepared to accept the fact that, say, overestimating usage is an acceptable position for anyone. No, I do not believe that is widespread common practice.

Q432 David Lepper: I have spoken to at least six people who this has happened to in the last two or three months, so forgive me for doubting you.

Mr Sedgwick: I am happy to look at any individual circumstances.

Q433 Chairman: Do you think you ought to run off to the Ofgem reception before they all disappear and you could get that taken up? On this question of billing, some companies, we are told are going to try and make them not just easier to read because I read my gas bill and trying to make the translation between units and something that related to energy required a certain amount of advanced mathematics to get to that, but this inquiry is about how citizens can make a contribution to reducing carbon emissions and yet when you get a bill, whether it be for gas or electricity, there is zero information on it to translate the actual usage of the commodity energy in whatever way you buy it to actual carbon or carbon dioxide emissions. I gather some companies are giving thought to being able to communicate that information. Why is everybody not doing it? Secondly, where you have got an established relationship with your supplier they will have the trend information, whether you are going up or down, for example they could produce your last three quarters of bills, ahead of smart metering, they could give you smart information.

Mr Sedgwick: Yes.

Q434 Chairman: Why are we not seeing a universal application of the knowledge you have already got to make an immediate contribution to involving the public in thinking more about the consequences of their energy use's action?

Mr Sedgwick: I think what you see is within a competitive market each of the companies are thinking about this; some of them are slightly further developed than others. I think that you are seeing at a later session a couple of companies and that may well be a good question to ask them. If you do not mind, it would be difficult for me to talk about what certain companies may or may not be doing.

Q435 Chairman: Your organisation takes a leadership role on behalf of your industry.

Mr Sedgwick: Yes.

Q436 Chairman: And I want to know whether or not you are advising these companies that this is the route down which all of them should go if they are going to be able to give meaningful information to

the consumer ahead of the obviously very expensive move to interactive or information-bearing metering which does not currently exist.

Mr Sedgwick: We certainly believe in providing more information and better quality information to consumers. The one thing to stress though, if you look at your electricity bill, is 80% of the information on the bill is something we are required to pass on to customers whether by legislation or by regulation. My view would be a very, very strong one that the bucket is full and some stuff has to come out of the bucket before we put further information into it. In other words, certain information that we are currently required to have on the bill, we are talking to Ofgem on how to try and get them to say, yes, they are quite happy for us to remove that. That would leave more space and the very things you were talking about can be put on to it.

Mr Hamblin-Boone: The Energy Services Directive, the EU Directive that I referred to earlier, will require energy suppliers to put a graph on the bill so they can compare year to year but, as with any kind of comparison, there is always the anomaly that for some reason or another your energy consumption has changed perhaps because one of your children has left home or something like that, so it is always going to be very difficult to make that kind of comparison. By saying a certain number of terawatt hours or whatever that you are saving, what does that mean to the consumer, so you have to keep it simple.

Q437 Chairman: That is not an issue, is it really?

Mr Hamblin-Boone: You have to supply the carbon units.

Q438 Chairman: It comes down to the fact that B&Q, as retailers, have to synthesise complex messages into sentences which their customers, of all shapes, sizes and backgrounds, can understand. What I am saying is that the current bills are incomprehensible. If you are going to start talking about kilowatt hours or whatever it was on the last gas bill I looked at that does not convey anything but something relating to what we are talking about, which is carbon and carbon dioxide emissions, within the bounds to also be able to communicate whether you are going up or down, that is very simple. You are right, it has got to be understandable. Let us move on in the remaining moments that we have. I attended a seminar this morning organised by the Smith Institute at which an adviser to the Chancellor reminded us, as if he had just discovered it, that there was in the Energy Review, a document recently published, the idea—a revolutionary idea, he seemed to suggest—that there should be a limit on the amount of energy which enterprises could sell. We encountered that as a Committee when we visited California and what we discovered there was that power companies had effectively a lid put on their generating capacity. The only way they could have more power to sell to new customers or those whose demands were increasing was, by definition, to reduce the demand for the existing customer base, so they were going around

doing everything from funding the replacement of old, inefficient systems to changing light bulbs in retail premises. That is pretty revolutionary stuff for a country that is not supposed to be fully engaged in the climate change agenda. If that kind of thing works in the United States, how would your members react to having that kind of constraint imposed on them here?

Mr Sedgwick: That would very radically alter the whole way in which the market works. There is a sizable amount of work done in the domestic sector; the interesting thing is there are relatively small amounts done perhaps in the commercial sector. I always tell the story of when I come into London on a Monday morning. In order to get to the station where I live, I have to drive through a small industrial estate where there are half a dozen major car showrooms and, of course, at six in the morning every single one of those car showrooms is ablaze with light. I can confirm this because I have stopped and looked at each one over the years and there is no-one cleaning them and I can absolutely confirm at a quarter to six in the morning there is no-one buying cars. What that means is there will be a whole change in approach to saving, to switching off, to doing things completely differently. Would that type of obligation rather than incentive work? I would be strongly of the view that incentivisation is the way to go with this, so to start incentivising companies to doing things differently, where perhaps the costs that are incurred in doing that can be offset against other costs and that requires not just the companies to change but requires a completely different mindset from government as to the way in which the whole energy sector would be regulated and that sort of thing. Could it work? Yes, it probably could work but it is a huge, huge step in a very different direction.

Q439 Chairman: The reason I raise that is if you go to the road transport sector, because of the pressure of the imposition of emission limits, for example, the industry has moved forward in a very comprehensive fashion with a series of voluntary arrangements where the industry has agreed to make further changes to reduce emissions of motor vehicles, so in other words they are fully participating. There are many other factors which inevitably affect that, including consumer demand for more efficient cars, but the impression I get almost from listening to what you are saying is that the industry is always going through the motions and nodding in the right direction for this, but it will only do something if somebody comes along with a big stick and hits it very hard.

Mr Sedgwick: No, that is absolutely not the case. I think that the industry has shown for a sizable number of years, both in the retail bit that I deal with and in the environmental issues that surround power stations, whether those are new power stations or retrofitting kit into old power stations, they want to dramatically reduce emissions from those. These are not small amounts of investment, these are vast, vast sums of investment, so I think that the industry has shown it is not just going to wait until it is hit with

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the stick. The way forward here is to be very clear that if the industry is prepared to do this, there is something in it for them to do it, not to just revert to “We will sit here and wait until someone screams and then we will do that”, so I absolutely believe we are not a sector that is doing that sort of thing.

Q440 Mr Drew: A quick question on Home Improvement Packs: As someone who is advocating these things, despite all the opposition in the industry, the one thing I always thought was a good idea was energy information that could and should be contained. Give me an idea of whether or not you are supportive of an energy statement going in those packs, that is what is going to happen to make this really get support, and what are you going to do to make sure it is the right information, correct and helpful?

Mr Sedgwick: Are we supportive? Yes, we are supportive about that as far as what work we are going to be doing. One of the things again, as far as my organisation is concerned, is we will be talking

to the individual suppliers to ensure that the information that is in there is accurate and how that information is going to be collected to ensure that there is a common way of doing this.

Q441 Mr Drew: Is that not already in place? They could have been coming in early next year.

Mr Hamblin-Boone: One of the things that we are specifically looking at now in support of our suppliers is whether we can help with the sort of qualification process for energy assessors so that everyone going in and assessing these properties is assessing it to a certain standard and that is something we are specifically working on with the relevant Learning and Skills Council.

Chairman: Gentlemen, thank you very much for your evidence. Thank you very much for your written evidence. We often say on this Committee you cannot undo that which you have done, but if there is anything else that as a result of reflection on these exchanges you want to contribute we are always very grateful for any additional helpful information. Thank you very much.

Supplementary memorandum submitted by the Energy Retail Association (Cit 36a)

Thank you for your letter of 25 January seeking further clarification of the evidence we submitted to your Committee’s inquiry: *Climate change: “the citizen’s agenda”*.

Please find our responses to the questions you identified below.

QUESTION 1: *At Question 425 in the transcript of the session, Mr Hamblin-Boone described feedback devices as a “quick fix” and a “short-term answer”. Would the ERA support the use of feedback devices which can be integrated with smart meters? What evidence is there to suggest that behaviour change depends on better metering rather than better feedback?*

1. There are many types of visual display that could be applied. These range from simple stand alone battery operated units available from hardware stores to complex information technology based communication systems that display information on television screens. Visual display units source information from a sensor between the fuse box and the meter. The value they add to the customer also varies.

2. Some suppliers are exploring this option as a contributory measure to achieving EEC targets. However, we await guidance from Government to interpret the Energy Services Directive’s requirement for real time displays. There are some reservations about the merits of real time displays in the context of billing and metering; especially stand alone “clip-on” devices with visual display units that are not part of an overall smart metering solution. However, others consider the costs prohibitive should devices need to be professionally fitted by energy contractors. This is because of health and safety implications associated with fitting clip on units to electric meters. In some cases suppliers are providing tuition to customers on the use of devices as part of the installation service.

3. We have urged the Government to delay reaching conclusions about the use of any visual display units until the results of the Ofgem energy demand research trials have been analysed. If they are proved to be a cost effective way of communicating with consumers the market signals will be evident. According to manufacturers the current capacity for display devices is 5 million a year; a further reason that these devices must not be imposed on a mandatory basis. They will appeal to a customer segment that will respond by creating demand. It is not possible to assess the size of this customer segment until the trials are complete. However, this product must be a response to “customer pull”, so that consumers demonstrate an interest in understanding their energy consumption in advance.

4. The ERA is concerned that if a distribution of stand alone display devices is random and unfocused it would impact on the potential to communicate with and educate consumers. The necessary cost must be weighed against the advantages before committing significant resource to feedback devices. It should be borne in mind that these displays apply only to electricity and not gas. It may be that smart meter technology is a more cost effective way to communicate new messages to consumers.

5. The model for smart metering currently being developed by the ERA includes the capability for two-way communications between the smart meter and local devices within the home that may include a visual display unit. A smart meter and display device can work in tandem as the conduit of data which is then presented in a consumer-friendly format by the display device.

6. If mandated feedback devices would incentivise suppliers to achieve the lowest possible cost and require them to be “pushed” to customers. This may not lead to the level of engagement required for consumers to act to reduce energy consumption. If the roll-out is customer-driven and there is a “pull” that accelerates demand suppliers can invest in added value with services that enhance the benefit, for example energy audits, insulation and other energy efficiency measures.

7. Through its project on Supplier Requirements for Smart Metering (SRSM) the ERA is identifying the drivers that could lead industry to support smart metering. The cost/benefit analyses will be assessed by suppliers, but in addition to meter visit cost savings, there are savings associated with real time billing that reduces the cost to serve certain customers significantly (fewer bill queries etc.) and also the opportunity for different tariffs to specific customer groups.

8. Smart metering could improve a range of customer services and data integrity. The benefits to consumers depend on customer responses and a willingness to embrace the opportunities that are available. Nevertheless, all stakeholders—Government, industry and consumer groups—should help to realise the potential of smarter metering, especially regarding energy use and energy efficiency by communicating informed and consistent messages to consumers.

9. There are issues to resolve related to the capacity to provide pre-payment and credit functions within the same technology, the amount of energy required to power smart meters and the need to develop gas smart meter technology. Three quarters of energy consumed is gas. These issues are currently part of the development of a smart metering framework and part of discussions with meter manufacturers. However, suppliers have been proactive in assessing the opportunities for smart metering technology by leading the work on interoperability and moving quickly to phase II of the Supplier Requirements for Smart Metering Project.

QUESTION 2: Why is the ERA more cautious about the case for a national roll-out of smart meters than some of its member companies? Are there gaps in the evidence provided by research on smart meters and behaviour change?

10. Energy suppliers are divided in their views about the merits of a national roll-out of smart meters. There is a view that smart meters will initially only benefit those who are interested in reducing energy in the first place. Providing smart meters in response to customer demand could lead to increased awareness and generate more interest to allow market transformation.

11. An alternative view is that any roll-out should be a regulatory outcome of the network businesses—as has happened in other countries. This would avoid problems of stranded assets in the event of a customer switching away to a supplier who chose not to offer smart meters. There are additional benefits associated with economies of scale and potential cost savings by a universal changeover. Ultimately the end result for customers is the same, but the higher costs of a mandated national roll-out will be reflected in energy bills.

12. Indications from industry are that the technology is developing and the cost of the electricity smart meter asset is falling. However, there is no assessment of the overall cost of a smart meter roll-out programme and the asset cost is for electricity smart meters only and there has been no cost data provided for gas smart meters as yet. The ERA Supplier Requirement for Smart Metering (SRSM) Phase II project will consider the solution options for gas smart metering including adding gas smart metering to any electricity configuration.

13. In calculating the costs the project team will take into consideration a range of additional costs such as:

- External communication device.
- Installation (market driven or mandated).
- Data exchange and communications infrastructure.
- Supplier and metering agent systems and process changes.
- Early meter replacement of existing meter asset base (including costs of gaining access to properties).
- Any customer display device chosen by the Supplier or customer.

14. The ERA continues to develop an operational framework for smart metering and we will be in a better position to assess these factors when Phase II of the SRSM project is completed, which is expected to be at the end of the 2007.

15. The Ofgem energy reduction research trials are crucial in demonstration how consumers respond to the provision of additional information about their energy consumption. The evidence provided from other countries does not reflect the unique energy market in Great Britain, which in the past has been driven by price signals. We look forward to the results from the Ofgem trials that will provide any evidence that consumer behaviour is changed for any sustained period.

QUESTION 3: At Q438 the Chairman raised the issue of energy suppliers recasting themselves as providers of energy services. Is the Energy Review's proposal for a supplier obligation the best way of encouraging suppliers to provide energy services? Should suppliers be obliged to adhere to a cap on energy, or a cap on carbon? If such an obligation were implemented how long would it take energy suppliers to make the transition to become energy services companies?

16. The ERA is jointly leading a work programme to inform the forthcoming Energy White Paper. The objective is to identify a range of commercially attractive business models that household energy suppliers might implement in response to a carbon or demand reduction obligation starting in 2011.

17. The aim of this study is to scope the options to use energy suppliers to deliver further reductions in carbon emissions from the household sector. Suppliers should be able to deliver carbon savings a reduction in energy use, for a given carbon content of energy used, or through the use of "green" energy.

18. Under the energy efficiency commitment (EEC) phase 1 (2002–05) suppliers achieved the target, delivering measures which save 0.4 MtC per annum. The target was doubled for EEC2 (2005–08). The 2006 Climate Change Programme has signalled that there will be a further increase of 50–100% in the target for the period 2008–11 (EEC3). EEC3 will set the foundations for energy reduction, supported by a range of energy services to shape the market post 2011.

19. While the EEC mechanism has been very successful at delivering technical measures, it does not currently address any necessary change in consumer behaviour. The Climate Change and Sustainable Energy Act 2006 offers an opportunity to develop EEC3 to cover a wider range of measures such as metering and billing, the provision of information, and microgeneration. Even with these changes, EEC is designed to encourage the delivery of energy saving measures and will not address the incentive to promote increases in overall energy demand. The Energy Review therefore accepted one of the key recommendations of the 2005 Energy Efficiency Innovation Review—to signal a move towards a cap and trade model of supplier obligation. Setting overall carbon or energy demand targets for each supplier would align the objectives of the programme directly with the Government's objectives—to reduce emissions from the household sector in line with our carbon goals for 2020 and 2050. It would encourage suppliers to engage more actively with consumers through energy services and encourage promotion of measures to improve the efficiency of homes, address consumer behaviour and installation of low and zero carbon technologies (microgeneration and renewables).

20. All six major domestic energy suppliers are supporting the Supplier Obligation 2011 work programme. Suppliers anticipate that energy demand will reduce as a response to increased awareness of climate change and more focus on energy efficiency, so any policy must be consistent with other programmes eg carbon trading. Energy services could be part of a package of offers that move consumers away from the current market driven by energy prices. However, any policy should not rely on energy suppliers to take full responsibility for behavioural change. This is a wider issue for government and how it educates and informs society through communication channels including schools and public campaigns. We believe that energy production is one aspect of carbon emissions—other industries must share responsibility.

21. In developing future business models post 2011 the aim is to sell less energy but continue to be profitable. Therefore any policy must be future-proofed to accommodate new technology and changing social demographics post 2011. However, there are limitations to what can be achieved by the industry acting unilaterally. For example, the policy will set out the energy industry contribution to tackling climate change but suppliers cannot control what changes consumers make in their choice of household appliances or how they respond to tariffs that may incentivise low energy use.

22. We believe that any future cap and trading proposals should be based on carbon rather than energy, providing this does not allow wealthy consumers to use high levels of energy based on the principle that they can afford to more than others.

QUESTION 4: In its written submission the ERA says that "luxury or grossly inefficiency" products should be taxed at a higher rate than other products. Which products should be included in this category and what rate of tax should be levied on them?

23. It is clear that more has to be done to tackle climate change and the rise in energy consumption and the ERA believes that existing market-based solutions, including taxes, need to play a greater role. At the end of last year such an approach was reportedly advocated by the Secretary of State for the Environment, Food and Rural Affairs, David Miliband MP, in relation to energy inefficient goods, motoring and cheap flights. Furthermore, the ERA, in line with other organisations including the EST, feel that retail prices do

not fully reflect the environmental costs of many products and consumers often fail to choose energy-efficient goods. Therefore, as well as taxing energy inefficient goods, the Government should also consider a minimal or zero-rate of tax on the most energy efficient goods in order to maximise “consumer pull”.

24. As we have mentioned, where products are grossly energy inefficient compared to others on the market (eg GLS light bulbs compared to CFLs) these should be taxed at a higher rate. The product should be made to include information on its power consumption along with comparative information in relation to similar products. In addition, the average energy consumption over its expected lifespan/annually should also be made available.

25. The same should apply where “luxury” products are deemed to have a disproportionately high environmental impact in relation to their utility. These could include:

- Domestic air conditioning units.
- Plasma televisions.
- Washing machines/tumble dryers/dishwashers awarded an energy efficiency rating of below B.
- Products which necessitate a standby button being permanently switched on.

26. The ERA feels that an increased tax burden of 15–25% should be considered for the type of products mentioned above. This is based on the need to incentivise consumer behavioural change whilst not overly distorting the market dynamics. However, it is of course up to the Government to decide on the most appropriate fiscal incentives and disincentives to encourage behavioural change.

Energy Retail Association

February 2007

Wednesday 13 December 2006

Members present

Mr Michael Jack, in the Chair

Mr David Drew
James Duddridge
Lynne Jones
Daniel Kawczynski
David Lepper

Mrs Madeleine Moon
Sir Peter Soulsby
David Taylor
Mr Roger Williams

Memorandum submitted by Dr Dave S Reay (CIT 04)**EXECUTIVE SUMMARY**

Households (home energy-use and transport) directly and indirectly contribute more than 85% of total UK greenhouse gas (GHG) emissions. Significant reductions in UK GHG emissions may be achieved through facilitating greater energy efficiency and reduced energy demand at the levels of households and individuals. Achieving such reductions will necessitate much greater public awareness and understanding of climate, highlighting the direct importance of climate change to UK citizens and the huge potential of individual action in its mitigation. The perception that climate change impacts will be largely confined to the developing world must be corrected, as must the belief that the problem is too large for individual action to make any difference.

1. *What is the real scope for individual and local community action to contribute to tackling climate change?*

- (i) The scope is undeniably great. If we break down annual UK greenhouse gas (GHG) emissions by end user then home energy use is responsible for over a quarter, transport another quarter, and workplaces (businesses and industry) the rest. In each of the sectors individuals have the potential to make very significant reductions in emission through their own actions. Most obviously, lifestyle changes at the household level (including private transport) hold the possibility of significant reductions in emission on a national scale.
- (ii) In a 2004 report by the Office of National Statistics "The Impact of UK Households on the environment through direct and indirect generation of greenhouse gases" annual GHG emission in the UK were shown to have fallen from 777 million tonnes of CO₂ equivalent in 1990 to 718.5 million tonnes in 2001. Over the same period emission directly generated by UK households (energy-use and transport) rose from 140.7 million tonnes to 158 million tonnes. This trend is set to continue, with household energy use set to rise by a further 25% by 2025 and emissions from private transport by 50%. Such direct emissions are clearly important, but the ONS report also highlights the importance of indirect emissions due to households. Some commentators have lamented high GHG emission from power-generation in the UK, suggesting that it is futile for individuals to cut their emissions while fossil fuel-fired power generation continues to dominate the energy mix in the UK. What they overlook is the prime reason for the existence of these power stations: direct and indirect energy consumption by households.
- (iii) Going back to the breakdown of UK emissions, through direct GHG emissions from households contributed 155.8 million tonnes of the 718.5 million tonnes total in 2004, a further 456.6 million tonnes arose as indirect emission from households (electricity generation, public transport and final consumption of goods and services). As such, UK households in 2004 were directly and indirectly responsible for more than 85% of total GHG emissions. Tackling household emissions then, is key to meeting and exceeding emission reduction targets.
- (iv) Increasing energy efficiency, in particular the delivery of the Energy Efficiency Commitment (EEC).

Increasing energy efficiency in homes should be a central plank of efforts to reduce domestic GHG emissions. Assuming a rapid increase in domestic energy demand, due to a rising number of households (particularly those with single occupants) and increases in the number of electrical appliances per household, increased energy efficiency would slow the rate of increase of demand and so help reduce emissions from a business as usual scenario. There is a silver-lining here, in energy efficiency can be greatly increased in many households without radical lifestyle changes or high costs. Household insulation is a good example of this: If all households in the UK had the correct amount of loft insulation (20-25 cm) then the energy saved would be the equivalent of that

needed to supply 800,000 homes each year. The EEC is already helping to promote such changes, but incentives for householders remain poorly advertised and awareness of the EEC is, I believe, still too low.

- (v) reducing energy consumption—not only electricity, but also energy used in heating and transportation.

There is a wealth of strategies by which domestic energy consumption can be reduced without cost or inconvenience to the individual. Improving the energy efficiency of appliances and buildings is the most direct path, with the provision of affordable high-efficiency fridges, washing machines, ovens and the like allowing a rolling replacement of more inefficient appliances over time. The enforcement of energy efficiency regulations relating to building standards is vital to ensure that the GHG reduction benefits of better insulation, condensing boilers etc in new builds are actually achieved.

- (vi) One area of rapid growth in relation to domestic electricity consumption is that of standby power. The average home has around 12 unused electrically-powered devices drawing power from the grid at any one time (Energy Savings Trust, 2005). Such standby power use now accounts for 7% of household electricity use and leads to three million tonnes of GHG emissions in the UK every year. The public perception is that many of these devices either aren't drawing much power or can't be turned off and on without the risk of the device breaking. Many of these devices (eg televisions, stereos, digital boxes and DVD players) draw over 10 watts in standby mode. Manufacturers should be encouraged to radically reduce this standby power requirement, with one watt being a reasonable target. Manufacturers can also help individuals in reducing such standby power wastage by providing OFF buttons as standard and ensuring that devices can cope with repeatedly being switched on and off.

- (vii) the provision of desirable low carbon alternatives, such as energy saving lightbulbs or using public transport.

Low-energy lightbulbs can each save more than 50kg of GHG emission a year where they replace traditional tungsten bulbs. Prices have now fallen to the extent that uptake of these compact fluorescent bulbs has dramatically increased and further uptake should be encouraged through the use of advertising, tax incentives or manufacturer/supplier subsidies. Though having a relatively small impact on total household energy-use and emissions, the ease of use of low energy lightbulbs allows individuals to feel more empowered through making a very small change and may lead to more far reaching changes in home energy use.

- (viii) the potential for, and barriers to, microgeneration.

Microgeneration has great potential in reducing domestic GHG emissions. It negates the large transmission losses suffered by point-source electricity generation, avoids many of the obstacles to large scale renewable energy schemes, such as windfarms, and serves the dual purpose of empowering individuals and greatly raising awareness of their own energy use. Anecdotal evidence suggests that the installation of microgeneration systems at a household level leads the homeowner to more in depth assessment of and changes to their own energy use. Mark Lazarowicz's 2006 bill should help a great deal to increase the uptake of microgeneration technologies by UK households.

- (ix) The main barriers to widespread uptake are:

- (a) Cost: Photovoltaic systems are beyond the pocket of most homeowners, though solar water heating and wind turbines are becoming more affordable;
- (b) Planning confusion: planning restrictions on wind turbines and solar systems are often opaque to say the least; and
- (c) Grants confusion: there is confusion over what grants are available and where (Scotland vs England, Wales and NI), how these are awarded, and what the "pay-back" time is for different microgeneration systems.

- (x) the potential for "smart metering".

Smart-metering has considerable potential as a mechanism to inform households of their energy consumption and the quantifiable impact of changes in their behaviour on energy consumption. Where the meters provide easy-to-understand information (ie in terms of money or GHG saved) they may induce far-reaching changes in domestic energy consumption through lifestyle changes.

- (xi) awareness of climate change and availability of information about the role of the individual in tackling the problem.

To truly succeed in achieving widespread uptake of the domestic GHG reduction strategies discussed above, increased awareness of climate change and mitigation by individuals is vital. The public perception of climate change seems to be that either the problem is too great and that individuals can do nothing to tackle it, or that, if there is a problem at all, then its effect will largely be confined to the developing world. Awareness of local and national impacts of climate change should be raised to bring home the direct importance of mitigating climate change to UK individuals. At the same time, the huge potential of individual action to mitigate climate change and to protect our own homes, jobs, families, friends etc. should be stressed.

2. *What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?*

- (i) As outlined above, a lack of awareness and understanding is the key barrier to be overcome if climate change mitigation at the level of individuals is to fulfil its potential. Given better awareness and the facilitation of changes in behaviour through the provision of affordable and accessible energy efficient appliances and housing, microgeneration technologies and low carbon transport, sweeping reductions in GHG emissions are possible. Current incentives such as the EEC and microgeneration grants should be made more transparent and better advertised. The inclusion of an energy audit as part of the home buyer's package is also a good step in the right direction. The graduated vehicle excise duty is currently insufficient to deter most prospective buyers of high-emitting vehicles and should be radically increased—the proposed £1,800 per annum tax on the most polluting vehicles would serve to make the “climate cost” of buying a new vehicle a central component of an individual's decision, rather than the minor side-issue it is currently. Such increased taxation of private car use should be coupled with reduced or zero taxation for low carbon-emitting forms of transport such as small-engined or hybrid cars. Much greater taxation of air travel, particularly short-haul internal flights, should also be considered. With better support of lower carbon-emitting alternatives, such as intercity rail and bus services.

3. *How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?*

- (i) Increased awareness of climate change and its mitigation can be better provided at a national and local level by focussing more on the national and local impacts of climate change to bring the problem down to the level of the individual concerned. Likewise, the existence of local or national grant schemes and information sources (eg Energy Savings Trust) should be better highlighted by advertising campaigns.

4. *What is the role of NGOs in delivering the “citizen's agenda” on climate change?*

- (i) NGOs can provide a useful pathway by which to heighten awareness and provide “on-the-ground” feedback to local and national government as to which strategies work and which don't.

5. *Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?*

- (i) DTQs (or similar) are a viable option and may achieve large and predictable reductions in domestic GHG emissions. Their use, aside from the potentially large problems of properly administering such a scheme, would have to be carefully targeted to avoid exacerbating existing problems of fuel poverty. Given the studies currently available, a scheme targeted at reducing private transport emissions, particularly those arising from air-travel and large-engined car use, would serve to significantly cut GHG emissions while limiting the impact on the least affluent sectors of UK society.

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Dr Dave S Reay

School of GeoSciences, University of Edinburgh

August 2006

Witness: Dr Dave Reay, University of Edinburgh, gave evidence.

Q442 Chairman: The witching hour of half past three has now come round and so we can formally begin this evidence session of the Committee's inquiry, Climate Change: the "Citizen's Agenda", and our first witness this afternoon is Dr Dave Reay from the University of Edinburgh. Dr Reay you are most welcome. It sounds from the introduction that you are on Mastermind.

Dr Reay: I know.

Q443 Chairman: We know you are going to be answering questions in some detail on climate change issues on which you have a very considerable expertise. Can I congratulate you on your website, which is a mine of useful information.¹ I could have spent many hours going through all the presentations, but sadly did not have it. Nonetheless, I salute the content of it, it is very helpful indeed. One of the main objectives of this inquiry is to look at how the citizen and the small, medium sized enterprises, for example, that they are involved in can engage in the whole climate change debate. Sometimes the discussions are at a very high level, and citizens will observe this by reports in the media but may not immediately connect that they have a role to play in addressing the outcomes of those sometimes quite high level, and, at times, very sophisticated, discussions about climate change. What would your advice be, as the author of a book who has addressed this subject, in terms of how we get the citizens certainly of this country and, indeed, of other jurisdictions involved in a practical way to address the climate change agenda?

Dr Reay: What has not worked, in my experience, is probably the place to start. What has not worked is scaring people. As a climate change scientist trying to convey the problem to the public, we, or certainly I, started off on the basis that it is very worrying, it is catastrophic, climate change is a possibility, and bringing in the impact of climate change as far as the developing world; and the figures are scary, and you can scare people, but the feedback I got, and the more I talked to the public about climate change, the more I realised that you can scare people and they will recognise climate change as an issue but that will not feed into action on the ground. What seems to have been much more effective, certainly recently, has been making it personal. So, for whichever user-group community you are talking to, whether it be schools, or taxi drivers, or university academics, you make it personal to them as far as climate change impacts in their area and the solutions which apply to their lifestyle. If they are someone who drives a lot, then the impacts on their driving, but also how they can make a difference through changing the engine size of their car; whereas for other people the major climate impact may be flying, and there, obviously, you can give them information which is directly applicable to them.

Making the message more personal, I think, is the key, and that is something which I have failed to do in the past.

Q444 Chairman: Can you develop that thought process a little bit for us? I recently, for example, rang up my electricity company and said, "Can I have this year's and last year's consumption data?" They said, "Yes, you can have that." Then I said, "Can you convert it into carbon dioxide and carbon emissions?", and they said, "No, you will have to go away and look up this website and find out what your carbon footprint is", and all of a sudden that simple connection to me, the "what am I doing" process, meant I then had to go off and do something else. What works to make it personal in your experience?

Dr Reay: If you take the point of view of your energy provider, if you have got through their Energy Efficiency Commitment, instead of it simply being, "We are providing you low-energy light-bulbs", for instance, "at no cost or low cost", if you can have information based on, "This is what the impact of climate change is going to be in your area and this is what you can do about it. This is the saving you will make by using our low energy light-bulbs. This is how it will benefit your borough or your community as far as the reductions in greenhouse gas emissions and the warming impacts." It is a huge challenge to do, because you are talking about so many different levels of society and so many different areas. You can imagine a community in Dover, you could highlight climate change through the impacts of increased immigration, the immigration figure is going to go up.

Q445 Chairman: When you are talking about how you get this through to the individual, the citizen, who do you think should be responsible for making the connection between the big, high level issue, the global issue and what happens in Dover, for example?

Dr Reay: Basically, if you take the science, you take the climate impact projection, so the UK Climate Impacts Programme, the information they are providing, and the information the Energy Saving Trust provide, you put those together for user groups, for local communities. You have community leaders, you maybe have religious leaders, church leaders, who actually know what is going to work for their communities, and you give them the information targeted at those communities and targeted in a way which will actually ring a bell.

Q446 Chairman: I do not personally disagree with what you are saying, but there is a slight missing link in the logic. You say you should. Who is the "you"? Who should be the connector? Who should be the organisation that takes the information from the Energy Saving Trust, the Environment Agency and bring it down to the citizen? Who makes the connection?

Dr Reay: I suppose, at the moment, we have got things like the Climate Change Initiative, which has worked really well at sending out these climate

¹ www.ghgonline.org/

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change champions and giving the information in that way, and they are taking the information via Defra but, obviously, there is input there from the Energy Saving Trust. I guess we have got the framework, we have got the bodies with the information. There is going to have to be work, and if you identified a thousand user groups and each of those had a community leader who could give you feedback on, "Yes, this is basically what will work for my community", and then you looked at the information we have got on climate change impacts and/or mitigations through the individual level and tailored a package for that group, you would end up with a lot of packages, maybe a thousand different packages, some of them overlapping a lot, some of them very different. It is not something which is already on the shelf which we can take off from the Energy Saving Trust or Defra, but the information is available in its raw form.

Q447 Chairman: In our society we have got things like local authorities. I suppose you might consider them to be a suitable body to co-ordinate some of this information and disseminate it?

Dr Reay: That would make absolute sense, yes.

Q448 David Lepper: Can we just concentrate on individual households or households collectively, perhaps, because I think we have got a strange situation, have we not, where overall greenhouse gas emissions in this country have fallen over a period of time—

Dr Reay: Not in housing.

Q449 David Lepper: ---but the use of energy by households has increased, and I think (and the figure I have seen here is for 2004) 85 per cent of our greenhouse gas emissions came from households.

Dr Reay: That is direct and indirect.

Q450 David Lepper: Direct and indirect, yes. You have said that significant reductions—that was the phrase you used, I think—in greenhouse gas emissions can be achieved through greater energy efficiency, reduced energy demand at the level of households and individuals. Can you quantify what you mean by "significant reductions"?

Dr Reay: If you put it into terms of, say, the Energy Efficiency Commitment, basically that is aiming to reduce carbon emissions, greenhouse gas emissions, by, I think, point seven million tonnes of carbon per year going up to 2008. That is the beefed up version that we are in now. If you look at things like stand-by power wastage, that is the same number, or actually a bit more, as far as the amount of greenhouse gas emissions arising from energy wastage, stand-by power wastage, so the numbers are really significant. If you look at Northern Ireland, for instance, you have got really big direct emissions of greenhouse gases because of their reliance on coal and oil, as opposed to gas on the mainland. With a switch-over to increased gas use, so a more widely available gas supply, you

would get the same kind of reduction, about three million tonnes of CO₂, so point eight million tonnes of carbon a year reduction. So, they are big figures, and they are not changing radically the systems we have got in place as far as stand-by power. It is a case of we have the technology to reduce the stand-by drawdown for a lot of the appliances which we buy, but the incentive for manufacturers to, say, take their set-top box and, instead of it drawing ten watts all the time on stand-by, making it a one watt set-top box has not followed through, but the potential is significant. I really do think so.

Q451 David Lepper: Does it actually need government to lay down the law to the manufacturers?

Dr Reay: Absolutely.

Q452 David Lepper: You are saying that cannot be done by voluntary measures, by persuasion?

Dr Reay: I think for things like stand-by power, you can tell people about how it is costing them money and what a waste it is, but if you buy a set-top box, if you go down to the shop today and buy one, it will not have an off switch and you are relying on people reaching behind the TV and the table and trying to turn it off at the mains. Actually, we could address this at the root and have a one watt limit on stand-by drawdown for these appliances, and then you have got the saving, you are not relying on people doing a contortion act when trying to switch things off.

Q453 David Lepper: Are you aware of discussions that have been going on with the manufacturers over this or not?

Dr Reay: The one watt initiative I think was mentioned at the G8 at Gleneagles, it was one of the things which were brought up there, but on the ground it does not seem to have happened, as it were.

Q454 David Lepper: We have gone beyond gentle persuasion?

Dr Reay: Yes. Stand-by power is one of those ones where it is a big waste of energy (like I say, three million tonnes of CO₂ as a result), but the benefit is to no-one. There is no sort of extra comfort at home, there is no higher standard of living, it is just an absolute waste of energy and emission of greenhouse gases.

Q455 David Lepper: In terms of the individual, what would achieve the most in terms of significant reductions in greenhouse gas emissions by the individual? Leave aside the household, what the Government ought to be telling us to do. What change can I make that would make the biggest difference?

Dr Reay: When I am asked what is the single thing I do when I want to tackle climate change as far as my home goes, my advice would be to switch to a green energy supplier, to actually source your power from renewable resources, and obviously that has a feedback as far the expansion of

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renewables. So, as far as behaviour, it is a straight switch from a fossil fuel supplier to a renewable energy supplier.

Q456 David Lepper: Is there not some ambiguity about quite what is meant sometimes when the suppliers claim to be providing us with the green energy?

Dr Reay: There is.

Q457 David Lepper: And is there any helpful way for us to distinguish between what is really green and renewable and what is not?

Dr Reay: I think the Energy Saving Trust has a list of the different schemes and tells you what percentage of your power is coming from renewables. There are a lot of schemes. There are some that put money into the RSPB. There are various different formats. There is quite a lot of choice out there as far as what you want to go for as far as a personal interest. Obviously there is not the capacity for the whole country suddenly to switch over to renewables for home energy use, but there is a feedback effect there. If you get people switching over, and in some cases you do pay a premium for green power over the cheapest version if you go on one of these website comparison sites, but it is not a big premium, and I think it is a great first step, there is a whole range of things that an individual can do, but if I was saying just one thing that is not going to change your lifestyle really at all, then switching to a green supplier would be it.

Q458 Sir Peter Soulsby: Do you think that there ought to be a proper accreditation scheme for green energy suppliers, and, if so, who should administer such a scheme?

Dr Reay: I think there should be. The accreditation problems: for green energy supply and for the whole offset side of things as well which feed into it, at the moment, I think, there is a bit of a gap there as far as people paying money for what they think is green energy or for green energy based on offsets, and there is not an overt system of accreditation. Who should be responsible for that? I suppose, if we are using existing bodies, then the Carbon Trust and the Energy Saving Trust need to actually quantify: does a scheme reduce greenhouse gases or how much of your energy is coming from renewable resources?

Q459 Mr Drew: Just a quick point about the level of technical knowledge in this area. When I have been talking to people who are actually trying to introduce various forms of renewable energy, they are very clear that there is a dearth of people who have technical expertise, and that makes it very difficult to know how you go about getting proper advice. Is that something you would agree with and, if it is, what should we be doing about it? We have had this discussion with Ofgem.

Dr Reay: This is advice for what? For expansion of renewable generation?

Q460 Mr Drew: For looking at how you try and explain to the general public what it is that they should be doing with their houses, what they should be doing in their place of work and just really trying to communicate properly what is possible and what is affordable?

Dr Reay: There is a lack of expertise in the UK and more widely as far as renewable energy, but energy saving in the home, as far as residential—

Q461 Mr Drew: How do we bridge that gap? Who should be doing it? That is the problem that some of us are having in this inquiry. Who should be taking this forward?

Dr Reay: I have not got an answer for that. At the moment we have got a situation where many of us in the scientific community talk to the public and we feed through into various energy saving schemes as far as the information we publish in papers, and then there are various bodies with experts like the Carbon Trust who can give advice to business, for instance, the Energy Saving Trust for homes. How you increase the numbers of those people and add expertise is not going to come out of thin air, it is going to take money and it is going to take training to expand the numbers available.

Q462 Chairman: Do you think that is a job for government to try and address that deficit of skills?

Dr Reay: Who else is going to actually put that into train?

Q463 Chairman: I think this comes back to the point I was making at the beginning, which is: how do you connect the body of science and analysis, which in the nicest sense you represent, and action on the ground to actually translate the warnings into action to counteract the trends which you have identified?

Dr Reay: If we were talking about local authorities being possibly a vector for this and, if you are looking at a top-down approach, then saying to local authorities, “You need a team who are experts in providing this advice for your various departments and providing information on residential emissions, residential energy saving.” There are local authorities where that expertise already exists and others where it does not exist, and, obviously, you need something top-down to actually say, for every local authority, you have an obligation to provide this information to your community.

Q464 David Taylor: Can we go, Chairman, to the area of household energy efficiency. You have already said in response to David Lepper’s questions that households are using stand-by power and waste three million tonnes in greenhouse gas emissions every year. In your submission you say to us: “The public perception is that many of these devices either are not drawing much power or cannot be turned off and on without the risk of the device breaking.” Is not that perception still a moderately accurate one in the second category there, in that when I have had devices go, whether

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it be computers or TVs or whatever, it has often been on switching off or on, or is that just coincidental?

Dr Reay: There are a lot of myths associated with turning things off and on. The whole idea we should leave lights on because they use more energy when they are warming up, and with TVs, videos, computers, that you should not turn them off and on, in the majority of cases it does not apply, they can be turned off and turned on regularly every day for 20 years, say, for a computer, so well beyond the lifetime of most PCs and they will be fine, and that applies to most of the appliances. There are some occasions when most of us notice that it has gone when we have turned it off and turned it on—that is when things seem to break—and so the perception is that we should not be turning things off and on. Again, there is an onus on manufacturers, in that case, to make sure that things can be turned off and on. There are some myths associated with energy used by appliances though, and one of them is that they should be left on because they use more power powering up than they do if you just leave them.

Q465 David Taylor: Like many people, I make intensive use of PCs, both here, in the constituency and at home, and it is more than just a perception: when I leave the PC running overnight or for days it is stable but if I turn it off all hell breaks loose.

Dr Reay: You should get a Mac rather than a personal computer!

Q466 David Taylor: Was that an advertising campaign! Behind the three million tonnes of greenhouse gas emissions per year from households wasting stand-by power, the assumption is there are an average of 12 such devices in the average home, I think the Energy Saving Trust has said, and many of those use ten watts and upwards. Let us say ten devices times 15 watts equals 150 watts times 25 million households: a quick figure shows about 3.75 gigawatts. How many power stations is that then that are humming away merely to power unused devices throughout the land?

Dr Reay: If we took Drax, which is possibly the biggest, most famous power station in the country, that produces about seven terawatts, seven terawatt hours per year.² If we could do away with stand-by power, it would be the equivalent of taking Drax off line for several months.³

Q467 David Taylor: You referred to the existence of the voluntary initiative, and that is fine, but do you believe that our country and our Government is, in fact, taking the lead in introducing appropriate standards in relation to the one watt device and providing clear and easy to use off buttons and so on. How would you prod government into action on this if it is saving a Drax, or almost a Drax?

Dr Reay: That is a good incentive in itself, when you have figures like that, as far the controversy over Drax and the costs involved, saying that through reducing stand-by power wastage we can essentially save this amount of power, we can address this much as far as our Kyoto commitment. I think things are being brought into focus a lot lately by the Stern Report. The actual financial implications of climate change mitigating emissions now versus the cost of adaptation later on, I think that message, not just at a government level but at an individual level, actually has quite a lot of—

Q468 David Taylor: What should the Government be doing in relation to the manufacturers of electrical and electronic goods to bring about the reductions in power consumption of stand-by and also discouraging the use of stand-by at all?

Dr Reay: If I had a magic wand, I would get the EU to basically commit manufacturers to producing their appliances with a one watt stand-by power use, rather than the ten, 15, or whatever it is at the moment; and the same with low-energy light-bulbs. Forget importing tungsten light-bulbs, compact fluorescents or light emitting diodes are the thing which will be supported and tungsten light-bulbs will be taxed or prohibited within the EU. If I had a magic wand, that would be what I would do straightaway to address what I see as a lot of energy wastage.

Q469 David Taylor: In your submission, again, you say, “Some commentators have lamented high greenhouse gas emissions from power-generation in the UK, suggesting that it is futile for individuals to cut their emissions while fossil fuel-fired power generation continues to dominate the energy mix.” That is a quote from your submission, is it not?

Dr Reay: Yes.

Q470 David Taylor: To complete, you say, “What those commentators overlook is the prime reason for the existence of these power stations: direct and indirect energy consumption by households.”⁴ That has an interesting parallel. I was not part of the Committee visit, but I know that when this Committee visited California fairly recently they heard how the Pacific Gas and Electric Company proposed to replace one of San Francisco’s power plants with a new plant twice the size, but then the regulator in that State examined energy demand in the area and its energy resource plan showed that energy efficiency measures could save the equivalent of the extra power that would be generated by what was therefore proven to be an unnecessary power station. You presumably warmly endorse that sort of approach?

Dr Reay: Yes. It comes back to the whole idea of being able to take Drax off line through simple energy efficiency in homes.

² Note by witness: Actually 24 TWh as at January 2007.

³ Note by witness: Around 100 days assuming 7 TWh annual electricity consumption by standby power in the UK, [Elliot Morley MP, June 2005].

⁴ Ev 198.

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Q471 Chairman: One of the problems is that we all buy our power from lots of different producers. We have no real idea of what the energy use's mix is in terms of what our individual activity is going to be in terms of what your power producer then does in reacting to your diminishing demand.

Dr Reay: Yes. The ideas with great potential (and the studies have been fairly limited and mainly in the US) are these things called smart meters. The idea behind them is that you actually can see how much energy your home is using and it can either convert it into a price as far as how much you are being charged for your electricity, or your gas, or the carbon footprint of your energy use. Like I say, they are limited studies, but the evidence from that is that they have allowed people to see what impact they are having as far as their energy use, but they have allowed people to see what impact things like putting in low-energy light-bulbs or turning off the lights at night or turning things off at the plug actually has on their energy use and on their climate impact. The figures are about a five to ten per cent reduction in household energy use from the installation of these smart meters, and I think they have got a great potential to raise awareness and to connect people with the fact that, when we switch a light on or turn the TV off, that actually means something to our pocket and to the environment. It might be hundreds of miles away at a big power station that the emissions arise, but it gives that connection and it is there for people to see.

Q472 Chairman: The greenhouse gas emissions that are directly attributable to households through cooking and heating and public transport, and so on, have continued to increase over the last ten years or more, at round about one per cent a year. It really is crucial that we turn that graph in the reverse direction, is it not?

Dr Reay: Yes, it is a bit of a tragedy really because our efficiency of production has increased, as far as energy goes, and if everything else had stayed the same you would have seen emissions fall in households, but we are using a lot more power, we have got a lot more gadgets, we have got a lot more demand as far as single person living, a lot more houses that need heating, and so the residential energy use has continued to rise, even though behind that UK emissions have been falling, and transport and residential emissions are the two sectors where we do not seem to be succeeding in at least levelling things off let alone reducing emissions.

Q473 Chairman: Do you think that a clear and indisputable link between greenhouse gas emissions for individual households and the GHG emissions from the power stations which are pumping all this wasted energy away is being made?

Dr Reay: I do not think it is. I think your average man or woman on the street might see that if they have got their gas fire on that could be emitting these gases, but the lights in the room or the TV,

I do not think that link is there at the moment for most people, but that is also driving climate change.

Q474 Mrs Moon: You talked about the one watt stand-by. One of the things that concerns me is that that is for the future. A large number of families are already running things on stand-by, and I smiled at your image of balancing on one leg and turning the television off. I do that every time I am home and it is very silly. Is there any suggestion that anyone is working on a sort of plug, something that you can connect to the existing equipment that you have got, that would filter that stand-by?

Dr Reay: There is a "stand-by killer" apparently. I have not seen one of these things, but apparently it will detect when things go into stand-by mode and it will turn them off. It is kind of an interface between the socket and your gas guzzling set-top box. I have read about that technology, I do not know how effective it is, but people have thought about that.

Q475 Sir Peter Soulsby: Can I take you back to light-bulbs, because this is something that is fairly easily understood by people and fairly easy to do. When we heard from B&Q they told us about the research they had done which suggested that, even on comparatively low-cost lighting items, the price differential between conventional lighting, tungsten lighting, and low-energy lighting was quite significant and gave the consumer choices. I really wanted to check that I had got your position correctly. I think you were suggesting that subsidising low-energy was not a sensible thing to do but that actually taxing or prohibiting tungsten was the way forward?

Dr Reay: Yes. I think at the moment we are in the situation where you can say to people, "Look, a low-energy bulb will last longer and pay you back much more than you would spend on a comparative conventional bulb", and they will still go and buy the tungsten bulb because it is slightly cheaper. So, if you are going to subsidise low-energy bulbs, it needs to be to the extent that they are at least equal to the old-fashioned tungsten bulbs, if not cheaper. At the moment, wherever there is a price differential, the default seems to be to go for the old-fashioned energy waster.

Q476 Chairman: Do you believe that? I sent for a British Gas kit—I decided I would see what the propaganda was—and along came my two energy saving light-bulbs. I walked round my little house in the constituency looking for somewhere to put them, and I could only find one light-fitting that the energy saving bulbs would actually fit in. When I looked round at the plethora of light-fittings which we have invested in over the years, they were all different and variable and the manufacturers of these energy saving bulbs have not got round to producing such a variation. People have invested a lot of capital in the light-fitting of their choice. It is a bit difficult to say to them, "In the interests of

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climate change, scrap all this lot and go for things that are compatible with energy saving light-bulbs”, but that is the reality.

Dr Reay: I do not think it is as bad as that. There are lampshades which will not take the compact fluorescents, but, in general, if you go to a big supplier, say, Ikea, for instance, they have a wide range of lower energy bulbs, and, speaking about my experience in my house, for most of our light fittings we can get low-energy light-bulbs easily, and for the trickier ones it is a search on the internet and you have to pay a premium to get these specialist ones, but they do exist and it is not simply that most of the old-fashioned fittings will not take the bulbs. Manufacturers have made an effort, I think, to bridge the gap for the more odd fittings and the more odd lamp shades. All right, you are going to have things in your house, you are going to have lamp shades that will not take anything but the old-fashioned ones, but you are talking about one out of 12. It is of that kind of order.

Q477 Chairman: You argued in your evidence that the use of those bulbs can save more than 50 kilos of greenhouse gas emissions a year?

Dr Reay: Yes.

Q478 Chairman: Do you think we are very good at communicating to people what effectively is the weight of greenhouse gas or carbon emissions from their property? If they are mentally saying, “Okay, this is my number. Now I am knocking so much off”, I would imagine that very few people, including me, have got a really clear idea in weight terms of the carbon and greenhouse gas emissions they are actually emitting. How do we get round that problem?

Dr Reay: At the moment, like you say, most people do not have a clear idea. When you went to your energy supplier they sent you to that site, and that would have calculated your carbon footprint and the weight in tonnes of your emissions. You either tackle it by saying to the energy provider: “Give out bills with the greenhouse gas emissions on”, so that people can see that it is this many kilowatt hours but it is this much climate impact, or you do it, as I was saying, as far as raising awareness of climate change impacts and mitigation on a community level. You can imagine a mass mail posting for a local authority saying: “The average household is emitting this much greenhouse gas. We are supplying smart meters so you can see how well or badly you are doing and we have got this list of practical ways to reduce your carbon impact, and you can actually quantify that using a smart meter or through your energy provider.”

Q479 Lynne Jones: I want to go back to this issue of light-bulbs. Although I agree, I have been able to get every type of fitting, bayonet or screw fitting, small or large, the issue is design. You cannot get, for instance, small candle type bulbs or small round bulbs. It is the aesthetics and the design that is the issue. How can we ensure that manufacturers

actually invest in the production of those? They are probably going to be even more expensive because they have to be so much smaller. Are we back to the fact that we perhaps do have to make the tungsten bulbs of that kind that much more expensive to justify the investment in those designs?

Dr Reay: I think, if you are comparing compact fluorescents and tungstens, then, yes, you are in that situation where you are stuck with tungsten.

Q480 Lynne Jones: No, to get the kind of small bulbs, you need further investment in even smaller designs.

Dr Reay: What we have got in this country, which is very exciting, something which we should probably put a lot more funding into, is LED technology, the development of light emitting diode lights, and they lend themselves brilliantly to these tricky situations where you want a really small bulb, you want a coloured bulb, you want a niche bulb, if you like. They are very energy efficient, and they are something which we can see already. Over the next couple of weeks probably from space you will be able to see the Christmas lights of the country, and most of those at the moment will be pretty inefficient as far as what is possible as far as their use of energy, but light emitting diodes, the LED technology, not just for Christmas lights but for general lighting, has a big potential to fill that gap.

Q481 Lynne Jones: What sort of price are we talking about?

Dr Reay: At the moment you are looking at a greater cost than for your tungsten light-bulbs.

Q482 Lynne Jones: I know that, but how much more? People do not mind paying a couple of quid, but if it is 12 quid—

Dr Reay: I will check it out and send you the prices. They are not of the order of ten or 20 times more expensive, but I will have to check the prices for you. They already exist. You can get them for Christmas lights, certainly in the kind of lighting situations as far as the home goes. So they are a technology which has good potential, but I will check the prices for you.⁵

Chairman: Has anybody else got a commercial here! Lynne, do you want to carry on with your other questions.

Q483 Lynne Jones: Yes. A lot of people are very suspicious under the Energy Efficiency Commitment that they have got British Gas or their energy supplier offering freebies, acting on the assumption that there is no such thing as a free lunch. Perhaps the take-up would be higher, do you think, if it was made explicit that this was an obligation on the energy suppliers to do this, that they are not just doing it out of the goodness of their hearts?

⁵ Note by witness: A set of three LED Opal bulbs (240volt 1watt BC/B22 Cap LED White) costs £8.05 (as at 14 December 2006).

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Dr Reay: Yes, I think it is a real issue that people are a bit distrustful. I think you could go some way to make it clear that this is something that they have got to do and that they are not doing it to try and get you to agree to a new scheme that they have got going. One of the best examples I have seen of getting that kind of action and getting round that problem of mistrust is, I think, Basingstoke, but there is a local authority essentially where you get a rebate on your council tax.

Q484 Chairman: Braintree.

Dr Reay: Braintree—that is it. That has been really successful. The uptake has been much higher. It gives it more legitimacy, I think, when it is coming from a local authority than from your power company, who you might have just switched to in the last year because they had a cheap rate or they were giving money to the RSPB. It actually engenders more trust, as a tool to break through this barrier where people distrust what they see as, “There is no such thing as a free lunch. There must be something attached to this free light-bulb.”

Q485 Lynne Jones: The concept in the Energy Review is that energy companies should be energy service companies rather than energy supplying companies. That might be okay for the sort of installations that we have been talking about—light-bulbs, loft insulation, cavity wall insulation—but there is plenty of scope there because that is relatively cheap; but if you are coming down the road of more expensive energy saving measures or microgeneration—you just mentioned the energy companies, that you might have switched several times, you have not got that kind of relationship and trust—is that a reasonable model? The Energy Saving Trust tells us that because of this short-term relationship it is very difficult to move that kind of model. What is your view on that?

Dr Reay: Ask me again. I did not quite get the question.

Q486 Lynne Jones: The Government wants the energy companies to change into energy services companies, whereby they make their profits by providing services, energy efficiency and microgeneration rather than simply supplying the energy. Obviously, if people do that their energy bills would reduce. In California, for example, the energy companies provide businesses with smart metering, the ability to switch off their vending machines over night, they are providing photovoltaic installations targeted at poorer households. Basically, the energy company puts the investment in and then people pay back in terms of their energy bills. So their actual consumption is down but they are paying a contribution towards the energy efficiency or microgeneration measures.

Dr Reay: I think the phrase that comes to mind with such a scheme is “the tipping point”. It is people being able to see it working on their neighbour’s house or see it working in their street as far as winning them over for these high-cost

things like photovoltaics or wind turbines even or solar water heating. You are talking about thousands of pounds, and I think to get people to say, “Yes, I will take this installation from my electricity service company and pay money on the basis that it will pay me back”—

Q487 Lynne Jones: You are not putting money up front. The energy company is putting the money up front. It is like taking out a loan with the energy company and paying it back in instalments on your bills, but your bills are going down because you are consuming less energy?

Dr Reay: Sure, but I imagine the instant perception for most people, because it is their energy provider, would be, “This is just another hike on my bill.” I can see why it is more attractive than paying a big capital cost, having it installed and then having to pay that back to the bank, say, if you have got the money to have that installed, but I think to make it work there is a critical point about it being clear to people that this is something that does work, that there are enough landmark sites, I guess, around the country or in their city where they can see solar panels are effective. In Edinburgh we have got a great example where the local authority did not have the money to put solar water heating on a whole row of tenements, so they put them on the roof of every third block. The response from the residents with the solar water heating was really positive, as far as they became much more energy aware, but the demands from the other two houses in each set of three were suddenly, “Why have we not got solar water heating”, and the perception that this is not something that is odd as far as microgeneration goes.

Q488 Lynne Jones: But did it make them willing to pay? How would they pay for it if they were low-income households?

Dr Reay: Anecdotally they were willing to pay more for access to solar water heating, and they were much more accepting of—

Q489 Lynne Jones: What, on their rent?

Dr Reay: What happened with that particular scheme is that that is where it stopped, and so we are still talking about how we actually build on things in Edinburgh and get whole communities more invested in taking up microgeneration. Mark Lazarowicz, obviously, has been key to this in Edinburgh, and we have got some big plans to try and put in place a landmark development as far as renewable energy goes for residential buildings which hopefully then will send out these ripples, and, with enough follow up, you kind of get through that tipping point that I was alluding to, as far as people accepting this as something that they will pay extra for.

Q490 Chairman: Can you help me to look little bit into the future in the light of what we are talking about, because so far the conversation has focused on how do we introduce, particularly into the domestic sector, today’s technology and perhaps a

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little bit of tomorrow's with LEDs. If I look at the numbers in your evidence, you show that not only have the emissions from the household sector been rising, but you say that the trend is set to continue and household energy use will rise by a further 25 per cent by 2025 and emissions from private transport by 50 per cent. If I look at the track which the government has set, with its overall target of one per cent a year starting in 1990 through to 2050, globally we are running at a rate of having to say, from now on 1.9 per cent a year, otherwise we cannot catch up and meet the target. The sectors we have been discussing are not just going to have to run, they are going to have to sprint to catch up, and what I am not getting is that, if you could wave your Reay magic wand and put in all of the things that are presently available, it strikes me (and I do not know numerically whether we would have caught up) that then there is a lot more still to do. What I am not getting the message on is, when we have done what we can do, what does come next? If we are having a struggle getting today's technology implemented, how on earth are we going to get something that is even better, more high-tech, more difficult to do in place if we are going to meet this ever receding target of our 60 per cent reduction in greenhouse gas emissions by 2050? It seems like we are always going to be chasing the light at the end of the tunnel.

Dr Reay: To be honest, I think we probably are for the 60 per cent, and the 60 per cent has got to be taken in context that that was designed around the idea of avoiding the two degree centigrade increase in global temperatures from pre-industrial—

Q491 Chairman: Can I ask you specifically, does 60 per cent achieve that? Because there is a bit of a battle going on with some people saying it has got to be 80 per cent, and not 60 per cent, so that you maintain the two degree figure in terms of global warming increases. It is quite difficult sometimes, with the battle of the targets going on, to know what is the right number.

Dr Reay: Globally 60 per cent would do it, but given that we are high emitters, we are a developed world nation, 80 per cent is more like what we are going to need. If I am honest, I think as to keeping global temperatures below two degrees centigrade, it is hard to see us being able to do it given the current models, and it is going to take a huge reduction in emissions.

Q492 Chairman: If that is the case and we are sitting here grinding our way through how do you move this thing on incrementally—and you have just told us, whether it is 60, 80 or some other number, the chances of us actually getting there is going to be very difficult to do—does that not say that we are not adopting the vigorous strategies that we need to be if we are actually going to make an impact on this problem? Are we not just nicely going along, a few energy saving light-bulbs, a bit of insulation here, a bit of energy service there? It is all a bit stodgy really, is it not?

Dr Reay: Yes. I think it needs to be big as far as the effort we put into addressing not just residential but transport and business emissions. It needs to be a step-change in the level of activity, the level of awareness in the public to this whole idea of maybe a 1,000 or 10,000 communicators on a grass roots level communicating climate change and how it can be mitigated. Yes, I think we really need to get our skates on.

Q493 Daniel Kawczynski: I think Great Britain is responsible for two per cent of global carbon emissions.

Dr Reay: Yes.

Q494 Daniel Kawczynski: So even if we did all of those things that you are saying, we still would not be able to really affect climate change because we need the other countries—China and India—to play their part in the developing world?

Dr Reay: Yes.

Q495 Daniel Kawczynski: Do you have any interaction with colleagues like yours in these countries to see whether they are as serious as you are about pushing for this with their governments?

Dr Reay: No, not really. The interaction we tend to have is with European colleagues and colleagues in the States and Australia. It often comes back to this whole idea that, if we halved our emissions, it would only mean a one per cent cut in global anthropogenic greenhouse gas emissions. If you are going to throw your arms up in the air and say we are cannot do anything, you can throw that argument into the ring, but, on that basis, for the US, which is the biggest emitter of greenhouse gas, as a nation, they could say, "We are only 25 per cent. What impact could we make? Seventy-five per cent is not up to us." Where Britain could really lead the way is if we really do get stuck into mitigating climate change on a domestic level right through business, through things like aviation across the EU, we could pull a lot of other countries along. We could show India, we could show China that we can have sustainable development without big increases in greenhouse gas emissions. Obviously, if we assist them in their development in a way that does not produce the greenhouse gases that constituted our industrial development, then it is in our interests to do that, because obviously climate change is going to impact on us as well as them. As far as their awareness and their action on climate change, I know that in China there is a lot of concern about the impacts of climate change already because of drought impacts and water shortages. I think, given the right amount of help, and Kyoto gives us, albeit an imperfect, mechanism under the Clean Development Mechanism to provide less carbon intensive growth in these countries and, all right, we might only represent two per cent of greenhouse gas emissions, but we can punch our way maybe ten, 20 times that if we show people how it can be done.

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Q496 Daniel Kawczynski: But the countries that you mentioned that you are interacting with sound to be all rather Anglophile countries.

Dr Reay: Yes.

Q497 Daniel Kawczynski: In the work that you do, you are arguably going to be even more important than MPs in convincing foreign governments to act on this issue, but why is it that you are not interacting more with non Commonwealth Anglophile countries?

Dr Reay: We do have a level of interaction through the Inter-Governmental Panel on Climate Change, which basically has representatives on the working groups from developing world and developed world nations as far as scientists go. Obviously the scientific community is a global one. My personal work does not actually link in with developing world scientists, but that is not to say that a lot of other climate change scientists do not, but a lot of them do have a good line of communication as far as what is happening on the ground. You can see that if you look at the Third Assessment Report, and the Fourth Assessment Report from the IPCC is out next year. In all three volumes there are contributions from the developing world as far as science, adaptation and mitigation. So it is not like there is not a line of communication.

Q498 James Duddridge: I would like to return to microgeneration. In your submission you identify three principal barriers for microgeneration: cost, planning and grant confusion. What more can we do to overcome these barriers and, specifically, how effective is the Government's microgeneration strategy in overcoming the three barriers that you have identified?

Dr Reay: It comes back to communication again, I think. From a personal perspective, I went to get solar water heating for my house and, first of all, I hit a planning barrier in that planning did not know if we were allowed to have solar water heating in our area, and then they got back to me after a while and said, "You will have to go and measure the area because we think there is a percentage limit and how much it sticks out by." This is a low-tech microgen, not a wind turbine or anything like that; but not only were there lots of hoops to go through planning-wise, there was a lack of clarity as far as the planning department on what was possible and what was allowed. Then I went to get a grant, as far as a rebate, and they are pretty attractive in Scotland—we can get a third back for microgeneration technologies from the capital cost, which obviously makes a big hit. So I was blithely coming down to England and giving talks and saying, "Yes, you can get a third back", and then someone came up to me after one of my talks and said, "No, I tried and it is a maximum of £400." For a £5,000 installation it is not really going to cut the mustard. So there does not seem to be enough clarity as far as what is available for people and how they get it through planning. From start to finish, ideally, it should be clear, if you want to get solar water heating, what the payback time

is going to be, what the cost is going to be, what the rebate is going to be for your area, and that does not seem easy. As far as being a climate change scientist and trying to get solar water heating, it took me the best part of a year, and I imagine most people give up long before that, and that was for what I think is one of the simpler technologies to adopt.

Q499 James Duddridge: Is the Government's microgeneration strategy too little too late and, at the moment, pretty useless?

Dr Reay: No. On the train down here today I always look out of the window to see who has got solar water heating, who has got turbines, and they are cropping up (you can see that there is some uptake and it is growing fast), and when you talk to the manufacturers, they are being inundated with requests, so I think it is—

Q500 James Duddridge: But is that not the power of the citizen and the citizen's agenda? They are doing it in spite of government. Government is getting in the way in many regards rather than assisting the process?

Dr Reay: Government is getting in the way, I think, in that it could be happening so much faster because there is this willingness to do it and the cost through government aid, through the money you can claim back, is making it attractive to people, but people are being put off by the hassle factor. There is a hassle factor which is too big at the moment, I think.

Q501 Lynne Jones: When I asked B&Q about their wind generator they could not tell me what the carbon emissions were in its manufacture. Obviously wind generators are very good when you have got a lot of wind, but maybe they are not terribly good in an urban setting. Is this not just a trendy thing that people are going down—it looks good that they have got a wind turbine—but in terms of actual carbon savings there are much more important things that people should be doing.

Dr Reay: Wind turbines in the right place—

Q502 Lynne Jones: I have got a hillside in Wales and a house with no mains electricity, so that is how I get my electricity, but in Birmingham it is probably a waste of time.

Dr Reay: Yes, that is where, being able to see that this is going to give me so much energy, this is going to give me so much pay-back compared to solar water heating or the other microgeneration technologies, it is not easy to actually make that comparison.

Q503 Lynne Jones: We should also have CO₂ emissions in the manufacture?

Dr Reay: Yes, the embodied energy for wind turbines and for solar water heating is not massive, it really goes up for PV cells, so it is a bigger consideration for that as far as the payback time. So when I am talking about payback, it is not just money, it is getting the energy back that went into

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making the thing in the first place which is something that needs to be in there. If you are going to say this is going to give me a payback carbon-wise in 30 years' time, this technology versus one which will give me a payback in three years' time, obviously that is going to inform your decision, and those data are not readily available.

Q504 Mr Williams: On the planning issue, have you made any investigation about that? Should there be permitted development rights for microgeneration up to certain percentage of roof size or size of—

Dr Reay: We were limited to ten per cent of roof area, and then I tried to get a wind turbine and apparently our house is the wrong design, and there were issues about how high it could be if we wanted one in the garden. Again, they were very unclear about the noise level and what was acceptable, and when I went to the manufacturer they had a huge waiting list for wind turbines. They came out to do a site visit on ours, this is after eight months waiting, and said, "Oh, no, it is not suitable for our wind turbine." I think the initial uptake of microgeneration is stalling a bit because of the hassle and the time it is taking people. Certainly for us with wind turbines, we explored it for a year and then decided that was too much hassle, we would stick with the solar water heating, and that must be happening. From personal experience that is what has happened to me, and I imagine it is happening to a lot of people: they look into this, find it is a lot more hassle than they expected and then do not take it up.

Q505 Chairman: Can I draw this part of our proceedings to a conclusion by asking about personal carbon allowances or domestic tradable quotas. The Secretary of State has recently produced some work indicating that, in his judgment, such a scheme could be introduced within the next five years. Do you think that such a scheme is practical or beneficial? Is it something you would support?

Dr Reay: Absolutely, yes. I think it is going to be very difficult to actually put it into practice and avoid some of the negative problems. There are issues about whether you increase fuel poverty for some households, for instance, who might have very poor insulation. I guess if you use the model of the Energy Efficiency Commitment and actually look at basically low-income housing, giving them some protection, if such a carbon allowance would really exacerbate fuel poverty in these situations, and that is something that would have to be avoided in some way, but as a general mechanism to reduce emissions across the board, I think it has huge potential. I think it could do masses, yes.

Q506 Chairman: Do you know of any practical examples where anybody has actually tried it?

Dr Reay: No.

Chairman: Thank you very much indeed for your contributions to that and for your observations and also for the written submission that you were kind enough to make. You have given us plenty of food for thought in terms of connecting with the citizen in this particular part of our agenda so thank you very much.

Witness: Sir David Attenborough, gave evidence.

Q507 Chairman: Ladies and gentlemen, this is almost the occasion that I have to say that our next witness requires no introduction, but it is a great pleasure and an honour for the Committee to welcome you, Sir David, to be amongst us. As somebody who went to Leicester University the name "Attenborough" is etched on me in terms of the Attenborough Building where I did an awful lot of my study and in fact we have colleagues who represent Leicester constituencies here so in some way, shape or form we already feel an affinity to you notwithstanding the work which you have done on the television. My Sunday nights for the last few weeks have never been quite the same in terms of the presentation of the variety of wildlife on the planet and under the oceans that you and your incredible team have exposed to us. I am sure I speak on behalf of all of the Committee, we are delighted that you have helped to communicate some of these huge challenges and problems that face our globe in a way that we can at least understand and assimilate. However, we were particularly interested in the message and the lessons that came out of the programmes *Are We Changing Planet Earth?* and *Can We Save Planet Earth?* and the BBC very kindly made available to the Committee copies of those programmes. I

looked at them and I found them both challenging but also at the end of them quite reassuring in a funny kind of way because what you did not leave us with was an apocalyptic view that there was nothing we could do. However, you did set the challenge of what the steepness of the climb was in addressing some of these climate change issues. You have travelled the world and you have seen things that we can only look at. What prompted you to make those two programmes?

Sir David Attenborough: One quite precise thing, in November 2004 I went to a lecture given by Professor Cicerone from the United States who is an expert on atmospheric chemistry. He showed a series of graphs showing world temperature and, critically, population as well as ingredients within the atmosphere. The congruence of those things convinced me beyond any doubt whatever that not only was the climate changing, but that humanity was responsible for that. Until then, one knows that the climate has changed over geological history, and I was not totally sure that this was not just an aberration within the parameters of their ability, but Professor Cicerone's graphs convinced me beyond any doubt at all. It is not my job of course to make judgments on these things, my job is to make programmes about wildlife. When the

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BBC was discussing this I, of course, said, “Yes, I believe absolutely so that this is the case and if you want me to go and investigate and talk to people, I will gladly do so”. The only inhibition I had was that people might think I was setting myself up as an expert on climate technology and climate science, which I am not. Therefore, the programmes were very much an investigation from people such as Dave Reay, for example, who appeared in one of them and other people to talk about climate and the reality that really is taking place and secondly what we can do about it.

Q508 Chairman: You were convinced by Professor Cicerone’s analysis. Of all the things that you have seen, if you like, in recent years, when we have been focusing on our growing understanding about climate change that, if you like, physically convince you that something is going on—bearing in mind what you do with great expertise is communicate to the public, you are the interface between the reality and the viewer, your job is to articulate what you have seen in a way that the viewer can understand and respond to—if you wanted to give one or two dramatic examples of things you have seen, what would they be?

Sir David Attenborough: I suppose the Arctic and the Antarctic where retreating glaciers are very visible. The big changes that I see are primarily to do with density population rather than increase in temperatures. Of course, if you look at distributions of animals in this country, for example, if you look at butterflies or whatever, you can see perfectly clearly that there are migrations, increases and changes in the distribution of animals that are coming in from warmer parts of Europe, but again you have to be convinced that this is not just a variation which goes on all the time. You have to be convinced that it is a real permanent move and that is a difficult thing to do with one observation, you can only take it in perspective.

Q509 Chairman: What kind of feedback did the BBC get as a result of those two programmes? How did the public respond to what you were saying? When you were framing your remarks and looking at the script, did you have an audience of people out there that you were thinking, “I have got to convince them of the messages which I am seeing so they will do something about it” or did you say, “My task is to present what I am seeing in an entirely neutral fashion and leave the audience to draw their conclusion”. For example, I was taken by the visuals of the amount of carbon stacking up in big blocks. You have got some message in global terms, what it was about, but, on the other hand, at the level of the individual it is quite difficult to know which of the blocks up there I was responsible for.

Sir David Attenborough: I think the job of the broadcaster in this instance is not to be a propagandist necessarily but to be an investigator. Of course, it is easy to say like that and you think it is black and white, but, of course, it is not. There are a series of givens which you have to accept. The

given in the second programme was that climate is changing and humanity is responsible, that was the given, and people say, “That is still problematical”. At some stage you have to decide where you stand and from that basis you then become an investigator.

Q510 Chairman: Did the public, after having seen the programme and being offered, at the end, a strategy which said “If we do the following in these sectors, noting the graph coming down to stabilise today’s level of emissions, here is the position that we think we might get at 2050”, then respond in some way to the BBC by saying, “Tell us more, what can we do?”

Sir David Attenborough: I am afraid I cannot answer that because the very morning after the second programme I left for Australia from which I only returned ten days ago. I have not seen the qualitative research which was done as a consequence. I was close enough to hear the statistical results which were that the programmes have attracted a very much bigger audience than some people thought likely and the BBC has two measurements, it has a quantitative and a qualitative one. Within the qualitative one, which is expressed as a percentage, they were surprised to discover that the audience thought it was very good because quite a lot of people say, “It is very boring, why are you putting this on?”, but that was not the result. The result in short was that they had a very good reception and were very pleased, but I cannot say that we either recommended or saw the consequence of people saying “Yes, we will use low energy bulbs”.

Q511 Chairman: You have travelled the world, what are the feelings that you have picked up about how other countries see this issue? From the standpoint of the United Kingdom, the Government is fully engaged in the issue, putting aside for a moment what you think of the way it is doing it. The United States officially is disengaged, although some parts take part in it. Then, we go further afield and we look at China and India as potential generators of further emissions as opposed to sources of solutions. I think it would be very interesting to know if you have picked up how other people around the globe who you visited are reacting to the climate change issue and whether in fact they are engaging in this matter in the same way that we feel we are.

Sir David Attenborough: Just before going to Australia, I was in the United States filming in the South West and I was in Tucson, which is a very large city, and there was not a cloud in the sky and the temperatures were 110° during the day. The conditions were absolutely perfect as far as I could see for solar power. I did not see a single solar panel, not one, but what I did see was every house with an air conditioner working at full blast. The only thing you can say is that the citizens of Tucson had no concept that energy saving was of any consequence at all.

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Q512 James Duddridge: In order to mitigate against climate change what two single actions can, first, individuals take and, secondly, would you advise the British Government to take?

Sir David Attenborough: I grew up during the war and during the war it was a common view that wasting food was wrong, and it was not that you thought you were going to defeat Hitler by eating up a little bit of gristly meat but that it was wrong to waste food. People felt that widely and universally and I think people do not do the sort of arithmetic which we have been talking about earlier on very often. Some do and some do not. There should be a general moral view that wasting energy is wrong. Everything we do goes on up there and stays up there for 100 years or so in terms of carbon dioxide, and the more it does, the hotter it is going to get, the less it does, the less hot it will get. Therefore, it does not matter whether it is a tiny bit or a big bit, but it is your general attitude to life and I sense that is already in the process. People do look at 4x4s in central London and curl a lip already. It is part of the conversation, that that is wasting energy. I am hopeful that there is a real change taking place in moral attitudes which is not to do with saving pennies here or there, it is just that it is morally wrong to waste energy because we are putting at hazard our own grandchildren.

Q513 James Duddridge: I know it is simplistic, but a single thing for the British Government to do, what would your advice be? What action would you recommend?

Sir David Attenborough: The primary thing that the Government has to do is the international agreements because it is at that level that it has a unique ability. Lots of people, town councils, local councils, local bodies and citizens, can affect matters in the home and the policies of manufacturers and stores can affect the home, but the one thing which Government alone can do is to bring about the international agreements, which, fair play, it is working very hard to try and do. That is where we have to give it every support and particularly when the Government makes laws which will cost the voter money in his pocket, and as voters we have to tell the Government that we understand that is the case.

Q514 James Duddridge: Can I probe the balance between mitigation and adaption. Given that we are locked into potentially 25 years of climate change, even if we remedied our bad behaviour almost immediately, are we focusing enough on adaption?

Sir David Attenborough: I should think probably not because almost everything we can do, we are not doing enough of. We all know that we are not going to be able to improve the situation. What we can do is prevent the situation deteriorating faster than necessary, that is the only thing we can do now. Climate change is ongoing. If we reduce our carbon and various other things then the changes will not be as swift and not as severe but that there will be changes, there is no question.

Q515 Daniel Kawczynski: Sir David, you mentioned that you were relatively impressed with the Government in trying to secure an international treaty on climate change but here in the United Kingdom we recently had—I know you said you have just come back from Australia—the Pre-Budget Report by the Chancellor of the Exchequer which is being criticised wildly by environmentalists as doing far too little for tackling climate change. As a Conservative MP, I could bang on about this to the Chancellor until the cows come home and he will not listen to me obviously. As someone of your stature and someone who is known throughout the United Kingdom so well, would you be prepared to state publicly that the Chancellor is not taking this problem seriously enough and is not doing enough to stem it here in the UK?

Sir David Attenborough: I have to say that in that particular instance I have not looked at the document since I have come back, so I cannot say I would stand up and say that, but, again, whatever is done is not enough. You cannot do enough, whatever happens, and that he should do more, I am sure that would be true to say too, but I cannot look at the small print and say, “Yes, he should put tuppence on the bulb” or whatever.

Q516 Daniel Kawczynski: My second question is with regard to the responsibility of making communities be more sensitive to climate change. Do you think that is a role for Government or should local councils play a greater role? I do not know whether you can give us an example of where you live.

Sir David Attenborough: Yes, I certainly can. For example, I live in Richmond and I am involved in certain environmental bodies that are working there concerned with the Thames. At the end of the war, barges were loaded up with the rubble from central London and dumped on water meadows in Ham, raising the level of the land very considerably and effectively eliminating the water meadows as a flood safety valve. We are in the process of a scheme which was started by a local architect and is backed by many of the local bodies to put that rubble onto barges to float it out to the Channel and dump it in the North Sea. That we have had lots of local inquiries about; we have had protests. People from Ham have said, “You are going to destroy an area where I walk my dogs, and that is a terrible thing to have done because we have had to rip up that land and we do not want water meadows”. The debate has been a real one and I think that we have more or less won the debate, are now looking at European money to bring that about and so on. That is an example of a local council, local organisations and conservation organisations caring about their own environment and doing something about it.

Q517 Lynne Jones: You are a great educator and communicator, and you mentioned a little while ago that we were basically killing our children. My

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son goes around and, if anybody leaves a light on, says, "You are killing my children". What role do you think the education system can play in getting across to young people, and through young people to adults, that this is a moral issue, because politicians are perhaps not the best people to put this message across?

Sir David Attenborough: I do not know enough about schools in practical terms, but my impression is that a great number of schoolteachers—and I have no doubt that these are crucial people in our society—instil in children something which is already growing there, which is a respect for the natural world. Every child starts with a respect and an interest in the natural world, and primary schoolteachers build on that. I get a lot of correspondence, but I get passionate correspondence from children from eight, ten, 12 and certainly into the teens who are really powerfully motivated about the iniquity of some of the things that people have done. Pretty occasionally, they are pretty simple-minded, not simple-minded but *simpliste*, they take a very simple proposition and back it without thinking of the consequences, but, fundamentally, the moral drive is people think killing and exterminating wild animals is wrong. You do not have to argue that.

Q518 Lynne Jones: Do children often want to do something, but they have not got the means to take action? We have heard about programmes with NGOs and schools, that there is very little funding for those. Do you think this is something that really ought to be given a higher priority so children can go home and tell their parents, "Look, why don't you do this?"?

Sir David Attenborough: Yes, and there is a number of organisations that do that. BTCV, the British Trust for Conservation Volunteers, is a marvellous organisation which takes children out and shows them how to clean hedgerows, how to improve pastures and how to clean up mess and remove litter, and kids love it and do a great deal for it. I hope very much that the leadership on all these things is not the monopoly of the Government, that every group within the community, and there are lots of them, should also play its part because it has got to come from the community and from the grass roots if it is going to affect the children rather than being inculcated by Big Brother and television.

Q519 David Lepper: Sir David, some people say that when there is either here or anywhere in the world an extreme event, such as a drought, heatwave or flooding, that is a good vehicle for the Government, or whoever else is interested, to remind people about the importance of behavioural change, in other words perhaps to use scaremongering as a way of trying to affect people's behaviour. There is another school of thought, I believe, which says, "Well, that is more likely to

make people feel that the scale of the problem is so huge that there is not much we can do about it". Do you have a view about that?

Sir David Attenborough: I think if I was living in a village or a small town that either had just been flooded or, indeed, had a landslide it would be catastrophic and tragic. I would certainly think I would not be saying, "There is nothing you can do about it", I would be demanding that things should be done about it and people do. People whose houses regularly flood certainly want things to be done about it. I think there are other things, more to the point perhaps, in that the Government can help, not particularly in dealing with that, in their housing policy of not building on flood plains, which seems to me the most purblind and short-sighted of plans.

Q520 Chairman: Could we go back to this issue of connecting people on the ground in the United Kingdom with the global nature of the problem. It strikes me that one of the problems we have is the Government talks about it as if it is somewhere else. You mentioned that the major activity which the Government could indulge in is international negotiation which, again, takes it away from the domestic agenda. The Government has spent some £6 million on a communications programme to help local bodies communicate more with people, but somehow for most busy people this all seems a bit remote. They see the odd thing on the television, they pick up a bit of news about the odd glacier melting and the polar icecap, but somehow it does not touch them. How do we make the connection? You were talking about the development of a new moral feeling, that we have got to do something about it, but what, in communications terms, do you feel should be the tools that are used to really make people say, "Yes, I have heard this new piece of news and that does matter to me. I must now do something about it"?

Sir David Attenborough: I do not know the answer to that and, indeed, it is with the democratic system as to whether or not the Government assumes a dictatorial role and instructs people what to do or whether it advises people what to do. I guess that quite a lot of us would like to have some dictatorial power to say, "You have got to do this, that and the other", but that is not the system under which we live, I hope. It can only be done by continual persuasion, by talking here, by suggesting there, by changing the moral climate and the intellectual climate, that is the only way. I do not personally think that there is any way in which you can do it by fiat.

Q521 Chairman: I understand that, and I do not think anybody on the Committee would suggest that, but in terms of building up the movement towards getting people engaged; about your two programmes you said that there had been a remarkably large audience compared with that

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which you thought it was going to be. I do not know whether you can tell us how many people did watch the programme?

Sir David Attenborough: I do not have the figures.

Q522 Chairman: We will have to get in touch with the BBC and ask them the question. What I am interested in is, what are the mechanisms that ought to happen in propaganda terms that follow up, a scene setter that says, "This is what we have got to do"? Do you think it is the role of broadcasters to say that we have a responsibility to carry on filling in the gaps instead of simply reporting about the phenomena, that we need to go further?

Sir David Attenborough: Yes, I think that is so and it is one of the functions of public service broadcasting that it takes issues which are of importance to society and makes sure they are properly ventilated, and that applies to environmental issues as well as many other kinds of issues. That is what public service broadcasting ought to do and I would like to think it does do. You do it on different levels. One is quite straightforward saying, "This is what should be done", but there are other methods like, for example, simply showing what the natural world is like and convincing people that it is worth saving. It is a paradox that worldwide there are more people living in towns now, divorced from the natural world, than there ever were, there are more than people living in the landscape itself, and so where do people know about glaciers, whales, marine pollution and so on? From the media like television, particularly television, and television has that important role which I think it has taken and seized.

Q523 Chairman: Do you think that the major broadcasters should be looking, perhaps, to develop some environmental champions because it strikes me there has got to be a continuity of engagement with people on this, instead of saying, "Well, we will have a six-week programme and then that is climate change for 2007, and we might come back to it in the schedules"? It is a continual drip feed.

Sir David Attenborough: Yes, and I think a responsible network controller does have that in mind. On Friday I shall be filming another episode on climate change, and I have got two more programmes which are coming up within a few weeks and so those things are going on all the time.

Q524 Chairman: When will we have the benefit of seeing your latest works on that?

Sir David Attenborough: I am afraid I do not know the transmission date, but it is within the next few weeks.

Q525 Chairman: Very good. Could I thank you most sincerely for coming before the Committee and, as probably one of the best known communicators in the country, putting in very straightforward language that everybody listening to you would have understood. I just wish sometimes some of the other people who talk about the subject would be as straightforward and simple as you are. I think sometimes they talk in an academic language that is somewhat beyond the citizen to understand, but you have given us some very good pointers about, bluntly, how to get this message across. Thank you for giving your time, we appreciate it.

Sir David Attenborough: Thank you very much.

Wednesday 10 January 2007

Members present

Mr Michael Jack, in the Chair

Mr Geoffrey Cox
James Duddridge
Patrick Hall
Lynne Jones
David Lepper

Mrs Madeleine Moon
Sir Peter Soulsby
David Taylor
Mr Roger Williams

Memorandum submitted by Alan Simpson MP (CIT 44)

CLIMATE CHANGE: CITIZEN'S AGENDA

I am really pleased to have the opportunity of contributing to the Committee's inquiry into the role we can play, as individuals and local communities, in tackling climate change. I will try to do so within the sequence of headings set out by the Committee. I hope it is also acceptable that I add a couple of additional headings that relate to lessons I have learnt from the construction of my own eco-house and from other approaches being taken outside the UK.

As you know, my own project attempted to look for somewhere that was completely derelict and presented all the worst features of hard-to-heat properties that the government's energy efficiency programmes will have to encompass. Technically, I suppose it was helpful that almost everything inside the building had decayed or collapsed. You don't have to worry about adapting existing wiring and plumbing systems if none exist. This also gave me the "luxury" of being able to look at the materials that I might be able to use in the reconstruction process. It also helped me see the big gaps that exist between current policies and a coherent approach to genuinely promote citizen involvement.

Alan Simpson MP

CLIMATE CHANGE: A CITIZEN'S AGENDA

Attempting to turn my own home into a sustainable house has given me first hand experience of both the opportunities and obstacles people face in playing an active part in the Climate Change agenda. We are asked to lighten our "ecological footprint" by reducing energy consumption and energy loss, but how easy is this?

Ecological footprinting begins from recognition that there is a huge amount of embedded energy that has gone into materials already used within the built environment. Recycling these avoids the consumption of fresh resources and the disposal of existing materials into landfill sites. The more I went into this the more excited I was about its scope and potential. I attach a list of the recycled materials used in the house (not printed), though a fuller breakdown is set out on my website: www.alansimpsonmp.co.uk. Some of the different approaches to material re-use and the way in which this could be done in creative as well as functional terms, but I won't pretend that it was easy.

What worries me is that there is no obvious resource point for the public to access information about recycled materials and the built environment. If you are willing to look around there is, in fact, a real treasure trove of ideas that you can find. If we want the public to take this up on a large scale, we have to find ways of bringing this information (or its sources) together in an easily accessible way. I don't have a fixed view about whether the natural vehicle for doing this would be central government, local government or government regional offices, but we have to have a strategy that makes it easy for people to find out what is available and be excited by some of the work already being done.

The second issue I want to mention is the stage the renewable energies industry is at within the UK. The more I went into it, the more impressed I was about the glittering array of choices that are available. Less impressive is the availability of verifiable data about the ability of different systems to deliver what they claim. In some parts of the industry there are even doubts about whether firms can even deliver their own product. I think it is particularly important to address this in relation to wind turbines.

If you aim to be energy self sufficient, it is more likely that you will have to choose a combination of technologies. There are real problems about getting this to work and there is no single blueprint you can hope to produce. The location of the property, its exposure to light and wind, the availability of outside ground space, all influence the most appropriate combination of technologies. Many of the choices are genuinely exciting, but all will draw you to problems about interfacing.

The industry reminds me of an earlier stage in the IT industry. Companies were all coming up with wonderful software programmes, but none of them could talk to each other. So it is with renewable energy systems. You can complement the daylight input of photo voltaic panels with ground or air source heat pumps. You can combine solar water and solar electric panels. And you can have wind turbines and micro-CHP systems. But can you get the systems to combine? Technically, the answer is “Yes”, but this is the most immature part of the renewables market. Companies will supply their own kit, but connecting it into other component parts is a real minefield.

There is an urgent need for a government and industry initiative to look at interfaces between the different renewable energy systems.

My own house may well end up generating about 50% more energy than it consumes, but I suppose the most important thing that I learnt out of the process was that the real gains would come if this had been part of a neighbourhood or city-wide networked strategy. I will say more about this in the section on Decentralised Energy, but the reality is that there are no individual, stand-alone solutions to climate change. The most exciting consequence of the publicity about my house is that we have been able to persuade the City Council in Nottingham to support project proposals for a “zero-energy zone” for the southern part of the city. This would be able to make real use of the community based opportunities for renewable energy generation, energy pooling and energy efficiency measures. The beauty of this is that it would begin from meeting the needs of the fuel-poor rather than the cash rich. It may also allow us to get around some of the very real barriers that citizens face within the framework of both energy efficiency measures and renewable energy generation. It is these barriers that I want to explore first.

Systems rather than appliances

A citizen’s contribution to the climate change challenge inevitably begins in their own home and their own neighbourhood. In the home, there is lots of advice about switching equipment off, changing light bulbs, improving loft insulation and the like. The government’s Warm Front programme and the energy industry’s EEC (Energy Efficiency Commitment) funding have been good at promoting this awareness.

What worries me is that the current approach is fragmented, partial and short term. At best it addresses energy loss from the fabric of buildings and energy supply from more efficient equipment. At worst, households who cannot afford their share of new equipment costs just settle for the insulation work. Energy companies are not stepping in with offers to spread equipment installation costs over a 2–3 year period so that households can effectively make the repayments out of reductions in energy consumption. In part, this is a reflection of current energy market rules restricting companies to 28 day contracts with their customers.

Energy companies have a point when they complain that it is not economic to make such offers in an energy market that is driven by short term contracts and least price competition. Climate change commitments then get driven into the same superficial and short term trap. It makes me question whether the separation of Warm Front and EEC funding is a sensible or helpful division. We may be better off combining the funding and/or looking at new forms of energy contracts.

Table 1

<i>Period</i>	<i>Warm Front</i>	<i>EESoP/EEC¹</i>
	(£ million)	(£ million)
2002–03	163	70
2003–04	164	200
2004–05	166	200
2005–06	210	560
2006–07	340 ²	560

It is clear that industry contributions have overtaken government funding in the fuel poverty programme, but this does not necessarily bring about comprehensive access to low energy equipment or energy generating systems. The government needs to look at the case for bringing Warm Front and EEC into a single fund to deliver comprehensive energy packages to people.

¹ The Energy Efficiency Commitment does not have a budget as such. Companies are set energy saving targets to be achieved and EEC spend is whatever is the cost of meeting the targets. A further complication is that the programmes have developed since 1994 and are not annual programmes but cover a number of years. The table sets out the approximate levels of expenditure associated with the different energy saving targets.

² Estimate based on the increased funding announced in the 2004 Spending Review and the Pre-Budget Report of December 2005.

The second element in this is that neither the government nor the energy industry have a coherent approach that crosses from energy efficiency into renewable energy generation. It doesn't help when ministers swap £10 million from the fuel poverty programme into renewable energy work, when nothing connects them up. The disconnections became clear in the work on my own home.

It may be morally comforting to generate more energy than you consume, but as one of the energy company reps told me bluntly, "Who gives a toss? Under today's energy market rules, we are in business to sell you energy consumption, not to sell you less. What you use comes from us, and we bill you for it. What you feed back into the Grid could be going anywhere. It is a pain in the ass to have to measure it, and even more to have to pay for it. That's why most companies don't go out of their way to make it easy or attractive." A snapshot of energy supply and buyback prices gives you an indication of the current UK situation.

Table 2

<i>Electricity supply and Buy-back prices Oct 2006</i>		
<i>Company</i>	<i>Price paid back to customer per kWh</i>	<i>Price Charged to customer/kWh³</i>
British Gas	No buy back	17.78
Ecotricity	4.5p	14.74 ⁴
Edf	7.6p	16.00
Eon/Powergen	9.5p	17.69
Good energy	4.5p	11.96 ⁵
Npower	Buy back is at same price as energy sales	9.88p ⁶
Scottish Power	No buy back	13.92
Scottish & Southern	3.8p (this rises to 7.8p if the customer has a ROC)	16.51

Technically, I am told that the removal of a single diode valve in existing energy meters could allow for the two way flow of energy in the home. The dilemma is that, under current energy market rules, companies that did this could only lose revenue, whilst those that do not would make more. Government has to look at revising current energy market rules in order to make feedback systems attractive and obligatory within the climate change programme.

A further issue that arises in relation to feedback metering relates to its visibility and promotion. I was astonished to find that my feedback meter turns out to be a small box tucked away at the side of the input meter. I had expected that new meters would have been produced, for prominent display within the house, giving immediate feedback about home energy consumption and generation. Urgent action needs to be taken to make input/output meters standard installations within the home in order to raise people's awareness of their own use (and production) of energy.

A much more coherent approach has been taken to renewable energy generation in Germany. In 1991, Germany introduced the Electricity Feed Act. This gave citizens a right to contribute to electricity supply and companies a duty to facilitate this feedback. In 2000, they strengthened this provision in the Renewable Energy Sources Act. This introduced a series of preferential feedback tariffs in order to promote the generation of renewable energy.

The novel feature of the German approach is that there is no public subsidy involved. Government sets the tariff structure but tells the industry to fund it itself. Thus, micro-generation of electricity from solar power currently gets paid around 35p/kWh. This is around four times the supply price of electricity and compares with the UK average buy-back price of about 3.5p/kWh.

Consumers are encouraged to go down this path because the price differential is guaranteed for 20 years (reducing by 5% a year). The impact of the change has been profound. Some 80% of all new buildings going up in Berlin generate their own energy. There is a "Bundesliga" of German eco-cities who compete with each other on sustainable energy terms. Over 100,000 properties now have solar roofs. 300,000 citizens hold shares in the 18,000 wind turbines that feed into the energy Grid. And the 'renewables' economy has delivered 150,000 new jobs, annual investment of €6 billion and an annual turnover of €12 billion. This is what has allowed Germany to deliver 11% of its current energy needs from renewable energy sources, compared to the UK's 3.7%.

³ Standard tariff for the first 700–900 kWh.

⁴ Ecotricity match the local supplier price, this is the London figure.

⁵ Good Energy does not offer a reduced tariff for higher consumption. Its unit charges vary by region. This is an average figure across 14 regions. There is also a daily standing charge averaging 16.33p.

⁶ Calculated by region. Figure shown is London price.

The UK will never make a similar breakthrough in promoting renewable technologies whilst we rely on indirect market inducements rather than direct market intervention. We have to introduce stronger short term and long term market obligations. Nor will we make a significant step change unless we set ourselves tougher renewables targets.

As table 3 makes clear, the UK may claim to be on track for its 2010 renewables target, but only because we have set ourselves a miserable, unambitious target in the first place. The countries making the most dramatic contributions in moving towards sustainable energy systems are those who have set themselves the most demanding targets. Britain will not lead the world in tackling climate change if the only target we set ourselves is to get out of bed in the morning.

Table 3
EU 25 RENEWABLES

	2004	2010 target
Austria	58.8	78.1
Belgium	2.1	6.0
Cyprus	0.0	6.0
Czech Republic	4.0	8.0
Denmark	27.0	29.0
Estonia	0.6	5.1
Finland	28.3	31.5
France	12.9	21.0
Germany	9.7	12.5
Greece	9.5	20.1
Hungary	2.3	3.6
Ireland	5.1	13.2
Italy	15.9	25.0
Latvia	47.1	49.3
Lithuania	3.5	7.0
Luxembourg	3.2	5.7
Malta	0.0	5.0
Netherlands	5.7	9.0
Poland	2.1	7.5
Portugal	24.4	39.0
Slovakia	14.3	31.0
Slovenia	29.1	33.6
Spain	18.2	29.4
Sweden	46.1	60.0
United Kingdom	3.7	10.0
EU 25	13.7	21.0

Note: The percentage contributions are based on the national production of electricity from renewable sources divided by the gross national electricity consumption.

Source: EUROSTAT

Obligations versus inducements

Traditionally, Britain has suffered from a mindset which assumes that if you want the poor to do something you have to make it obligatory. On the other hand, if you want the rich to act you have to offer them inducements. Every time there are proposals for a shift to renewable energy (or renewable fuels) industry demands a public subsidy for doing so. The Germans have demonstrated that this can be done without public subsidy.

The cost impact of these changes on German citizens was measured in 2005 and revealed that the overall cost on consumers' energy bills was €1.4 (£1) per month. Apart from the economic gains that I have already set out, this change in energy market rules reduced German carbon emissions by 58 million tons of CO₂ . . . in 2005 alone.

Compare this with the estimated contribution to carbon savings from the entirety of the UK Climate Change Levy. Cambridge Econometrics estimates that the Levy reduced CO₂ emissions by 3.1 mtC in 2002 and 3.6 mtC in 2003. By 2010 the annual savings is estimated to be at the level of 3.7 mtC . . . one fifteenth of the annual carbon savings Germany makes from its change in energy markets rules. When you add in the fact that the Climate Change Levy was "sweetened" by a Treasury reduction of 0.3% on employers NI contributions, costing £1.5 billion in 2004 (and rising to £2.1 billion pa in 2010), you have to ask whether the real carbon savings from over £1.5 billion a year would more effectively come from directing it into renewable energy investment. We could have delivered a fourfold increase in the Warm Front programme,

or a similar quantum change in renewables investment, from this funding. At a domestic level it would mean you could almost give away energy generating systems to the poor and allow them to share the proceeds with their energy suppliers.

In its latest 5 year plan, even China is taking a more robust approach to polluting industries and their responsibilities for carbon reduction. Industries are given pollution reduction targets and pollution reduction deadlines. Businesses have been told that those who fail to meet the targets and deadlines face a 3 year ban on raising stock market capital. Elsewhere there is an unambiguous sense of the urgency of change that Britain seems to lack.

In or out of the Grid?—the case for decentralised energy

The UK presents a number of barriers to citizens who want to become energy contributors as well as energy consumers. Despite the fact that it is commonplace in other parts of Europe (and in the US) “net metering” systems are neither promoted nor encouraged by energy suppliers. At the point of writing this submission only npower buys energy back from householders at the same price it supplies. As the company points out, it makes a loss in doing so because some of its competitors refuse to pay anything for the energy that their customers put back into the national Grid.

Ofgem is aware of the disparities that exist but has done little to rectify the situation other than “urge” companies to pay their customers a fair price for electricity provided. There is no legal duty to do so at the moment, though this will change in the coming year. It still leaves the UK a long way short of the preferential tariffs system Germany has introduced (and which gives the industry a clear, level playing field upon which to promote micro-generation). The UK should move towards the German model of guaranteed preferential tariffs for micro-generation if it wants to promote citizens involvement in the sustainable energy programme.

What is less clear is whether this should also prompt a fundamental re-think of energy networks. My own experience is that energy suppliers see the Grid almost as an energy lake that they scoop supply out of. It is, however, a lake which simply absorbs consumer inputs in a vague and non-attributable way. Often the argument used against one-for-one (or reverse metering) payment schemes was that the Grid is so inefficient it would be unfair on suppliers to have one-for-one pricing.

The Grid may have been a good idea for the middle of the last century, but for the current one, the approach to decentralised energy systems may have much more to offer. This is the approach already being pursued in Denmark and in the Netherlands, where more than half of the country’s energy comes through decentralised systems. The criticism of the UK’s national Grid is that over 60% of energy inputs go up in steam at the power station, and a further 20% is lost in the transmission systems that deliver the energy to your home. The Dutch and Danes claim that their systems have a 90–95% efficiency rate of turning energy inputs into energy outputs.

If decentralised energy systems are a more sensible model for the 21st century they could also transform the relationship between the citizen and the energy system. My own energy surplus would have been more effectively transferred into a local energy network. Such a network would ideally combine residential, commercial and business sectors. The advantage would come because these sectors are likely to generate their surpluses (and needs) at different periods of the day. The greater the degree of mutuality in the process, the less the need to look at energy storage issues as opposed to energy transfer ones. A number of companies and local authorities already have energy generating systems that transfer electricity between locations on private wiring networks. The difficulty is that currently there are tight limits on the maximum amount of energy generation allowed within a private wire network. The government should remove the upper limit for energy generation within private wire networks. To allow these to develop on a city wide or sub-regional basis could open up a whole new era of citizen involvement (and stakeholding) in their own sustainable energy networks.

Ditching the myth of Carbon Trading

I could not continue without addressing how we might move towards a genuine empowerment of citizens as the drivers of carbon reduction and sustainable energy programmes. The starting point, again, came from the barriers I encountered in becoming a “clean energy” contributor to the carbon savings process.

Ministers advised me that if I couldn’t get a decent price for clean energy from the energy companies, I could sell my energy in exchange for carbon credits. Energy companies, under their Renewables Obligation commitments, are obliged to buy a small but rising proportion of their energy from renewable sources. I would not be a big enough supplier to be entitled to ROCs (Renewable Obligation Certificates) but I was encouraged to apply for mini-ROCs (or ROCettes as the trade has begun to call them).

The truth is that small towns aren’t big enough to claim ROCettes. Individual contributors are forced to offer their clean energy through carbon brokers. This is what took me into the murky world of carbon trading. I hope the Committee will at least look hard at this before we are sucked, irretrievably, into its absurdities.

The carbon con-Trick

Carbon emissions trading is the Emperors New Clothes of our time. It is a giant intellectual scam. Dreamt up by the money markets, and providing the City with huge opportunities for fiddling, it is so complex that most of the public lose the will to live before making any sense of it.

It is bizarre that the “big idea” for tackling climate change should rely on the creation of a mythical good (the absence of something) that then gets traded (speculatively) against its anticipated future price. City traders have been orgasmic about its importance, but investors in productive industries say it creates volatile markets that deter serious and long term investment decisions.

The first year of the European Emissions Trading Scheme (ETS) bore this out. When the scheme started, politicians expected carbon permits to be traded at around €10 per tonne. Instead it peaked at around €30. But then, when countries like France and Spain announced much smaller emissions than expected, the carbon price tumbled.

Governments have made this speculative market even more absurd by giving carbon allocations/permits *free* to the five major polluting sectors, rather than charging companies for their allocation. Some countries issued more permits than their emissions justified. None shared permits equally between polluting and non polluting industries. The result was a bizarre set of internal transfers (and confusion). British universities and hospitals were forced to buy several million pounds of permits while the largest oil companies received huge handouts from the scheme. Overall, the UK energy sector received free handouts of over £800m from the carbon trading scheme last year. Not a penny of this went into meeting the energy needs of the poor in Britain.

The Environmental Audit Committee described the first year of the ETS as “a race to the bottom”. The more you look at its weaknesses the more you are left wondering whether its real purpose will be to provide a long term cover for hidden subsidies to underpin the nuclear industry.

As it stands, the ETS does not even necessarily reduce emissions. It allows swaps of allocations and permits in a small number of industries, rather than reducing net carbon emissions in the economy as a whole. In theory, it aims to promote North/South carbon permit trading, to pay for cleanup programmes in the South. Many analysts, however, are already pointing to the dubious (and short term) nature of carbon trading opportunities with the South.

Much of the trade seems to be focussed on the annual Carbon Fair that is organised by the World Bank in Cologne. Well organised countries like China have impressive stalls and glossy brochures, offering hundreds of projects for polluters to invest in (buying off their own pollution excesses in the process). Whether any of this delivers genuine carbon savings is a deeply debatable point.

In my case, I would have been lucky to get a seat next to the Senegalese trader who was offering a couple of carbon saving projects from a small table in the corner of the Fair. My own small scale offerings of carbon-free energy would only have been allowed into the Fair by a middle man. Usually these are niche investment banks. Any other UK citizen would have faced the same prospects. The Committee should look at whether direct citizen involvement in carbon saving is undermined by the whole philosophy of the ETS, and whether the ETS should itself be abandoned in favour of a more direct system of preferential tariffs for renewable energy production.

The economist William Nordhaus, of Yale University, has argued that the whole approach to carbon emissions trading needs to be fundamentally re-thought. He follows the EU assessment this summer also suggesting that a shift from permits to taxes was a more effective intervention strategy. The benefits of such a shift include:

- There would be a stable and known marginal cost of carbon rather than a speculative and volatile market in permit trading.
- It would limit the potential for large scale corruption.
- Taxes on fuel could be easily incorporated without distorting the scheme.
- It would reduce the dependence on politically unpopular and unaccountable income transfers between countries.

At present, the process of citizens making their own clean-energy contribution to government carbon reduction programmes is complex, bureaucratic and often inaccessible.

Individually, there is a weak and erratic payback system that does not encourage citizen involvement.

Collectively, Britain offers nothing that encourages citizens to become contributors to, and stakeholders in, their own local energy networks.

The models of decentralised energy systems and direct tariffs, already being applied in other European economies, offer far greater advantages that the UK needs to urgently embrace.

Let me conclude on the “big picture” implications of intervention mechanisms, chosen by governments, to address the climate change challenge. The British government has adopted a light touch, regulatory approach to markets that, consequentially, have become intensely short term in outlook. The additional reliance upon a carbon trading market has created a speculative and volatile carbon market that deters long term investment decisions. Even on the Government’s estimates, carbon savings from their Emissions

Trading Scheme will only deliver 8mtC per year. This should be measured against the 58mtC gains in Germany last year, arising solely from the impact of their introduction of preferential tariff systems for individual suppliers of renewable energy. Businesses as well as individual households see the immediate gains from becoming clean-energy contributors, and at a fraction of the cost (or bureaucracy) of the equivalent processes in Britain.

The Prime Minister is right to say that we only have a 10 year “window of opportunity” to make fundamental changes to how we address energy security issues for this century. These changes will have to deliver not 60% but 90% carbon reductions by 2050.

I am passionately convinced that some of the changes in approach that I have looked at and outlined would allow us to meet these challenges. Part of the attraction is that they would open up an active sense of citizen involvement (and citizen ownership) in the process. Sadly, I am equally convinced that there is nothing in Britain’s current approach that makes this remotely attainable. That is what drives the need for an urgent and radical re-think.

Alan Simpson MP
Nottingham South

November 2006

Witness: Alan Simpson, a Member of the House, gave evidence.

Q526 Chairman: Can I particularly welcome to this evidence session in the Committee’s inquiry, “Climate change: the ‘citizen’s agenda’”, the member of Parliament for Nottingham South, Alan Simpson, a former member of this Committee and a devout advocate of all things to do with energy saving and many other issues connected with sustainability as well. We are very grateful, Alan, for you giving up your time to come and give evidence and also for the quality of the evidence that you have submitted. It is not often that a witness brings their own personal fan club with them, but I see that you have done that to give you that little added extra support, and we are delighted that they are here with us today. If you need any member of your team to add a little bit of evidence, we can always record that for the benefit of Hansard.

Alan Simpson: I thought I would bring my own heckler!

Q527 Chairman: We are delighted about that. It was a heck of a project to decide to do, but it addresses, I think, one of the issues in terms of climate change which is focusing on the existing built environment as opposed to new-build, but what were the factors that motivated you to not just take an existing property but one that was, effectively, a derelict structure and decide to do what has now turned out to be the project as featured in your evidence?

Alan Simpson: I think you may describe it as a genetic defect that I have had a long-standing interest in the regulation of older properties. There is something that draws me to them. My interest in trying to put in renewable energy systems dates back 30 years, but that was just tinkering with the process. I suppose what brought it to a head in relation to Lacemakers House was two things: it brought together work that I have been involved in on housing poverty issues for the best part of 30 years, which work has been continued in the Commons largely through the work that I have done in the Warm Homes Group. In that context what had become clear was that the Government’s programmes, both in terms of the eradication of fuel

poverty and in addressing climate change and renewable energy systems, had already taken the low-hanging fruit, the easy work had already been done, and since about 80 per cent of the population will live their lives in 80 per cent of the existing housing stock, it leaves us with about two-thirds of the existing stock that we are going to have to do something with. I thought that, if I am right in saying I do not believe that we have more than a decade in which to make profound changes to the way we relate to the built environment, then I had better start doing so myself. So I set about looking for what I hoped would be about the worst and hardest of starting positions, and the house that found me certainly seemed to be that: abandoned, derelict for about 40 years, 18-inch solid brick walls, difficult to access—at least the walls were not moving—and I thought that, if only for demonstration purposes, people like us had to be part of the process of driving that change.

Q528 Chairman: When you decided to do it did you look round for experts to advise or did you sit and look at it yourself and say, “Well, I have got a certain amount of knowledge. This is what I want to be the end specification”? Looking at the evidence there are two key themes that run through it: the use of sustainable materials and, within that, if you like, the choice of appropriate materials to give you thermal properties within the build, and then the question of being a net generator, that the property becomes a net generator of energy. How did you decide on what would be the specification of this? Who helped you to do it? What I am interested in is that you had the advantage here almost of an untouched canvas, being that it was a derelict building. Most people with older buildings have got an existing structure that they are living in. The reason I am asking these questions is that perhaps you could say a word or two about what lessons you have learned from that project that you think could assist in the wider question that you have just referred to, which is what do we do with the existing housing stock?

10 January 2007 Alan Simpson MP

Alan Simpson: From where I started, the advice that I would offer to anyone is begin with a good architect. In that context I was extraordinarily lucky to have known for some time the architect that I worked with on my house and with whom we are now working to try and create a whole zero-energy zone in the part of the city. He was absolutely pivotal in making much of what finally happened possible. The benchmarks of the brief, however, were benchmarks that I provided. I wanted to produce a place that would be a net exporter of energy. I wanted to ensure that the building itself was able to minimise its energy requirements in terms of the quality of insulation, and the requirements to recycle as much of the existing materials and incorporate other people's existing materials into that process was the final add on when I started to think seriously about ecological foot-printing and not drawing on new resources for everything that we did.

Q529 Chairman: Coming back to the point I made about existing housing stock, in other words people who do not start from the position you did with a wreck but have got their existing houses, what are the things you have distilled out of your approach to which if somebody were to look at this project they might say, "I could do that with my house"?

Alan Simpson: I think the things that I have learnt are, first of all, that there is a phenomenally exciting array of choices available to us if we start to look. It is just that the process of looking and finding is quite hard work. The second is that we can dramatically change the whole picture about our relationship between the built environment and energy systems if we do things collectively rather than individually. I think, if I look at the process of working on my own house, I would now say that ten times as many real, exciting opportunities exist beyond the individual level, and so we need to be humble enough to acknowledge that pursuing things collectively will deliver an enormous amount more than us all setting off individually. Finally, in the hierarchy of things that people can do with existing properties that they live in, almost certainly it begins from saying massively raise the insulation standards of your existing property. In real terms you are getting something like a 15 to 20 per cent return on the capital that you invest in that as a result of the energy savings by really high quality thermal insulation. The second is that, in terms of the ecological relationship between yourself as a consumer and the energy system, the easiest thing is to switch supplier to a green energy supplier, and the third is to move as quickly as you can into the area of local energy systems, because the gains there are enormous.

Q530 Chairman: We are going to talk in more detail on that, but I am going to bring David in in a second. One final question. In actually taking your wreck and transforming it into the project that we now have the evidence before us about, did you have much interaction with the world of officialdom, for example with building regulations and officials giving sanction to what you were doing, and, if that

was the case, did you encounter any particular difficulties or were people in Nottingham very encouraging to what you were doing?

Alan Simpson: I ought to put on record a word of praise to the Planning Department in Nottingham. Many of us will find reasons not to praise the planners, but I have to say that, given the difficulties of the building, the site, the fact that it is in the middle of a conservation area, they were very sympathetic and supportive of bringing the building back into effective use. They were quite clear about the terms and constraints that had to be adhered to within the conservation area. We, in turn, worked very strictly to meeting those criteria and things went through very, very positively. It would be completely unfair of me to say anything other than very positive things about my experience of the planning process, but I suspect, again, much of that was down to the fact that, from the start, I worked alongside an extremely good visionary architect.

Q531 Chairman: What is the value of the project?

Alan Simpson: In commercial terms or personal terms?

Q532 Chairman: No, I was interested in terms of how much has it cost, to give us a flavour of what has been involved. I suppose the interesting question would be if you had been able to do a costing of doing it up conventionally, bringing it back into habitable use versus what you have done, perhaps to try and establish the degree of on-cost?

Alan Simpson: Perhaps the easiest thing is to talk about the difference rather than the actual costs. The estimate that we have made is that it cost about £30,000 more to do all of the environmental work. That included a complete solar roof that generates just over three kilowatts of electricity per hour, the incorporation of the micro-CHP complementary heating system and the internal and external levels of render and insulation and the water recycling. In all, all of those measures came to about £30,000.

Chairman: That is very helpful.

Q533 David Taylor: There will be a fair number of lessons, Alan, from your experience in terms of how best to approach, possibly, the major upgrading of existing housing stock. One of the main hassles for anyone that has lived in a house when major work is going on is the sheer inconvenience of it all. How long did the project take from almost taking occupation of the site to moving in, and at what point did you move in? Was work still going on around you? This is a serious point.

Alan Simpson: No, this was an extremely serious point. It took 18 months to two years in total. I will not pretend that it did not overrun, we had least a six-month overrun, and at the end there were real concerns that we had as a family about which would arrive first, the stairs or the baby. In the end it was the baby.

Q534 David Taylor: At what point did you move in, in practical terms?

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Alan Simpson: Just after the stairs! No, we moved in when our daughter was about a month old and we should have moved in about six months before she was born. I think to describe it as fraught would be mild. It was a big project and a tough and disruptive course.

Q535 David Taylor: Particularly with housing stock you would normally want to have some buffer properties into which you could decant the current people and then to do the work.

Alan Simpson: I think that is interesting, because that is what we have moved on to in relation to the Meadows zero-energy zone proposal. That would be to take 4,000 existing properties and to try to turn them into a zero-energy zone in ways that do not necessarily involve massive disruption. In terms of energy generating systems, you could fit a solar roof, you could fit a ground source heat pump, you could fit air source heat pumps. If we look at wind generation, I think the economics of individual wind generators on properties do not make any particular sense in cities. What we are looking at there is a community wind generator, the likes of which they have, fairly commonly, in Germany. Certainly there would be common ownership of this, which is not disruptive of individual households. You cannot get away with non-disruption at all, but for solid, brick properties I suspect that you are talking about external render, and that again can be done in ways that have minimal disruption to the internal living arrangements.

Q536 David Lepper: Alan, you have emphasised the importance of the architect, you have described the architect as “visionary”. Have you formed a view, or does your architect have a view—I wonder if you have discussed it—about the extent to which the trade and education of architects is sympathetic to the kinds of work that your architect has been doing? Is your architect a loner, ploughing a lone furrow?

Alan Simpson: No, I do not think the architects are necessarily the problem on this. There are real problems with developers and the brief that developers give to architects. I have taken some of this through already with the confidences of the construction industry. Basically, I have suggested to them that their relationship to society is pretty much one of the relationship between the car thief and the car owner. They are in the process of stealing as much as they can from the public regulatory system to get away with building on the cheap and for short-term profit, leaving the rest of society to pay massively the long term cost, including the running costs. When I talk to architects about this their response is to say, “Just change the rules of the game. You guys make the rules. Just change them.” This is happening all across Europe. We are the only ones, in a European context, who have a rules base in our society that almost chases the cheap and cheerless. I do not think you would find any objections in the architects’ world. There would be screams amongst developers, but precisely the same developers are building buildings in other parts of Europe to substantially higher qualities than we require them

to build in the UK and, in the context of Germany, are building them and incorporating energy generating systems within them as a matter of course.

Q537 Lynne Jones: In relation to architecture, your house is in a conservation area but I take it your insulation was internal?

Alan Simpson: No, both.

Q538 Lynne Jones: I do not know whether there are any features on the house, but if you are doing retro fitting and you are doing external insulation or even doing internal insulation, one of the problems may be the alteration in the character of older buildings or buildings in conservation areas or listed buildings?

Alan Simpson: We did not have any of those problems. The character of other buildings within the conservation area was a mixture of external facings, some of which had already been rendered, some of which were retained brick, so our proposals to put in the external rendering just had to be consistent with the character of the buildings that had been rendered within the conservation area.

Q539 Lynne Jones: Have you any thoughts on those houses where you have got, for example, external features where it would be detrimental to the character of the building to render over?

Alan Simpson: We went to look at some buildings in Germany that had had to deal with that as an issue, and they have been developing a different form of insulation, which is a form of polystyrene sandwich which is very thin but has a bubble-wrap centre to it filled with sort of anti-freeze liquid. I do not know, but the whole rationale of it is that they can produce current Scandinavian levels of insulation in coats that are maybe two centimetres thick, so that would obviate the need to put it on externally; you would be able to do it internally.

Chairman: Are you going to buy one, Patrick? You were looking very surprised.

Q540 Patrick Hall: I am stunned, but I am very interested that you can achieve insulation in two centimetres. We have been used to the fact that you need air, and space, and wood and polystyrene and all that. This works?

Alan Simpson: Absolutely, and I think this is the thing that gives me the great basis of excitement about what is possible. None of the things that we visited are Utopian, they are all up and running now. The question for the UK is how do we quickly catch up with what already exists and not pretend that somehow we are leading a game just because we have decided to play in it.

Q541 James Duddridge: One of the things that fascinated me about the project was the use of recycled building materials. How did you access those building materials? How did you find out where to get them?

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Alan Simpson: Again, this has to be put down to the architects in the first instance. Then a lot of people, when it became known, just sent information into us and they said, "Are you aware of this?" In a sense, to begin with we had to go out looking for that information. Once it became clear that there were people who were interested in knowing, we then became the recipients of lots of stuff that people felt was useful to know, and much of it was. We ended up making strange arrangements. The people who came and did the installation of the solar roof were also involved in the building of an eco-house and they wanted to know if they could use the timbers from our place that we could not recycle in our own place, and we said, "Yes." In a sense there was a private bartering process, or a sort of trading for free process, in the pooling of that information, and the excitement that it is possible to tap into is just vast, it simply is not well organised. I think institutionally and structurally, for the purposes of this inquiry, there are questions about how might government best help this to become available in a way that was easy to members of the public who did not have the time, the knowledge, the inclination to spend going off on that sort of pursuit. We ought to address how we can make changes that do not require everyone to go and invent that sort of wheel for themselves.

Q542 James Duddridge: Is there an ideal single point of information that you would propose? You mentioned government use. I use things like Freecycle, not for major renovations, but for odds and ends, and that seems to be a good source of getting building materials and disposing of residual building materials.

Alan Simpson: I would tend to say that at least at the point of co-ordinating information that is a legitimate role for local authorities in the present and the future to be asked to play. It does not give them a monopoly of control and distribution of those resources, but it says we should have a public responsibility for making it easy for our citizens to find out, and I think the value of something like a local authority doing that is that they are not there with a vested interest in selling their own product. So for me that is the most sensible starting point.

Q543 Chairman: In your evidence, Alan, you say about systems and materials, less impressive is the availability of verifiable data, and it is certainly something where people have come before the Committee to date and put forward ideas, either for generating electricity or materials to save on energy or reduce emissions, but there is no, if you like, true product information to verify that it does what it says it will do on the tin. Do you want to comment on that?

Alan Simpson: Yes. I suppose I ought to be thankful that the initial plans that I had to incorporate a wind turbine on the house did not come to fruition, mainly because the supplier could not get round to delivering the wind turbine. They were having real problems in the reliability of their equipment at the time. But the more I went into it, the more it became clear that those of us who are supporters of wind

generation need not be drawn into the token gesture, and, unless you have sites that can access constant wind speeds and draw on a wind turbine which is significantly larger than any you would attach to a house, then you are asking people to throw a significant amount of money at something that just will not deliver anything on the tin. So that has been my criticism of the microgenerating industry. If this is as important as they think it is, and I think it is, then we have got to be very, very clear that about what products claim to do and the circumstances in which they claim to do them. I am pleased that B&Q are now selling wind generators, but I would not advise anyone in a city that was not in the middle of a howling gale for most of the year to even think of going down that path.

Q544 Lynne Jones: We had some supplementary evidence from B&Q about their efforts at selling their green message, and they said in the week that their advertising went out the wind generator was the item they sold most of.¹ Is it not worrying that companies are actually homing in on people's desire to be green and then not focusing on what really needs to be done?

Alan Simpson: Absolutely, and there is a minor tragedy in this. The good news is in the level of interest and sales. It means that they were knocking on a door that the public were desperate to open and become part of, but actually they were selling them completely the wrong products, and all that would come out of that is disillusionment. It seems to me that if the issues about climate change were required to make our own changes at a profound and rapid pace, then you would have to ask in what circumstances society will be asked to do that, and you either do so in fear or in hope. If you want to mobilise hope you have to make sure that people feel optimistic that what they are able to shift into is part of the answer. If they become disillusioned and they feel they have just been ripped off, then they will step back and will not be part of the process of rapid and constructive change. It does worry me enormously that inappropriate claims are currently best placed to drive the market.

Q545 Patrick Hall: Arising out of the question that we have just had, Alan, the lack of a single point of information and advice on recycled materials, one of the key points of this inquiry by this Committee is to identify the obstacles that face people who wish to do the sorts of things, maybe not as far as you have gone, but people who want to improve their contribution to the issues of global warming as well as their own expenditure on energy. You have come across, by undertaking such a major project, difficulties and obstacles. You may have had fewer than other people because you are an MP. It is difficult to identify that, but you may well. What do you think are the main obstacles, not necessarily to going quite as far as you have gone, but to people who genuinely want to do something about these issues themselves in their own home?

¹ Ev 172

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Alan Simpson: I tried to set out in the paper that one of the problems, I think, is that, although the renewables market is an exciting one, it is also an immature one in that people are enthusiastic about their own product but there is very little reliable information about how different systems interface, and getting that interfacing in place is a real problem from where we are now. I cited the example of the early stages of the computer industry where there were fabulous individual programmes that were being produced but they could not talk to each other; and that is pretty much the same in the question of how systems interface. I think that there is a case for a national lead that brings that together. I was talking earlier today with a colleague who was going to France to look at the French initiative around Narbonne where they have insisted that all of the renewable generating industries come together to work on this interfacing. Twenty-six thousand people are involved in the site working on precisely that integrated development of a coherent programme. That is the scale upon which the serious development of alternative renewable networks has been taking place and, without that public intervention to say you are going to have to come together, you are going to have to work out the interfacing. Individual companies do not do it by inclination, they do not do it because they do not have the resources to do it. I think that interfacing is one thing. The second is the rules of our current market. I gave the most successful example that I have come across, and that is the changes in the legislative structure for the energy industry that have been brought about in Germany, both in the 1991 Electricity Feed Act and in the 2000 Renewable Energy Sources Act, and the scale of changes and citizen buy-in that followed from that was phenomenal.

Chairman: I want to talk about that in a little more detail, so I am going to move on to Geoffrey.

Q546 Mr Cox: I completely agree with you about the danger of disillusionment. During the summer I hosted and helped to organise in my constituency a manufacturers' exhibition for local and regional manufacturers of microgeneration technologies. We were rather expecting a trickle of people through and, to our astonishment, before we even opened the gates, there were 200 people outside. During the morning we had 500, with several hundred more in the afternoon, so there is a huge appetite. During the course of that expedition it became very clear that what you say about the immaturity of the renewables energy market is a real problem. It is a problem not only because—would you agree with me—many of the suppliers really are just starting out and there is a lack of quality assurance and confidence that they can deliver what they say they can deliver, but, secondly, the problem is that invariably you find that you have to have one or more of these technologies in order to reach a critical mass in terms of energy generation, and they are not very good at joining up their technologies. If you ask them, there is a sort of blank stare that comes over them. My question to you really is: how are we going

to enable people to have confidence—you had this problem with your wind turbine—so that manufacturers are going to be able to deliver at this stage and, secondly, that they are going to be able to join them up so that it will actually produce benefits for the householder?

Alan Simpson: Let me just turn that one round. For all my criticisms of the manufacturers, I think that within the energy market that we have in the UK it is remarkable that many of them survive at all. We create market conditions that are unhelpful, in practical terms, to the real promotion of a renewable energy sector, so the fact that one survives at all is down to the manufacturers much more than public policy. The way we change this is that in terms of reliability there has to be an obligation that stems directly from government requirements either of local authorities or of regional offices or incorporated into planning and building requirements. So you change the market rules, you set the requirements about interfacing and I think the countries that have made most progress on that have simply told the sector that they are coming together and that they have to work on interfacing and that there is a public lead in the interfacing role so that there is a sense of public responsibility for being able to show that interfacing can take place. In my case it turned out to be interfacing between the combined heat and power system and the photovoltaic roof, but it would have been a similar sort of problem had it been combining ground source heat pumps, air source heat pumps, wind generation, or whatever.

Q547 Mr Cox: Is there a role for a body giving independent advice? In my case my home is about to be audited by a local association called the Devon Association for Renewable Energy. They are coming to audit the house and give me advice. I do not know whether that sort of organisation, which is funded by the RDA, exists around the country. Is there a case for having an independent advice source for this?

Alan Simpson: There is, and it may be that it is sensible to do it on a regional basis, it may be sensible to do it on a local authority basis, but it seems to me that somewhere that has to be publicly driven. It just will not happen if we invite the industry to do so itself. They have too many disparate interests and too many other over-arching interests about whether they can survive or not to take on that coordinating role. I think if it does not come from a public lead, it is not going to come at all.

Q548 Lynne Jones: To what extent do you think that an independent service should include help with installation? I do not know how you organised it, it was a big project, but part of the problem is not just getting hold of the bit of kit, it is actually installing it. B&Q, just going back to the wind turbines, will install it. I understand that Powergen, when you can get the CHP boilers, will arrange for the installation. How do you co-ordinate not just the supply but the installation? Can I also say while we are on the CHP,

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I have checked and you cannot get the Whispergen boilers now and their availability is not likely to be, if at all, until the end of this year. Have you got any knowledge of what has caused the hold up in that supply and whether it is different in other countries?

Alan Simpson: It is different in other countries, I think, largely because other countries have set for themselves much higher targets for renewables. It is interesting that, in terms of the latest announcements of targets towards 20 per cent renewables by 2020, at least 12 of our European partners already have 2010 targets that are well ahead of our 2020 targets. So the countries that have set themselves the highest target level have created conditions for their manufacturing companies to develop a manufacturing flow that can deliver the goods. Too many of our own companies are trying to do so on what they consider to be a wing and a prayer.

Q549 Lynne Jones: Did yours come from New Zealand? I understand Whispergen come from New Zealand.

Alan Simpson: Do they? That is interesting in itself. I shall and try and find that out.

Q550 Lynne Jones: If I was in Germany, could I get one of these things?

Alan Simpson: In Germany you certainly have a huge and vibrant renewables market. They have constructed their emphasis differently. Chairman, can you allow me to go into the renewable tariffs system, the renewable energy system for Germany. They have set a series of preferential tariffs for different renewable energy sectors. The greatest preference is given to photo-voltaics, where they will guarantee you for 20 years four times the market price of any energy that you supply, as opposed to the energy that you purchase. That reduces at five per cent a year, but it is a phenomenal incentive. You can see the return on the investment and that has produced a cavalry charge of citizen interest in getting solar roofs. Other countries have made dismal approaches to renewables. There are different structures of incentives for community-based wind generation. The CHP generating systems are in about three or four of the EU countries, and I would expect that, whatever tariff system favours that as the technology, so the industry will have responded and will meet the need. You are right, though, in saying that in my experience getting the generator and then getting it installed, getting the connections done, not by Powergen but by Eastern Gas, and having that interface with the electrics for the photo-voltaic roof did require a certain amount of re-plumbing after the plumbing and plastering had been done, and Eastern Gas agreed to step in and, since they cocked it up, pick up the cost. That is why I am saying that it is this immaturity in the interface that worries me and, if we want citizens to be involved, we have to take as many of the creases out as we can legitimately be expected to predict.

Q551 Lynne Jones: What people would like would be to be able to have a number of different technologies but have somebody organise the whole lot for them. Who should be doing that? What kind of organisation? Do we need new companies to do that?

Alan Simpson: I am fairly relaxed on whether that should be the not-for-profit independent sector or the public sector, but it is not going to happen until we change the rules, and that is what worries me. We can talk about the structures for making something work, but if we do not have the rules change to make that an obligation, then it is not going to work. I just feel that everywhere else that I have looked at big initiatives making profound change they have been driven by governments that have had the clarity to change the rules. In the context of this preferential tariff system in Germany, not a penny of it comes in taxation to the Government, it is all a requirement to be internally financed by the energy sector.

Q552 Chairman: Can I pin you down on that one. I looked at that and my understanding was that any additional cost in giving the preferential tariff for the photo-voltaics was, if you like, pooled in what was the cost of electricity to all other users. You quoted in your evidence, I think, a pound a week extra cost. Is that right?

Alan Simpson: A pound a month.

Q553 Chairman: So it is, effectively, a big pooling arrangement by the industry to cover the cost of the preferential rate that is given to PV?

Alan Simpson: That is right, and all of the EU countries that have their own systems have different senses of which renewable sector has the most preferential tariff, but I would also point out that every one of them incorporates within it a time guarantee that will be, at the lower end, a minimum of ten years guaranteed preferential tariff but normally up towards the 20 years. So, again, they are building in certainty, both within the energy sector and the minds of the public, about how they can plan to take advantage of this and how secure it is. Our current approach to the energy market is just a million miles away from it. We are locked into thinking about a short-term energy market where even the companies themselves complain that the 28-day rule about systems entitlement to change suppliers just means that most of them are reluctant to go beyond the low-energy light bulb approach to the problem. I am a big fan of low-energy light bulbs, but there are only so many you can use.

Q554 Lynne Jones: Sticking to this issue of the preferential tariffs, we had evidence from the Scottish and Southern Energy Micropower Council, who I presume from their title are keen on microgeneration, but they said that studies have shown that people are being rewarded at a much higher level than is actually justified by what the suppliers are getting back and the energy that is exported onto the system, the main issue being the losses in transactions, et cetera. So they are actually saying that the energy companies are paying out

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more for microgeneration than they get back. Obviously, your proposal would be a sea-change really. Do you think that the measures in the Climate Change and Sustainable Energy Act will actually help matters, or do we really have to be more radical?

Alan Simpson: No, I would say what a whingeing bunch they are. Scottish and Southern, as you will see from the table—

Q555 Lynne Jones: I am sorry, they are the Micropower Council. I do not think they are generators, they are interested, but maybe I am wrong there?

Alan Simpson: I do not know. All I can say is that if you want to change the nature of the market, then you have to change the rules in the way that others of our European partners have already done, but it means changing the nature of the energy market from one that is a short-term price-based consumption market into one that is a longer-term market based on sustainability and which moves, as ministers say they wish to move, into an energy services market rather than just an energy consumption market. I have spent the last two or three years going round talking to every energy company in the land about their long-term plans to sell less energy, and not one of them has any plans to sell less energy. They will all tell you energy consumption is a huge problem and we have to reduce it, but not them. So they are all captives in this careering race into climate catastrophe. None of them are going to be able to change until there is a change that comes out in central government policy about the nature of energy markets. It is a real culture change for us to think about the built environment as a contributor to energy systems rather than just a consumer of energy supply. It actually does not take much to do that, but it requires big changes in the structures, including the ability to develop common energy services companies rather than energy supply companies.

Q556 Mrs Moon: I wonder, if I am feeling confused about way forward, how the member of the public moves forward. I decided I would take the first step by going to my energy supplier and asking them about the offers they had on insulation and on cavity wall insulation. They came along, they did a survey of my house and they said, “You do not want to put any more insulation in your roof, love, because the insulation will take you above the level of your rafters and you will not be able to store anything in the roof. I would hang on until the new technology comes along that will be thinner.” So they told me not to do my roof. As for cavity wall insulation, there is no problem: “For £250 we can cavity insulate your property, but we cannot begin to estimate what the cost of the scaffolding will be to put up before we can do the cavity wall insulation. It might be £1,000, it might be £2,000. You would have to find that out for yourself, you would have to get it erected around your property and then we will come and do the insulation.” So, the reply I got was far more complex than the one I was expecting. In terms of the market

for renewables, I live on the coast. I do not have your problems living in a city, I live on the coast, and it is too windy for me to have a turbine. You begin to wonder where does a member of the public go? What is the one thing that Government can do to remove this log-jam of conflicting advice that leaves you almost unable to move? Where is the priority to be?

Alan Simpson: I do not think there is a single priority. I tried to move for an amendment in the Budget debate that would relate to the reimbursement of Stamp Duty for properties that were A-listed in terms of their thermal efficiency. If you had some system that said, “We are going to thermally grade properties and that this shall be a requirement of their letting or in property transactions and in which there are financial advantages that come from being in the higher efficiency thermal efficiency bracket”, then the industry will respond and I think that we would see a whole series of people putting pressures on the demand side. You then have issues about the verification claims, and I think that has to be addressed by some sort of public initiative that does not have a vested interest in selling you, not the product that they do not supply, but the product that we just happen to be specialists in, so that they get your house tailored to their needs rather than to your needs. I think that independent advice is a second point, but I think that there are other issues. I mentioned in my submission the problems about the interfacing between Warm Front and EEC. It is estimated that 30 per cent of low incomes who are eligible for Warm Front funding for raising the thermal efficiency of their properties are being asked to pay additional payments because the cost of insulation exceeds the level of Warm Front. It used to be under EEC1 that it could dovetail in with the Warm Front funding, and so the excess costs could be met by the energy company and that would count against their EEC obligation. That was ruled out of order by Ofgem, and we are now facing an increasing number of people who cannot afford that top-up payment and so are not getting the full project or, in some cases, not getting it done at all. So I think there is a serious case for saying that, rather than just taking a doubling of EEC that the Government is committed to, I do not think EEC works, and to double that funding and make it twice the size of the Warm Front programme but disconnected from it will leave large numbers of the most vulnerable people still out in the cold. So I think there is a very strong case for a single Warm Front programme that reconnects the contributions that are coming from the industry to the contributions that are coming through public dependent programmes. The final thing, as I say, is that if we change energy market rules we could dramatically make huge gains that are already being experienced by citizens in other parts of Europe.

Q557 Sir Peter Soulsby: Could you say a bit more about the benefits of connecting EEC and Warm Front because you will not be surprised that the Energy Retail Association told us that EEC is nearing the end of its effective shelf life and the twin

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goals of reducing carbon emissions and tackling fuel poverty lead to conflicting priorities and also it is very difficult from your perception of it. Can you say a bit more about the mechanism for connecting the two and the benefits of it?

Alan Simpson: At the moment the mechanisms have been severely undermined and I think the Energy Retail Association are quite happy about that, they see the undermining of the link between EEC and Warm Front as a way of getting EEC itself brought to an end. Their policy objectives are to encourage Government policy to place no continuing obligations on the energy industry to address the problems of fuel poverty, so I think that they are a serious part of the problem. For members of the public all you want is to see your house properly insulated and raised to a decent standard and you cannot have that without the disruption, but you want it once not several times. That is not happening because if you ask companies what they are doing with their EEC commitments it is becoming more and more remote from the fuel poor because they are making their choices against what is consistent with their company interests given that their customer base has the right to change suppliers within 28 days, so they are all pursuing the cheapest, least cost contribution in the climate change agenda. It is rapidly spinning around in a single circle, it really is not taking us out of the hole when the hole itself is getting a lot deeper. That is why I say I think there is a need for the Government to bring the two back together and maybe to make the EEC contributions actual cash contributions rather than notional ones and for those cash contributions to be going into a central pot that addresses the fuel poverty and climate change targets. That should be driven by national, regional and local plans rather than separate company plans. I think if we do not bite that bullet it really will leave us in a huge mess.

Q558 Sir Peter Soulsby: If the mechanism was changed to adopt that, are the sums of money involved adequate to achieve that?

Alan Simpson: EEC3 will be doubling the EEC2 funding and that provides substantial amounts of money, no question about it. Is it likely to be used effectively? No, not under the current terms, and, in fact, it would be siphoning money from the most direct intervention programmes that we have through Warm Front and into ones of much more questionable quality and of virtually no levels of public accountability. It is down to a verification formula with Ofgem, but if you ask any Member of the House how this was working in their constituency for their constituents, I suspect that none of us would be able to come up with a coherent answer. There are claims being made about gains being made, none of which we can find.

Q559 Chairman: Is it not a bit artificial though because EEC is funded by energy users—it is not that there is a national pot of money that funds EEC, it is the energy industry which is charging its existing customer base to fund EEC to fund its energy reduction obligations, and the thing I find unusual

about it is the structure. The focus is set by Government, but in actual fact it is right that you address the fuel poverty issue and for those who are on lower incomes maximise the return for the energy that is used, but at the moment there does not seem to be much EEC focus on the rest of the potential for progress.

Alan Simpson: Again, I think in my submission I made the point that Government expectations about what EEC will deliver in terms of carbon savings amounts to three million tonnes of carbon by 2010 and this is our big idea. You set that against the German Renewable Energy Sources Act, which last year delivered 58 million tonnes of carbon savings, with an industry that has an annual investment of €6 billion and an annual turnover of €12 billion, has 150,000 new jobs created within the renewable energy sector, 300,000 Germans having their own stakeholding or shareholding in community-based wind generators. This is why their industry has grabbed a huge slice of the renewable energy markets worldwide. The trouble with those bloody Germans is they are bloody good. They do wonderful things and they do them in ways which genuinely empower citizens. When we went around Munich we encountered large numbers of people who were gung-ho enthusiastic about this because they could see how directly it benefited them. Most of us would have real difficulty in describing a tonne of carbon, we know it is a problem but if asked it would be a bit hard. In case anyone gets pinned down, I worked it out that it is probably best describable as the size of a ten metre hot air balloon, so that is the equivalent if you are talking about millions of tonnes to millions of those balloons. People still do not understand what it means to them but they do understand what it means in terms of their current energy bills. NEA, National Energy Action, made a submission last year in which they just pointed out to Ministers that what had happened in terms of people's average household energy bills between mid-2003 and mid-2006 is that their gas bills had gone up from £330 to £519 and their annual electricity bills had gone up from £242 to £332. People can understand the scale of an increase in their bill. They can also recognise a cheque when it drops through the letter box, and you change the rules so that people can have cheques dropping through their letter box and all of a sudden you will find a lot of people being keen not only to be ecologically virtuous but to be able to bank that virtue at the same time and we do not have that, we have nothing that makes it attractive for the citizen to be the driver.

Q560 Chairman: Let me follow that up and ask you, you were saying that we needed to change the contractual basis and drop the 28-day rule and that would have some effect, Ofgem have made an announcement that this is going to be dropped. You said that you have been around to the power generation companies but you found little by way of evidence that they wanted to pursue policies to reduce energy consumption. In those discussions did you get any indication that if the 28-day rule

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contractual basis was removed that this might alter the way that they either sold energy or provided services associated with the supply of energy?

Alan Simpson: No, I did not and I do not think it is sufficient. I know the electricity companies are keen to have the 28-day rule dropped, but if you did that under the current arrangements I think very little would change. What you have to do is to look at if we were serious about moving into energy service companies what would the nature of those companies be like? I suspect we would be turning the clock back to where our energy companies started. I think it was 1817, Manchester Metropolitan Police Commissioners, a revolutionary body if ever I heard one, set up the first of the country's gas companies on Water Street, people came and looked at this little gas light outside the police station and thought, "Marvellous, is it not, it will never catch on, but it is marvellous". Within ten years that had become the Manchester Gas and Water Company providing the entirety of gas lighting and water for the then City of Manchester. Everything that was driven in the era between 1817 and 1880 was driven around a metropolitan agenda of energy and water security. That is happening today in a European context around the notion of decentralised energy system where instead of our current UK national grid which has a 20 per cent efficiency ratio of energy inputs to energy outputs, the Danes, in particular, claim that it can be between 90 and 95 per cent efficient in transferring energy inputs to energy outputs, but it is local energy systems.

Q561 Chairman: Can you explain a term which you used in your evidence which was this private wire system, where does that fit in with this?

Alan Simpson: This is absolutely where it takes us. Let me give you the practical example of this from my own city. Boots has its headquarters in Nottingham and a substantial amount of manufacturing. On its main site it has an energy generating capacity basically to provide backup energy in the event of a black-out. Under the 1989 Energy Act, companies are allowed to have private wire systems so that they can feed and supply their main site and other satellite sites and within that there is what is called the exempt licensing regime. There are two sets of arrangements. The first is that if you have the private wiring in the way that Boots do, you can generate up to 50 megawatts of electricity for distribution but only one megawatt of that can be for domestic purposes. For practical purposes, one megawatt is enough for 1,000 houses, so that is what a private wire system can do. You can also have a similar exempt licence using the public wiring network but if you are using public wires you are only allowed to generate five megawatts of electricity of which 2.5 can be for domestic purposes. So, all of this precludes the scope of delivering energy service companies in the way that the Environment Minister is saying he is keen to do beyond a maximum size of 2,500 properties. Everywhere in the country that has tried to explore this has realised that to make any coherent sense, you have got to be going beyond that figure of 2,500

properties. Our own plans for a zero energy zone in part of Nottingham would work within a zone of 4,000 properties. At some stage it is likely to make sense for it to be the whole of the city. When we went to Munich; they have an energy services company for the whole of Munich.

Q562 Chairman: Is that relevant to the point you were making earlier about the need for collective action in electricity generation so, in other words if people have a district-based wind generator for argument's sake, this private wire restriction could curtail such a development where people would invest in a piece of kit to power their area?

Alan Simpson: Absolutely, because if it was more than 1,000 properties you could not get permission to have it.

Q563 Chairman: Tell me how you reconcile the paradox between the fact that wind energy is generated usually in remote locations and it requires some form of grid arrangement to take that renewable energy to urban areas where we have been discussing earlier the ability to generate wind energy is very low. It almost feels from your evidence that you are knocking the grid, yet the grid is the delivery mechanism for renewables which you could not generate from the localised network that we were just discussing. How do you get the best of both worlds?

Alan Simpson: I think you can. What you talk about is a web or a network rather than a grid for the 21st century. It may well be that to move entirely into decentralised energy networks would be too big a single step for the UK to take. We had separate submissions by some of the current wind generators about their ability to deliver a North Sea air-tricity network which would deliver ten gigawatts of electricity for the UK. If you bear in mind that the entirety of the current nuclear contribution to electricity supply is 8.4 gigawatts, this proposal of just networking the existing wind generators in the North Sea for less than the cost of a single nuclear power station would deliver way more than the entirety of the nuclear content; you could do that. This would be a legitimate shift in terms of what the UK Government nationally chose to do. It is not incompatible with what is happening in other parts of Europe in terms of the much more efficient context in which you will reduce the base load of demands because you have a weave of local energy systems that themselves are much more efficient. I think once you start to do that you discover that there are other possibilities which open themselves up. For instance, I heard in one of the previous inquiry sessions you had with Dr Reay talking about the problem of standby appliances and the fact that they consume three megawatts of electricity or three tonnes of carbon—

Q564 Chairman: This was standbys on television sets.

Alan Simpson: Yes, which is more than the entirety of the EEC contributions; they swamp that in a single year. If you had an energy services company,

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what you could do is offer long-term energy supply contracts, energy security contracts, in which you could give away the energy systems which were appropriate to different houses, you would just give them away, in exchange for a ten-year contract. The generating systems would be ones in which, as a common ownership company, you could raise the thermal efficiency of the properties and you would make money as a company by people consuming less energy. In the generating of energy you would agree on a split of the surplus energy in terms of the profits which came from them. If you really wanted to then make money, you would use the power of those companies to be the purchasers of ecological white goods. Developers do this now in all of the new developments which are going up. You will find them all fully furnished but by and large with poor quality appliances, all of which have the standby ten watt consumption or more. You can get the one watt standby appliances but you have to purchase them. If you purchase them collectively, that is the way in which you change the standards that work in the marketplace. You could use those powers of local energy services companies to change the framework of the consumption of energy using equipment. I think that can be done at a collective level in a way which it cannot at an individual level.

Q565 Lynne Jones: I am not sure I have taken in all the mechanisms of all that, but I have just found this article which was in *Science in Parliament* about the London Climate Change Agency. They are setting up an energy service company, but it is a joint venture company in conjunction with an energy supplier, EDF Energy. Obviously that is now on the cards. Is that perhaps a more practical model to take this forward, or is that a model which is constrained by the current regulatory mechanisms? How would such a company be affected by your concerns about the private networks and the maximum amount of generation?

Alan Simpson: It is as good as you can get under the current UK rules. I am amused about this because EDF are the partners in that; they are the principal owners of it. With EDF in other European countries, where they are the energy sector partners, the ownership of the company is in public hands, and the energy sector partners then compete for the contract to be the partner, but they are not the owners of the company in the way that they are in the UK. I think that just replicates an oligopoly in the UK energy market when you could have a much stronger sense of public accountability if you looked at some of the existing forms of public energy services companies which exist in other parts of Europe. I do not want to knock the London Climate Change Agency, I think they are doing what they can within the tight limits which are permitted currently within the UK.

Q566 Lynne Jones: Are you saying there is more competition by doing it with the public sector being in control?

Alan Simpson: I am and I am saying it particularly. First of all, there is certainly more public accountability because those companies have much stronger citizen involvement in driving their own climate change agenda. That sense of direct and local accountability is much more established elsewhere in Europe than we have here. The second thing is in terms of the energy sector partner, it is much clearer that the public company, or the common ownership company, then invites energy suppliers to put in their own bids. It is a bit like franchising: you get to be the company that wins the partnership franchise for a defined period of time. If you cannot deliver, then your competitors are free to put in a stronger bid. That is quite different from an EScO which is owned by the energy company itself and where they are the ones who call all the tunes.

Q567 Lynne Jones: On carbon trading: you have been sceptical about emissions trading, and you support carbon taxes to reduce emissions. Could you say why you think taxes are a better mechanism of reducing carbon emissions than personal carbon trading?

Alan Simpson: I am not sceptical; I am completely cynical about it. I think this is the great intellectual scam of our time. The Treasury loves it because no-one understands it, and the City loves it because they make a huge amount of money out of it. It is almost impossible for citizens to take part in because it is obscure to the point of desperation. I thought I would bring along with me a copy of the application form for me to become a participant in this carbon trading to apply for a ROC, a renewable energy certificate. It is a 56 page guidance booklet with 26 pages of application, 204 questions, and five places for the citizen to sign. It is enormously complex and obscure.

Q568 Chairman: Is that for a ROC or a ROCette?

Alan Simpson: A ROC. This is where it is supposed to be assisting you to become part of the process, but you would be a micro-generator in that. I think it is worth bearing in mind that there was a conference about 18 months ago in Durban, in South Africa, about civil organisations looking at this issue and about carbon and climate justice. They passed a resolution saying they were deeply hostile to the idea of turning carbon into a commodity. They argued that this was the largest privatisation of the earth's carbon cycle of process that they had come across. I think there is a great deal to be thought through in that context. My objections to it are both philosophical and practical. Practical: the Environmental Audit Committee has done its own analysis of the complete shambles of the first phase of emissions trading. Phase 2 is likely to be no better because the allowances have been over generous. The scheme works by giving allowances to those who pollute but not to those who do not.

Q569 Lynne Jones: What about those problems with how it was set up? In order to get agreement it was necessary, perhaps, to make things not as efficient as they might be, but once it has been accepted, people

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would argue that it is successful. There is also less resistance to the concept of emissions trading or carbon trading than there is to taxation. Is it not a more acceptable approach which in the end will get the job done? We only have to look at VAT on fuel, for example, to appreciate the problems.

Alan Simpson: Let me give you a different example. The argument for emissions trading was based on the US 1990 Clean Air Act to pursue the desulphurisation process. At its best, that aims to maybe reduce sulphur emissions by about 30 per cent. We passed our own Clean Air Act in the early 1960s, and we just told industry that acceptable emissions levels were to be cut, and they were given a three-year period in which to make those cuts. We were told at the time that the whole of the economy would collapse, we just had to live with the smog we had at the time. In fact, once it was done and their rules base was changed, everything changed accordingly. It has been immeasurably more efficient in delivering that change than anything which has come out of emissions trading based on the US Act. I want the Committee to consider the limits of this. I think intellectually it is a scam but, in practical terms I would ask you to look at the annex at the back of the Department for Transport's recent report on *The Future of Air Transport*. In the back, on the very back page, they talk about the scenarios in which the price of carbon for carbon trading is to have gone from its current figure, which yesterday was €3.40 per tonne of carbon, to £140 per tonne by 2030. Their projections of the effect this will have on aviation is it will reduce the ticket flight sales, currently around 200-250 million a year, from an expected 465 million ticket sales to a figure of 455 million.

Q570 Lynne Jones: You would have to factor in growth.

Alan Simpson: This is factoring in growth.

Q571 Lynne Jones: No, but if you did not do anything, what would be the numbers of ticket sales?

Alan Simpson: This is the central case which is the non-intervention. It is that by 2030, under the current terms, there will be 465 million ticket sales for flights within the UK. With this tradable carbon taxing at £140 per tonne, it will reduce that growth by ten million tonnes; next to zero impact.

Q572 Lynne Jones: Your approach would be to have a big tax on air tickets, so what evidence have you got?

Alan Simpson: No, it is not.

Q573 Lynne Jones: What would your alternative be?

Alan Simpson: What you have to do in aviation is move towards non-tradable quotas. You say to people, "You can have carbon quotas allocated to every airport", and you say, "They will reduce at two per cent per annum in-line with our commitment" or "five per cent per annum—whatever you want—in terms of our carbon reduction targets", and you work out how best to do it.

Q574 Chairman: One thing I no longer have is the time quota! Alan, thank you very much indeed for your evidence, both written and oral. You know the form: you cannot withdraw anything you have said, but if there is anything else you want to let us have by way of further information, we would be delighted to hear from you.

Alan Simpson: I will supply you with the more detailed figures of materials used in those houses and on carbon savings.

Chairman: Thank you.

Supplementary memorandum submitted by Alan Simpson MP (Cit 44a)

Let me first of all thank you and the Committee for the opportunity to give oral evidence as part of your inquiry. I have added technical details of materials used in my house to my website. I am happy for members to come back if they have any remaining details they need. There are just a couple of additional technical points I wanted to add. I am happy for you to treat this as a separate memorandum that is in addition to my original submission.

It is important to repeat the weaknesses I tried to spell out in respect of the UK obsession with "**cap and trade**" emissions programmes. All of the critical studies I have looked at point out the following:

1. Energy customers will not significantly change their consumption patterns in the face of uncertain price signals. **Any approach that invites speculative trading, against the future price of carbon, seriously undermines long term investment decisions about clean energy.** The uncertainty about carbon prices creates uncertainty about investment returns.

2. Political pressure, internationally, will result in low carbon ceilings being set and huge amounts of fiddling in pursuit of short term (national) advantage. The system will discredit itself, and provide no impetus toward a shift into clean energy or energy efficiency.

3. Carbon trading does nothing to close the investment gap between energy generation and energy conservation. For most households, this would be the most coherent starting point.

There are essentially three elements of the inquiry that I wanted to come back on and will try to address these in separate sections. The first relates to a point you yourself raised in the hearing.

1. CITIZEN INVOLVEMENT AND PUBLIC SUBSIDIES

It is perfectly legitimate to say that within the German system of preferential feed-in tariffs, the general energy customer effectively provides a subsidy to the clean energy supplier. In my original evidence, I pointed out that, in practical terms, this added €1.4 per month to the average household energy bill. Our own approach in the UK, however, also involves cross subsidy. Electricity prices increase because electricity suppliers can only meet the RO targets for renewable energy supplies by spending extra money on either investing in renewables themselves (which are more expensive than conventional sources) or in buying Renewable Obligation Certificates (ROCs) from the ROCs market. They add these costs to consumers' bills.

You also have the Climate Change Levy on employers, which is offset by the reduction in employers NI contributions. The cost of this (see the original evidence) is around £1.5 billion per year, rising to £2.1 billion in 2010. Then we have the impact of carbon trading. In this case, the UK energy sector received almost £1 billion of free carbon credits within the scheme, with no apparent value to citizens themselves.

What I hope your Committee will look at is the relative effectiveness of taxpayer subsidies via the Treasury as opposed to internal transfers within the energy sector.

During the last year, three countries—France, Italy and Greece—have all introduced their own feed-in tariff regimes, along the German model. They join a number of other European states who have also begun to go down this path, as a much more effective way of engaging citizens in the climate change challenge, rather than messing around with carbon emissions trading. The Future World Council has done a considerable amount of work on this, and I set out, below, a table [Table 3.3] they have sent me on current feed-in tariff systems operating in other parts of Europe. Their researcher, Miguel Mendonca, can supply further information to the Committee should you require it. I also attach at the end of this memorandum a copy of the letter sent by a number of the UK's leading academics, published in the *Guardian* on 22 October 2006 relating to the merits of feed-in tariffs as opposed to the existing measures being pursued in the UK.¹

One point I failed to mention about the German system is that whilst they have the preferential tariffs administered entirely by the industry itself there is also a mechanism which ensures that there is a degree of burden sharing between companies and regions. The German government built this provision in so that the best of the energy companies were not put at a competitive disadvantage with the worst performers, because of the number of customers they retained who benefited from feed-in tariff payments. This is also administered through the industry itself. The burden-sharing agreement is designed to equalise the cost burden throughout the regions, so that end-consumers don't pay more for their energy because more costly electricity is being generated in their area.

It is also worth pointing out that Slovenia attempted to introduce a similar scheme but made a complete mess of the process and ended up being investigated for a possible breach of EU rules on state aid. Essentially, the mistake would be to have the state acting as the balancing institution for the administration of equalisation payments. This effectively turns the transfer payments into taxes and subsidies. It is worth understanding how the Germans avoided this trap in a much more coherent approach.

Quite simply, the lessons from Germany are to ensure that the scheme is not handled by government, in terms of receiving funds and administration of this kind. The arrangement must all be made between generators, distributors and consumers. (NB There are also relief measures in the German legislation for industry and heavy users of electricity—specifically to avoid making manufacturing uncompetitive).

LEVEL AND DURATION OF SUPPORT FOR RES-E PLANTS COMMISSIONED IN 2006

<i>Tariff level in 2006 [€ Cents/kWh] and duration of support for different technologies)</i>							
<i>Country</i>	<i>Small hydro</i>	<i>Wind onshore</i>	<i>Wind offshore</i>	<i>Solid biomass</i>	<i>Biogas</i>	<i>PV</i>	<i>Geothermal</i>
Austria	3.8–6.3 13 years	7.8 13 years	—	10.2–16.0 13 years	3.0–16.5 13 years	47.0–60.0 13 years	7.0 13 years
Cyprus	6.5 no limit	9.5 15 years	9.5 15 years	6.5 no limit	6.5 no limit	21.1–39.3 15 years	—
Czech Republic	8.1 15 years	10.8 15 years	—	7.9–10.1 15 years	7.7–10.3 15 years	45.5 15 years	15.5 15 years
	10.5 15 years	14.9 15 years	—	10.0–12.0 15 years	9.9–12.5 15 years	49.0 15 years	18.0 15 years
Denmark	—	7.2 20 years	—	8.0 20 years	8.0 20 years	8.0 20 years	6.9 20 years
Estonia	5.2 7 years	5.2 12 years	5.2 12 years	5.2 7 years	5.2 12 years	5.2 12 years	5.2 12 years

¹ Not printed.

<i>Tariff level in 2006 [€ Cents/kWh] and duration of support for different technologies)</i>							
<i>Country</i>	<i>Small hydro</i>	<i>Wind onshore</i>	<i>Wind offshore</i>	<i>Solid biomass</i>	<i>Biogas</i>	<i>PV</i>	<i>Geothermal</i>
France	5.5–7.6 20 years	8.2 15 years	13.0 20 years	4.9–6.1 15 years	4.5–14.0 15 years	30.0–55.0 20 years	12.0–15.0 15 years
Germany	6.7–9.7 30 years	8.4 20 years	9.1 20 years	3.8–21.2 ² 20 years	6.5–21.2 ² 20 years	40.6–56.8 20 years	7.2–15.0 20 years
Greece	7.3–8.5 12 years	7.3–8.5 12 years	9.0 12 years	7.3–8.5 12 years	7.3–8.5 12 years	40.0–50.0 12 years	7.3–8.5 12 years
Hungary	9.4 no limit	9.4 no limit	—	9.4 no limit	9.4 no limit	9.4 no limit	9.4 no limit
Ireland	7.2 15 years	5.7–5.9 15 years	5.7–5.9 15 years	7.2 15 years	7.0–7.2 15 years	—	—
Italy	—	—	—	—	—	44.5–49.0 20 years	—
Lithuania	5.8 10 years	6.4 10 years	6.4 10 years	5.8 10 years	5.8 10 years	—	—
Luxembourg	7.9–10.3 10 years	7.9–10.3 10 years	—	10.4–12.8 10 years	10.4–12.8 10 years	28.0–56.0 10 years	—
Netherlands	9.7 10 years	7.7 10 years	9.7 10 years	7.0–9.7 10 years	2.1–9.7 10 years	9.7 10 years	—
Portugal	7.5 15 years	7.4 15 years	7.4 15 years	11.0 15 years	10.2 15 years	31–45 15 years	—
Slovakia	6.1 1 year	7.4 1 year	—	7.2–8.0 1 year	6.6 1 year	21.2 1 year	9.3 1 year
Slovenia	Fix	6.0–6.2 10 years	5.9–6.1 10 years	—	6.8–7.0 10 years	5.0–12.1 10 years	6.5–37.5 10 years
	Premium	8.2–8.4 10 years	8.1–8.3 10 years	—	9.0–9.2 10 years	6.7–14.3 10 years	8.7–39.7 10 years
Spain	Fix	6.1–6.9 no limit	6.9 no limit	6.1–6.9 no limit	6.1–6.9 no limit	23.0–44.0 no limit	6.9 no limit
	Premium	8.6–9.4	9.4	9.4	8.6–9.4	9.4	25.5

¹ For the countries using a different currency than Euro, the exchange rate of 1 January 2006 is used (OANDA Corporation 2006).

² The maximum value given for Germany is only available if all premiums are cumulated. This combines the enhanced use of innovative technologies, CHP generation and sustainable biomass use.

2. LOCAL ENERGY SYSTEMS

The Committee were interested in the work I am undertaking in Nottingham on the creation of a zero-energy zone. In essence, this will seek to create an energy services company offering long term thermal comfort contracts rather than short term energy supply ones. This is consistent with the appeal that has been made by the Secretary of State for the Environment for such initiatives to taken in a number of our major cities.

The exciting thing about this process is that it can only work if there is strong citizen involvement. The downside is that existing energy market rules in the UK stand in the way.

The case for decentralised energy partly rests on the fact that you can dramatically increase the efficiency ratio to energy inputs to available energy outputs by moving to a local energy system. This is what they already have in Denmark and the Netherlands. They are four times more efficient than our own national grid.

Under the *Electricity Act 1989* the UK limited the amount of energy that can be produced in local energy generation schemes. At the moment the Exempt Licensing regime, administered through the DTI, would allow a local generator of energy to offer a maximum of 1MW of electricity to domestic customers if they did so through a private wire network. The alternative would be to use the existing public wiring network, in which case the upper limit increasing to 2.5 MW of electricity. In rough terms, one MW of electricity can be equated to the needs of 1,000 houses, so the range of schemes that can operate as local energy systems are seriously limited in size and scope. These limits need to be raised substantially, or removed completely, if we are to go down a path already being explored more imaginatively in other parts Europe.

Fortunately, these limits do not need to be altered through primary legislation. They are set out within the *Electricity (Class Exemptions from the Requirement for a License) Order 2001*. These can be altered at any time by the Secretary of State for Trade and Industry. Any serious approach to the promotion of ESCOs would simply remove these limits.

Some energy companies have already explored the possibility of offering longer term energy contracts to people but found very little interest. The reason for this is a combination of suspicion by customers about what long term contracts would tie them into, and the absence of any direct pay-back advantages for citizens/customers themselves. Local energy systems provide a much stronger “buy-in” approach for local people and allow them to address energy security as well as short term energy price. I attach copies of the correspondence I have had with Secretary of State for the environment on this matter.²

3. METERING

A considerable number of energy companies at the moment are expressing real interest in an entitlement to install smart metering in people’s homes. In reality, their interest amounts to little more than a desire to ease the billing process for themselves. The EFRA Committee need to think about whether this presents a wider opportunity to profoundly change the culture of energy awareness in the UK.

For most of us meters are no more than an ugly device that measures consumption in order to send us a bill. As such they are tucked away in obscure parts of our homes, often inaccessible and almost always out of everyday sight-lines. If we are to change our culture of energy awareness we have to change both the design of meters and presumptions about their purpose and location.

I have seen some extremely imaginative metering arrangements in schools that relate to rainwater harvesting and recycling. It would be very easy to do exactly the same with energy meters. They should be designed to fit comfortable (even stylishly) in people’s living rooms, possibly next to thermostat controls. They should be able to inform households about energy being generated in the home as well as energy being consumed.

Such digital metering already exists, but I want to urge a word of caution upon your Committee. I know that some of those who gave evidence suggested that there were small hand-held meters available that could do something of this monitoring, but I have been unable to find any particular enthusiasm that people would have for carrying such devices with them as they moved around their routine activities in the home.

I made this complaint to sections of the microgeneration industry and was please to receive a note telling me of the availability of a fixed display monitor that could be installed in my own home. The company provided me both with the commercial sales price and the cost price installation they were willing to offer for demonstration purposes. The commercial price was £1,036.35. The cost price offer was £843.54.

Both of these prices seemed ludicrously high. It seems absurd to suggest that citizens would be willing to pay more than twice their annual electricity bill, simply to know what the bill would be. If the energy industry is so keen to move to smart metering arrangements, I think it is perfectly legitimate for us to require that the meters themselves reflect a profound change in energy awareness culture. It also seems sensible that the industry be asked to take on the cost of such meters. If this were to become the industry standard then the unit cost would fall dramatically. If the water industry can give water meters away for free, so too should the energy industry. To require such meters to be informative meters for households would bring an enormous sense of citizen empowerment in engaging with their own energy consumption/generation patterns.

I hope these additional points are helpful to the Committee.

Alan Simpson MP

January 2007

² Not printed.

Wednesday 24 January 2007

Members present

Mr Michael Jack, in the Chair

Mr David Drew
Daniel Kawczynski
David Lepper

Sir Peter Soulsby
Mr Roger Williams

Memorandum submitted by the Association for the Conservation of Energy (CIT 24)

INTRODUCTION

1. The Association for the Conservation of Energy is a lobbying, campaigning and policy research organisation, and has worked in the field of energy efficiency since 1981. Our lobbying and campaigning work represents the interests of our membership: major manufacturers and distributors of energy saving equipment in the United Kingdom. Our policy research is funded independently, and is focused on four key themes: policies and programmes to encourage increased energy efficiency; the environmental benefits of increased energy efficiency; the social impacts of energy use and of investment in energy efficiency measures; and organisational roles in the process of implementing energy efficiency policy.

2. ACE believes that individuals, households and communities do have a crucial role in tackling climate change” but barriers to behaviour change need to be dismantled and incentives increased to help the citizen bring about the “fundamental shift needed to move to a low carbon economy”.

ACE RESPONSE TO COMMITTEE QUESTIONS

What is the real scope for individual and local community action to contribute to tackling climate change? Increasing energy efficiency, in particular the delivery of the Energy Efficiency Commitment (EEC)

3. While the Energy Efficiency Commitment has been very successful in terms of reaching the given targets, we are some way to go before every home in the UK is treated to make it warm and cheaper to heat.

4. EEC, as it is presently organised, will only go so far—the concentration on cavity wall insulation (CWI) and loft insulation does not help the 50% of the older UK properties that have single brick walls and the considerable number of flat-roof properties.

5. Even amongst the eligible householders, reach has been patchy because of the proliferation of short-lived special offers and marketing schemes from the energy suppliers. There is also the credibility barrier—many householders can’t believe that a utility which exists to make profits out of selling units of electricity or gas would actually subsidise energy saving measures that cut fuel bills. So measures are largely installed by householders in the know and with the ready cash to pay the (albeit subsidised) price.

6. Schemes organised for a specific geographical area—like Warm Zones—could be the answer. These schemes can combine the credibility of the council, with the money of the energy supplier, plus the word of mouth endorsement of the community, and the local knowledge of the installers and community groups. Different contact methods, including door to door visits, can be used and needy individuals can be helped to obtain resources from third parties (state benefits and access to programmes such as Warm Front) which, with insulation measures, can help move them out of fuel poverty.

7. Ultimately, if the government continues to enforce energy savings from the utilities, the energy suppliers should move to being ESCOs (energy services companies) providing for each household levels of warmth and ability to power an agreed number of appliances. Unlike today, where a customer is just a number on a computer file, and the relationship purely transactional, ESCOs, to provide their services adequately, will have to know their customers, their lifestyles and the state of their property. It will be cheaper for the ESCO, after a certain point, to avoid expensive investment in increasing energy generation by helping their customers reduce demand. This has happened in California where utilities have provided low-cost solar panels for customers at the edge of their distribution network, rather than build a new power station.

What is the potential for, and barriers to, microgeneration?

8. There is considerable potential for microgeneration in the UK, but the considerable barriers have to be removed first.

Firstly, we have to say that there is ultimately no barrier in terms of public acceptance of microgeneration. Polls show substantial general support for the idea of microgeneration. For every resident who objected to David Cameron's wind-turbine, there were probably substantial numbers who supported the idea. The British public (in general) will support—and ultimately pay for—new technology if they feel it is of use to them. Witness the rapid rise in personal use of the internet and mobile phones—and, in our houses, the investment in gas central heating and double glazing.

The biggest barriers to microgeneration are cost and the spatial planning system.

9. Microgeneration is too expensive. It is the preserve of the Green, the early-adopter and the householder with enough money to spare. Ask an installer and they will tell you that a typical customer is a home-owner, educated to degree level, middle-class, middle-aged and with money in his or her pocket from a recent legacy.

10. The ability to afford micro-generation must be moved to a wider circle than the people making a choice between a world cruise and a solar panel. The costs of microgeneration must be driven down by economies of scale. In the UK, microgeneration is a “cottage industry”. Installers are generally very small businesses—often sole traders. The units they are installing are made on very small production lines and largely assembled by hand. The industry estimates that £50 million is required to invest in mass production to bring down costs to the householder so that pay-back looks a reasonable proposition. This means investors must be satisfied that there will be a market, in the near future, big enough to reward their investment.

11. One way of guaranteeing a market is for the Government to set itself an adequate binding national target for microgeneration. There is provision for this in the Climate Change and Sustainable Energy Act 2006 which requires the Government to make a decision on a target by November 2007. The Government must accept that it is the key player in the spread of this technology and it is in the national interest for it to succeed. Governments have accepted this in the past and intervened in various ways to back high-risk technologies such as aviation, North Sea oil and gas, and nuclear power.

12. Moving on to the problems of some micro-generation technologies with the planning system, there is a substantial gap between the varying high level policies of sustainability adopted by local authorities and the everyday decisions made by their planning departments and councillors. There is a lack of understanding of the rapidly changing technology of renewable energy or the increased need for energy efficiency and sustainable energy in buildings.

13. In the recent past, around 30% of renewable planning applications were refused. This is worse in some key technologies: 60% of wind farms are refused and biomass projects have particular problems obtaining permission (Cabinet Office Policy and Innovation Unit figures for 2000). Even humble domestic solar installations can fall foul of the system; installers have informed our staff that some councils insist on the requirement of planning permission, even when this is not really necessary as the installation should be permitted development. According to Southern Solar, a leading installer of solar thermal in the South East, around 20% of householders give up the idea of installing solar when faced with the effort and cost of a planning application. This is despite one council giving applicants a grant to cover the cost of the application.

14. The Government has declared that it will shortly undertake a review of how microgeneration technologies are included in permitted development, and the Minister Yvette Cooper made a strong statement on this matter on 8 June 2006 at the Town And Country Planning Association And Renewable Energy Association Conference, where she said that it is “patently absurd that you should be able to put a satellite dish up on your house but should have to wrestle with the planning process for small scale microgeneration which is no more obtrusive.” ACE looks forward to the promised consultation on detailed proposals later this year.

15. The review will hopefully help the problem somewhat. However, some micro-generation technologies will end up in the planning system because they are planning matters that can't be covered by permitted development rights. Some technologies can be intrusive (such as micro-wind) while some, such as solar panels, can change the appearance of a building. Or it may be that the application is so large that it is disputable how “micro” an installation really is.

16. In addition, permitted development rights are to a certain degree in abeyance in Conservation Areas, which cover a surprising large part of urban Britain. These areas, with their varying and subjective standards on “visual impact” are a particular barrier to wind and solar technologies.

17. There is a recognised problem of a widespread lack of knowledge or experience in planning departments in handling the new technology of renewable energy or the subject of energy efficiency. Unfortunately, resources are often lacking (especially in small district councils) to develop knowledge and policies in these fields. There have been attempts by outsiders to help the planners. The best example is the DTI's “It's Only Natural” programme which aims to educate planners and councillors on the technology of renewables through a website and seminars around the country. Various other pieces of work are going on,

supported by the regional bodies and local energy agencies. This is probably inadequate and too patchy for the task. Government Ministers have asked why more local planning authorities have not adopted Planning Policy Statement 22 (on-site renewables in new development) as a local planning requirement. The answer is: the LPA's do not know enough about renewable energy—indeed any energy—to properly enforce the policy. Therefore they avoid it.

18. There are exceptions to the above. Several advanced local planning authorities have adopted, or are in the process of adopting, a Supplementary Planning Document containing guidance on renewable energy (either as a stand alone policy or as part of a wider sustainability SPD) to help them make planning decisions and to advise householders and businesses on what is accepted and why. This process should be encouraged, and the Local Government Association should be congratulated on its pending guide to developing a local sustainable development policy which includes sections on renewables, CHP and energy efficiency.

What is the potential for “smart metering”?

19. It has been widely acknowledged for some time that citizens are much more likely to reduce their energy consumption—and thereby play their part in tackling climate change—if they have access to accurate, timely and readily intelligible information about their energy use. Currently, however, UK householders are for the most part unaware of their energy consumption, due to direct debit payments, estimated billing and a lack of information about comparative usage and/or costs. A recent report (“Energy Efficiency: Public attitude, private action” conducted by Future Foundation for Logica CMG, May 2006) revealed that 36% of UK consumers have no idea how much energy they use. However, 65% say that they would like more accessible information on day-to-day energy usage—and 82% would like a smart meter to help monitor consumption. It is also very encouraging that 75% of consumers state that they would be willing to make lifestyle changes to save energy.

20. Giving citizens better information about their energy consumption is therefore vital if they are to be enabled to play their full part in combating climate change. This is where “smart metering” could have a key role to play—as long as such meters also feature visible consumer displays providing accurate and timely consumption data. Most of the evidence on the effectiveness of smart metering comes from abroad—but a review of all the available literature (not only on metering, but also on billing and direct displays) was carried out for DEFRA in April this year by Sarah Darby of the Environmental Change Institute at Oxford University. She concluded that “direct feedback” to the consumer (ie obtained either from a meter or an associated display monitor) is capable of yielding energy savings of between 5% and 15%.

21. Against this backdrop, we welcome the announcement in Budget 2006 of £5 million to co-finance with energy suppliers a pilot study in the use of smart meters and associated feedback devices. We also await with interest the results of the UK's first major interactive smart metering trial, which was launched in April by EDF Energy in conjunction with National Energy Action. Furthermore, we would encourage the Government to interpret as widely as possible the provisions of Article 13 of the Energy End-Use Efficiency and Energy Services Directive, which requires Member States to ensure that customers “are provided with competitively priced individual meters that accurately reflect [their] actual energy consumption and that provide information on actual time of use”. The Directive must be interpreted in such a way as to ensure that customers are provided with instant feedback as to the effect of behavioural or technical improvements on their energy consumption.

22. While on the subject of smart meters, we must not lose sight of the important role that intelligible, frequent and accurate fuel bills can play in encouraging citizens to reduce their energy use. In this context we welcome the Government's announcement in the recent Energy Review that it intends to consult later this year with Ofgem, the energy suppliers and other interested parties on the cost-effective provision of more frequent and accurate bills that also contain comparative energy consumption data. We also believe that, if properly implemented, the billing provisions in Article 13 of the Energy Services Directive will bring about a significant improvement in the frequency, accuracy and usefulness of fuel bills.

Smart metering is a prerequisite for the expected provision of energy services from ESCOs.

What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

23. The closest that ACE has come to examining the availability of information for people to tackle climate change relates to a piece of research on how social housing tenants make use of energy saving advice and equipment installed in their homes—broadly, most do not follow best practice. User Behaviour in Energy Efficient Homes (2004) was a survey carried out to examine how people used their homes when they had received energy efficiency improvements. The survey covered over 150 households in 10 locations. All were tenants of housing associations. The project was funded by the Energy Saving Trust and the Housing Corporation.

24. The most valuable finding from the project is probably one that is the most simple. When central heating systems are installed in configurations that conform to best practice guidance, the users are generally able to use them to get a warm, comfortable home. The corollary is also true: when best practice is not carried through, users find it difficult to heat their homes in a satisfactory manner.

25. One of the most important findings was the range of ability of residents to achieve the desired results from this system. The professionals are familiar with all these items and can make them work together. We should remember that most householders are not engineers and may not really understand the principle of the thermostat. If we remember that programming the video to record from the television is one of the most notoriously difficult things for the average person to achieve successfully, then it might guide us to deliver and set up systems that the user can learn to drive effectively—without needing a driving test.

26. The importance of this understanding should not be underestimated. Many solutions are now being developed to meet the sustainable development and sustainable energy agendas that mean new technologies (such as micro-generation) are introduced to the home. If many householders still have difficulty understanding “old” technology like a central heating system, how will they cope with new concepts such as ground source heat-pumps?

How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

27. The rating and bold public display of energy certificates on public buildings, when combined with engaging communication strategies and events, is an excellent means to raise awareness and demonstrate how residential energy users can make a difference. This is particularly true in schools, where students can see improvements to their own building, make changes in their own behaviour, and take these lessons home to influence energy used in the household. The European Display™ Campaign is a voluntary scheme designed by energy experts from 20 European towns and cities. It is aimed at encouraging local authorities to publicly display the energy and environmental performances of their public buildings using the same energy label that is used for household appliances.

28. Following on from the success of the Display Campaign, we would urge the Government to implement as soon as possible Article 7 of the Energy Performance of Buildings Directive, which requires all public buildings over 1,000 square metres to display an energy performance certificate. Furthermore, we would wish to see an early extension of the Directive to cover not just publicly *owned* buildings, but all buildings visited by the public, eg theatres, supermarkets, banks, sports facilities, etc.

Association for the Conservation of Energy

September 2006

Witnesses: Mr Andrew Warren, Director and Mr Ian Manders, Deputy Director, Association for the Conservation of Energy, gave evidence.

Q575 Chairman: Ladies and gentlemen, welcome to our further evidence session in the Committee’s inquiry Climate change: the “citizen’s agenda”. The first of our witnesses is the Association for the Conservation of Energy and, for the record, they are represented by Andrew Warren, their Director, and Mr Ian Manders, their Deputy Director. Andrew, as somebody I have known for all the time I have been in the House of Commons, you deserve a long service award for being in this field and having stuck at it for such a very long time. I was talking to colleagues around the table and memories go back quite a long way, but whilst energy efficiency has been something that has been put before parliamentarians, you have been the man doing it all the time, so we have to send you our congratulations for determination and getting stuck in. Well done. I was looking at the background notes and, just before we ask you our specific questions about the Association for the Conservation of Energy, one of the group of people who are your members was listed as energy services companies. Perhaps you could just give us an insight as to the characteristics of what those companies do, bearing in mind there

is quite a debate as to whether, in the future, the nature of the supply of energy will change from people who are interested in selling a quantity to energy services.

Mr Warren: May I begin by saying how very pleased we are to be here today and may I thank you for those very kind personal words at the start. I did feel that you were actually going to say “and now we are going to pension you off” but you managed to avoid that particular conclusion. Whether you wish to at the end of this session will be your judgment. We quite deliberately say that we have energy service companies amongst our members. If you look at the list of members, there are three companies there, all of whom would be deemed, in the traditional sense, to be energy suppliers. One reason why each of them joined the Association and why they work so well together with the existing members, who are the more conventional manufacturers, distributors and installers of energy saving equipment, is because there is a genuine common agenda there. Those companies, and you are going to be hearing from one of them a little later this afternoon, have genuinely recognised that they are no longer in

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business to sell kilowatt hours, basically because, like me, they have never met anyone who actually wanted to buy a kilowatt hour. What they are interested in buying is light and heat. If they can find a satisfactory business model which will enable them to continue to make money for their shareholders and also to provide for consumers what consumers actually want, which is light and heat rather than kilowatt hours, then that squares a very satisfactory circle. This was a quite deliberate move from the Association's members to incorporate the more progressive energy companies within our membership and actually there is a genuine meeting of minds there. You can obviously examine at least one of those companies a little later in the afternoon.

Q576 Chairman: In your evidence you have made reference to the European Union Directive on Energy Performance of Buildings and the Article 7 requirement for all public buildings over 1,000 square metres to display an energy performance certificate. There seems to be a reluctance to introduce this into the United Kingdom. Can you explain why?

Mr Warren: The Energy Performance of Buildings Directive is one which I am personally rather heavily involved with in Brussels, so I have been very anxious to see that actually brought into force as soon as possible. As soon as possible should have been January 2006 and indeed when it was agreed I can remember the then Environment Minister, Michael Meacher, announcing that we were going to have this in place in full from day one. Well we are now more than a year beyond that time and the Government have certainly moved forward on some of the articles—some of the earlier articles dealing with the building codes, the building regulations—but on the ones that you have identified, most specifically Article 7, which is the one which refers to the need for energy certificates to be displayed so that people can know what the relative performance is of an individual building, that has not moved forward. I am sorry to get into what appears to be the detailed stuff, but Article 7.3 is the article to which you are referring, and that does say that all buildings over 1,000 square metres which are public buildings and which are providing services to members of the public, institutions which are providing services to members of the public, should be displaying these certificates. Within the context of your inquiry that is a very important aspect. It is one thing for the facility's manager to know what the performance is of the building in relative terms, but it is another thing for all of the customers and all the employees of a company to know what the actual performance is. If you take an example of a high street bank, for instance, a financial institution to which this really should be applied and should have applied from the beginning of last year: in that particular case they may not know how the rating of a D rating has been reached, but, sure as eggs are eggs, if there is a bank over the other side of the road which has a B rating, the managers of the D rated bank will want to see that changed and upped, certainly to a B standard, hopefully to an A

standard. That is a way of overtly making people aware of how good that building is. I would have hoped that the Government would have followed through on the former Environment Minister's commitment. They have not yet done so and I am optimistic that we may begin to see something happen, at least in normal public buildings, the sort of thing that you and I think of as a public building, a library or a swimming pool or something like that, within the next year or so. We really ought to be seeing it happening in banks and hotels and things like that within the same timescale; it would greatly help in achieving the overall objective that we are all seeking.

Q577 Chairman: This whole area is multi-faceted and the focus of this inquiry is on the citizen. In terms of trying to coordinate, bring together in front of the public the myriad of things that could be done, do you think that the Government are doing enough to push the energy saving agenda in particular? Is it the role of Government to do that or should they simply carry on sub-contracting a lot of this advice and coordinating activity to people like the Energy Saving Trust? Do you think they are taking enough of a leading role?

Mr Warren: One would always have to say on almost any issue, yes, they are doing a certain amount but they should be doing more. In this particular case we certainly do have the Energy Saving Trust in existence and I know you have already taken considerable evidence from them. There is also a Carbon Trust too in existence. I must say we are not terribly certain why we need both organisations; it would be much more sensible to have just one way of doing this, but there are agencies in this country which are intended to put this message across. It is not ever going to be possible for just one organisation, or in this particular case two organisations, to do that. What I would submit that they do need is essentially a range of tools to do this. Of course you need information programmes, but you also need to have incentives there, you also need to have some means of ensuring that things happen. You were kind enough at the start of the session to say you have seen the movie round with me once or twice on this, but I have a very standard phrase, which is to talk about the need to have carrots and sticks and tambourines. By carrots, I mean incentives. By sticks, I mean means of ensuring that people do actually follow up what they say they are going to do; but you also need the tambourines. You need to be making noise to attract people's attention. The Government have begun to address all of those cases, but in each case we would certainly argue that, yes, they have done a certain amount through their agencies, through local government, through other means, but there is still an awful lot more to be done.

Q578 Chairman: Do you think that they really have addressed the connection between what the individual can do and the global nature of the problem of climate change and greenhouse gas emissions? One thing that has struck the Committee

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is that there is an enormous amount of interest and activity, but when it comes to the individual, it is a limited number of people who understand and are personally committed, are doing their thing, but the bulk of the population look at this global picture and say somebody else can do it, but not them.

Mr Warren: There is a mismatch between the general concern, which one would personify as being worried about polar bears, and saying “I am concerned about polar bears and I ought to be switching my lights off”. We take it from either extreme on that. Obviously there are some who do directly understand this, but there is a feeling of enormity about things. I tend to find myself quoting Edmund Burke on this, which you will appreciate. We cannot just back off from this. Burke said “No man ever made a greater mistake than he who did nothing because he himself could only do a little”. In the context of climate change, that is not a bad aphorism to have. The trouble is that I have taken that example of switching the light off as a sort of *reductio ad absurdum* on this, but effectively, if enough of us switch the lights off when we leave the room, then the polar bears may survive a bit longer.

Q579 Chairman: Give me the top three barriers. If you had a magic wand and you could say “Here are three key things that we could do to move the personal agenda of energy saving forward where there are barriers at the moment” and with your wand you could remove some of the key ones, what would be on the list?

Mr Warren: It depends how much power you are giving me on this, mind you, but let us assume that I can be a dictator for a few days. The first thing I would do is to take a leaf out of the books of some of the other major European governments, which is that they, facing precisely the same sort of issues as we are at the moment, are trying to turn around an economy which is often quite carbon-heavy and to alter the whole way in which people approach the use of energy. If you look at how both the French and the Germans have approached this, they have very similar systems to ours. The French have an almost identical type of system to our Energy Efficiency Commitment, which I know that you have discussed in the past, which is that the duty is upon the energy companies to help domestic customers save energy. The difference is that the French companies have a number of tax breaks and grants with which to encourage people to take up these incentives. The last figure I saw for the French Government was that they were spending something in the region of about €1 billion a year; for the Germans, it is about €1.3 billion, on a very concerted system indeed of saying they are going to try to improve five% of the pre-1978 housing each year and they will do this by dint of having these sorts of incentive programmes there. And it works. It is not just a question of having the money to dangle in front of people: it is also a question of people believing the Government really want to get something done, and are therefore being prepared to put public money into it. It is a question of ev confidence. You said earlier that people say they

would like to do something, but they do not know what to do. There is also a belief that if this is so important, and the rhetoric keeps telling us it is important, why do Government not put their money where their mouth is? That is certainly what I would say the major European competitors have done; I have yet to see that happen here. That is one thing I would certainly try to do. The second one—and I would probably have to be a dictator for longer than a few days to solve this one—is the whole landlord/tenant issue. This is particularly true with the commercial sector but it is true for an awful lot of householders. They do not live in homes which they have any great interest in doing anything about because they do not stay in that home for terribly long. If you can find a way of genuinely providing incentives for landlords, at least not to step in the way of a tenant who wants to do something, and preferably if you can genuinely provide substantial incentives to landlords who want to improve their properties, that would be the second very important way. The Chancellor has moved in that direction and one should pay tribute to that. There is now a landlord’s energy saving allowance, but it needs to be far better designed than it currently is. The third way is essentially a matter of politicians generally taking the issue of saving energy more seriously. You and I have talked before now about the fact that we have become so used to seeing ministers doing things like opening new power stations or new gas pipelines or whatever, even new wind farms, always with a nice white hat on their head and stuff like that, but we have never yet seen a minister open a well-insulated loft. That is one’s great difficulty: you have this mismatch between what is seen as important politics, which is the supply side, and what we all know to be the cheapest and most publicly acceptable and certainly the swiftest way of addressing the threat of climate change, which is using energy a great deal more efficiently than we do now. Essentially those are my three things: put your money where your mouth is to Government; start talking about the issue; and try to deal with the problem of landlord/tenant.

Q580 Mr Drew: You have obviously been critical of the Energy Efficiency Commitment; I have heard you many times ask the Government to go further. Do the antecedents for this actually lie with individual nation states which are being too timid or should we be doing much more at EU level? Clearly there are good examples in each country and if you put all the good examples together, you would have a series of pretty effective policy options available. What is your view on that Andrew?

Mr Warren: I certainly do believe that there are lessons that we can learn from other European countries. Strangely enough I think there are actually lessons that they can learn from us. You are quite right in saying on the Energy Efficiency Commitment that we have been critical of the relative timidity of Government, in terms of the size of it that has been set, and the evidence of that was the fact that for the first phase the work got done so fast that actually about 40% was able to be carried

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over into the second three-year phase. However, the basic principle of trying to turn conventional energy suppliers into energy service companies is a very sound one and it is one that actually other countries are learning from us. I would not want it to be thought that we had got it all wrong and others had got it all right, but there is a great deal to be said for learning lessons from other countries. Actually, there is also a great deal to be said for learning very local lessons too, because all round the country there are all sorts of very good ideas happening on the ground, sometimes at District Council level, sometimes even below that, which are delivering. I wish we could really replicate these because over and over again we hear about how very good Woking is for instance on delivering co-generation and I keep thinking yes, but there are 300 or whatever other district councils, how come somebody else has not picked this up? You hear again of the outreach from Leicester for instance. How come other councils have not picked this up? If only we could learn to replicate the best of things, that would be a wonderful achievement. We do not have to keep inventing new wheels; we have the wheels. I am not sure how much farther I can push the metaphor, but the wheels do have to be kept rolling in the right direction.

Mr Manders: Certainly at the local level, and I am speaking here as a former local councillor myself, there may be an idea, which is apparently being discussed within the Department for Communities and Local Government at the moment, about the new performance indicators for local authorities. One thing that I have heard is being discussed at the moment is putting a performance indicator for carbon emissions on local authorities. How it will act is that the local authority would have to cut the carbon emissions from their own estate, their own buildings, the town hall and so on, and also have to work to cut carbon emissions from housing in their area, from local businesses and also from transport as well, which are all things that the local government has influence over as the policy maker for its own spending. If that were introduced there at the grass roots level, there would be an agency which would be working with local people to cut carbon emissions. I do hope that is eventually agreed by the Department for Communities and Local Government and that could be a way of making sure that the experience of local councils like Woking, Lewisham, Barnsley and Kirklees is reproduced over the rest of the country.

Q581 Mr Drew: Again you highlighted a particular problem in this whole area in that in a sense Government have gone for the easy wins, which are cavity wall insulation and loft insulation, which do not really equate to many of the older properties which do not have those opportunities. So what should we be doing with the older properties?

Mr Warren: You have identified there one of the complications of placing what is essentially a duty upon energy companies, and saying they have to deliver a certain amount of kilowatt hour savings, and inevitably they are going to go for the cheapest

option. The difficulty is, as you say, that dealing with older properties is the more expensive option. You could turn around and say it is a level playing field for all of them, they will just all have to pay a bit more in order to achieve their objectives. I cannot help feeling, and this goes back to my earlier answer to the Chairman, that one way of making this much more palatable would be if, at the same time as trying to ask the energy companies to deliver this, you said “and here is some public money to assist you”. That reduces their overall cost on this, but it also means that prospective customers are much more likely to pick up on the idea. There is nothing like being able to say this has an endorsement from Government. The endorsement from Government does essentially come from saying “we so believe in this that we are producing help on it.” I can give you an example where this has worked very well, that the Government have introduced with process plant for heavy industry. It is something called the “enhanced capital allowance”, where companies are basically bringing forward being able to offset capital against tax all into the first year, if they install one of a range of energy-saving measures. I understand from the Revenue that they have not had much claim on this, so it is actually not costing the Government very much. What it has done though is to produce a feeling of endorsement there for those who are out to market some of these products—the list is now several hundred long—and of being able to say that the Government so believe in this that you can get a tax break on it. In practice the tax break is relatively minimal, there is not a lot of evidence people have taken it up, but there is evidence that in process plant for instance, there has been a great deal of investment which is being driven as a result of the extra interest which has come forward.

Q582 Chairman: Just to pin you down on David’s question, I was delighted to see in your evidence the emphasis on the fact that 50% of older properties in the United Kingdom did have the difficulties that David mentioned. What specifically should be being pushed in those properties, given the numbers of them and therefore the potential for energy saving? Have you done any calculations to work out what energy saving could be realised from those older properties and by what techniques?

Mr Warren: There is no doubt that techniques do exist. If you are talking about properties with solid walls, both external wall insulation and internal wall insulation exist, but installing that is obviously more expensive than finding a house which has an uninsulated cavity wall. There is no question that the technologies exist which could bring such homes up to good energy performance standards. The question is whose job it is going to be to do that. As we currently stand it is going to be the job of the energy service companies, the energy suppliers as they were. They can do that.

Q583 Mr Drew: I am not totally sure; to me it is a nuance of a difference. Can you just define what we now mean in terms of energy service companies? What is going to be different about these?

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Mr Warren: Essentially the concept of an energy service company is that you are no longer in business simply to sell kilowatt hours; you are in business to provide the services that the customer wants.

Q584 Mr Drew: But is that not a problem? Have our companies moved to become that yet?

Mr Warren: I was discussing with the Chairman a little earlier the fact that in the membership of our own Association we have three of the conventional energy suppliers. I believe that one reason why they are doing this, is because they have taken strategic decisions that this is where they wish to position themselves in the marketplace of the future, and a recognition that the days of just simply selling as many kilowatt hours as possible have gone. It is a new world on that. To go back to your earlier question, as we currently stand, it will be their responsibility to improve the energy performance of these older and more difficult, what they call more hard-to-heat, homes and that will be an additional cost. It is not one that is currently happening much under the existing Energy Efficiency Commitment because it is small enough to enable the easy bits to be done first.

Q585 Mr Drew: You have been very critical of the short-term nature of some of the proposals out there, whether they come from Government or whether they come from the companies themselves. How do you change the environment so that there is a consistency, which presumably is what is going to cause the customer really to begin to shift in terms of their energy efficiency obligation?

Mr Warren: One way you could do this is obviously by setting up a programme much on the lines I was talking about, relating to the German programme which was an absolute declaration that across a period of 20 years, they were going to upgrade five percent of the homes each year. Within the five percent each year, they are including a lot of what we would call these hard-to-heat/hard-to-reach homes as well. That would be one way of being able to get beyond the short-term nature of these things. Just to clarify the point relating to our worries about the short-term offers which are available from the energy companies, those offers are essentially there seeking to subsidise the installation of high-efficiency light bulbs or of “insulants” or something like that. Those are there in order to encourage customers, both their customers and other people’s customers, to be prepared to allow them to install measures in their homes under the Energy Efficiency Commitment. A sensible company will obviously try to minimise their on-costs on that and it has been fascinating to see how, over the last 18 months or so, companies have learned to deliver what is necessary with very minimal intervention, no longer offering £200 off, but we are now down to less than £100 or even £50-off schemes. Basically because it is a very good bet. We are talking about measures that save people money.

Q586 Mr Drew: Without much change in behaviour.

Mr Warren: Change in behaviour is exactly the point. The Chairman was making this point a little earlier, the fact that it is the whole approach to energy usage which we need to be able to alter and that includes the presumption that there is nothing you can do about it and you do not know to whom to go. If you have energy companies who are saying they can come in and do something to improve your home, make you feel more comfortable and save you a bob or two, then in essence that is a good package.

Mr Manders: Since the rise in energy prices there has been an enormous increase in interest from members of the public in energy efficiency measures and if you ask any manager of any Energy Saving Trust financed energy efficiency advice centre, they will tell you the number of calls that they have has increased and that has resulted in further installations of energy efficiency measures. At various times different things stimulate the public. There is no doubt that rising energy prices have been a particularly good stimulus for the public in this particular case.

Q587 Mr Drew: When we visited Leicester at the start of this inquiry and we saw those former council houses that have solar panels and so on and energy efficiency measures, the problem here was that it does take a lot of effort to get out to reach the hard-to-reach. What worries me with a lot of the schemes that are being operated by the energy supply companies is that they will tap the middle classes and they will tap them in a way which is attractive but short term and they are not all-embracing. Would you agree with that, yes?

Mr Warren: It is inevitable, if you ask a private company to do something, they will try to minimise their costs and they will try to minimise their costs by doing the easy bit first. To be fair, within the Energy Efficiency Commitment, there is also a current requirement which demands that at least half of the money is spent on those less able to pay for these measures, and that is something which Government mandates. Of course they will always pick what is called the low-hanging fruit first and, as you rightly say, what you are increasingly left with is not a set of uninsulated semis in the East Midlands; what you are left with is a series of farm workers’ cottages which are down the end of the lane, off the gas mains, very cold in winter and very difficult to heat. Those are the sorts of buildings that we are actually going to have to address in the not too distant future.

Q588 Daniel Kawczynski: I am very interested in what you have to say and agree with it. When you were talking about councils you expressed surprise that other councils had not picked up on what Woking is doing. There are tremendous budgetary pressures on councils, as you will know, and some councils this year are going to receive far less than the rate of inflation in terms of the government contribution to local government. Bearing this in mind and bearing in mind the fact that there are such huge pressures on councils to provide more affordable housing, for example, which is one issue

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which is relevant in my constituency, what would you say to the councils about prioritising what you are saying and putting resources into it, given those constraints?

Mr Manders: As a former councillor in a leading role in a local authority, though not now, I understand completely the pressures that you are talking about and it is very difficult. Many local authorities have reached the view where their senior officers say that if it not statutory, if they do not have to do it and they are not measured on it, they are not going to do it and energy of course is something which is optional to many local authorities. The ones who are interested in energy started off probably primarily because they wanted to save money on their own energy bills. Then they acquired the expertise to do that and then gradually they began to realise they could do things which would help people in their area, often at no cost to the local authority itself. The good thing about energy is that it is so expensive and it is a budget heading, so if you save it, you save revenue. Local authorities which have taken energy seriously have managed to do that and they have managed to apply those lessons out into the community with their own housing stock, if they still have it, and also help members of the public. Local authorities can actually do lots of things which are very low cost and on the question of them saving up money themselves, they are effectively making money by tackling the energy question because they are saving revenue which they can use for other things or reinvest into more energy efficiency. I accept completely there are budgetary pressures on local authorities. If local authorities are required to do it because it is a performance indicator, then they will take it seriously. They will move resources from other areas into investing in that area, but I am confident that they actually will recover that revenue so they can cover their costs and also they can help the local people.

Q589 Daniel Kawczynski: I am at the moment trying to push it very hard for the council to introduce wood-burning boilers, using woodchip, which actually would save them a great deal of money. It is a local company in fact that imports these woodchip burners but do you believe that we should be prescriptive here? Are you suggesting that we legislate to force councils to do that or should we be encouraging them and letting them decide for themselves?

Mr Manders: We have been encouraging them for some time and the fact is that only a limited number of local authorities are taking energy seriously. Barnsley, a council in the north, has adopted biomass, in other words wood chips for burning in their own housing stock and they have a lot of accommodation. It is a former coalfield area so they have all the old coal burners and so on which they have moved to wood chips. They have saved money because it is far cheaper than coal and it is also cheaper than converting to gas. They can produce very good carbon figures and a financial saving. It may just be that in your local authority, they have not got round to looking at the financial case for it.

Mr Warren: During the course of the last Government, the Home Energy Conservation Act was put on the statute book which does actually require local authorities to set up plans to move towards a 30% improvement in the energy efficiency of all the housing stock in their area across a 15-year period, and that 15-year period concludes in the year 2010. The interesting thing is that a significant number of councils have already achieved that, but an even larger number is way, way behind. The reason why I am citing this is that the returns which have to be made each year do demonstrate very clearly that those local authorities that are prepared to show commitment can actually deliver on this. There is a worry now, I have to say, because there is a draft planning policy statement out at the moment which, in our submission, if that draft is confirmed, will actually deter many local authorities from wishing to help to save energy in the housing in their area. This is for local authorities who want to be able to set higher minimum energy standards than the building regulations require; and unfortunately the signal that is being sent from this draft planning policy statement is that Government no longer consider that appropriate. They consider that even the most go-ahead local authorities must insist that the minimum which is required under the building regulations becomes the maximum. In response to your question, that would be a very detrimental step were that to happen. I know that there was a Private Member's Bill put before this House on Friday, which was debated on Friday but unfortunately fell and the government minister was actually speaking at the time. Whatever the eventual fate of that particular piece of legislation—and obviously we would like to see it pass—the single most important thing is to be able to ensure that local authorities are not deterred from ensuring that in their locality people do build to better than the minimum standard. After all, we are supposed, within the next nine years, to make sure that every single new home is a zero carbon home; and unless there are actual opportunities for go-ahead local authorities of the type that we have been talking about to have this happen in their locality, then it is going to be very difficult to see how that is going to be achieved.

Q590 Chairman: I was going to ask you a question about what you think EEC3 should look like. Could you drop us a note?

Mr Warren: The answer very quickly is more of the same, but a great deal larger.

Chairman: Right, okay. Perhaps it still might be useful to tease that out in a little more detail.

Q591 Sir Peter Soulsby: You have told us about what Government could be doing. We have had evidence from the Local Government Association. Do you think there is more the local government community itself could be doing to spread what is undoubtedly good practice?

Mr Warren: As I said in relation to central government, of course there is always more that can be done. The Local Government Association has done a fair amount on this and I know that you

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discussed with them a new publication that they produced urging their members to do more. I still find it a great shame that we can sit here and bandy half a dozen names of local authorities when there are several hundred that we ought to be able to approach on this. The answer is yes, we would like to see this happen more but the difficulty is that this is an optional area. Whilst it remains optional, with the exception of delivering on the Home Energy Conservation Act, it will always fall down the priority list.

Mr Manders: The Local Government Association's brief is obviously wider than just energy and they have, as a matter of principle, that the central direction from Government the controls or the obligations on local authorities should be minimised. That of course is not the view that has been taken by governments of various political parties in this country—they actually do say that there should be some direction of local government and we feel that on this particular issue there is so much that the local government can do to cut carbon emissions in their relevant area that probably the only way will be to make it part of the performance regime when it is revised shortly.

Q592 Mr Williams: Mr Manders said that the public do react to particular circumstances like an increase in energy prices and do install energy efficient adaptations in their homes, but they seem to be very cynical still about the role of energy suppliers and are probably unaware really of the Energy Efficiency Commitment that the Government have put upon them. What can be done to undo that cynicism and make people more open to the role that energy suppliers have in these matters?

Mr Manders: This is where there is a particular role here for local authorities. Opinion polls do show that people do trust what local authorities say. If they get an official letter from the local authority, then they believe it is the truth. Increasingly, as the energy suppliers who now have the low-hanging fruit find it increasingly difficult to find customers, they will turn to the local authorities and work out joint projects with them, of which several exist at the moment. These are particularly successful because they cover the credibility issue for those people.

Mr Warren: You are going to be hearing in a few minutes from Centrica. They have a very interesting way of delivering part of their Energy Efficiency Commitment, which is to get together with certain local authorities and give them the money to underwrite the cost of certain improvements, and instruct them to bill that so it looks as though it is a reduction in council tax. There is more of a conviction that if your local authority approaches you to do something, although you may moan about the local authority, you think basically that they are straight and honest and not going to sell you a pup on these things and that gives a greater likelihood of getting uptake. The experience found on this particular one is that it has been one of the cheapest ways of delivering the Energy Efficiency Commitment.

Mr Manders: May I just add that there are particular groups, in other words elderly people in particular, who are very wary indeed but they do trust the local authority and that usually is the way to reach them. Several projects have managed to do that.

Q593 Chairman: The only problem about the 50% point that you were making a moment ago is that the council tax advantage is only for half of the houses.

Mr Warren: The council tax advantage in this particular case is actually a clever way of marketing what is actually nothing very much to do with the council tax but is to do with delivery of the Energy Efficiency Commitment. It is an interesting signal that having that there does create a greater willingness to take up things. You are quite right. That in itself will not solve the problems, because, as you indicated, a significant number of householders do not pay council tax.

Q594 Mr Williams: As an organisation you are also very supportive of local schemes. Do you think actually endorsing those local schemes as exemplars would be a better way of achieving the EEC targets?

Mr Manders: That process is going on all the time and in fact there used to be an Energy Saving Trust programme, a financial grant programme, which used to help organisations replicate successful schemes. In my previous employment I was involved in replicating a scheme in Sussex which was really a copy of a scheme in Cornwall, Cornwall Healthy Homes, which was a community project which had been very successful. That process goes on all the time and the Energy Saving Trust spends a lot of time and effort trying to tell organisations about these various schemes. In the end there has to be a reason why they are going to do this and it really is compulsion or tax or a carrot or a stick; there is a limit to what you can achieve with a tambourine. You need the tambourine, but it is the carrot and the stick which get results in the end.

Q595 Chairman: Smart metering: good idea, bad idea?

Mr Warren: Manifestly a very good idea. It means different things to different people. Smart metering in some companies' terms means how to get the meters read without having to send people round to knock on doors when there is nobody there. We would regard the importance of smart metering as actually giving information to customers, so that they are much more aware of how much energy they are using. The arguments for smart metering hark back to the discussion we had right at the very start to do with energy certificates, people actually knowing and having some yardstick of how well the building they are occupying, the home that they live in, is performing. One thing smart meters ought to be in a position to do is to let people know whether or not they are gas-guzzling, or whether or not actually they are saving energy as they would wish to. One thing that also ought to help with smart metering is hopefully that people will then get real fuel bills which will relate to their actual expenditure. One big worry on this is that most people do not get

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actual fuel bills; they pay by direct debit, so they do not see the fluctuations as a result of their own individual behaviour. The other great complication is that when you read through your bill it has an E on the end for Estimated, and there is an astonishing number of those. The figure that has been suggested is that something like four in five gas bills are estimated and something like one in three electricity bills are estimated. That means that you are really in a very difficult position for getting any genuine price signals there. You are paying on a monthly basis so that you do not see the fluctuations in your expenditure in that way, and you do not actually receive a bill which relates to what you use. Smart metering ought to help both of those.

Q596 Chairman: In a word, is it something that we should now incorporate as a national requirement to install? After the trials have been completed and we have decided what works, should we do it?

Mr Warren: Yes, and we should do it also because under the Energy Services Directive, Article 13, there is actually a requirement for us to do it (whenever cost effective). What we have to do is determine that actually it is very cost effective in terms of this nation, to ensure that smart metering is in place in as many homes and buildings as possible.

Q597 Sir Peter Soulsby: Everybody now seems entirely convinced of the enormous potential of microgeneration. Are the measures that have already been announced in terms of the microgeneration strategy, climate change and the Sustainable Energy Act and so on, going to be sufficient to make a real difference?

Mr Manders: Coming back to carrots and sticks again, the great stick at the moment is the planning system for many people who want to install a micro turbine or anything like that. The Government are looking at that and seeing how they can increase permissive development rights to include a lot of this technology. If you talk to the microgeneration businesses themselves, they say that they do need really to reach a critical point where enough units are being sold that they can move from being a cottage industry to being a mass production industry. The current government grant scheme will probably not achieve that, at the moment anyway. There are also issues with this as well because it has been so successful that it has run out of money. I have this fear that the Treasury will turn round and say that so many people want to install these things that they do not need public money any more, they can do it themselves. The area still needs a subsidy until enough units are sold so that we can then reach this critical point to move towards mass production. That is what is primarily needed really for microgeneration. The technology is there and it is emerging all the time. Some of it is very long established: solar thermal, solar hot water have been going now for 25 years; ground source heat pumps have been going for 10 years. Enough lessons have been learned now for it to be expanded.

Mr Warren: The argument for the subsidy incidentally is that it also put an official imprimatur of approval on it as well.

Q598 Sir Peter Soulsby: Are there other things beyond providing a subsidy that the Government can do to create and guarantee a market?

Mr Warren: You are talking about what is a major decision as to whether or not you go for dispersed generation or whether you continue to stick with very large power stations as your principal source of power. That is a strategic decision which really only Government can take, but if the decision is taken to go for further generations of very large power stations, then it does not facilitate moving towards a marketplace in which basically we have given power to the people, individuals can actually control their own power sources.

Q599 Sir Peter Soulsby: What about the feed-in tariffs of microgeneration? What would be necessary in order to make that work and be worthwhile?

Mr Manders: Feed-in tariffs have been very successful in countries such as Germany and also the Netherlands as well, possibly even Denmark. They are expensive and somebody somewhere has to pay for them, but they certainly have been successful in achieving large numbers of installations. We have to realise that we have to look on this as a national investment and that it has to be paid for; if we want to achieve it then it will have to be paid for and obviously ultimately governments can raise money at the cheapest rate. That is the most economical way of doing this. Just to add to what my director was saying about decentralised energy, there is a problem at the moment and I will give you the example of Woking. Woking has a decentralised energy system, a very successful one set up by the council, but it is very hard for them to persuade private developers to add their buildings onto the network. There probably need to be stronger powers through the planning system for local authorities like Woking to add buildings onto their system. If you look at equivalent cities like Copenhagen, I believe about two thirds of the buildings in Copenhagen are heated either by district heating or through the CHP systems. That has not happened by accident: that is because there has been a deliberate policy initiative by the Danish Government. We need to think in those kinds of terms in this country if we really want to have a change.

Q600 Sir Peter Soulsby: Coming back to the question of tariffs, have you given any thought to what sort of levels of tariffs are actually necessary in order to make the whole thing work, to make it attractive to people to invest?

Mr Manders: It obviously has to be so that they can make enough profit after borrowing the money and paying the interest and the capital. Certainly in Denmark farmers club together to buy a wind turbine because it is a form of farming as far as they are concerned; they have the land and they put the turbine up and then they earn enough money from

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the feed-in tariff to pay for that turbine and to make a profit. That is probably the level that we have to think of; it has to be attractive enough to match interest rates and the capital.

Q601 David Lepper: You talked about councils and the role of councils. What about the expertise of people in council planning departments so far as microgeneration is concerned? You tell us.

Mr Warren: Patchy is the word.

Q602 David Lepper: Is anything being done to overcome that patchiness or if not, what should be done and who should be doing it?

Mr Manders: There have been some attempts. The DTI did a programme called It's Only Natural which was primarily about persuading local planning authorities to accept wind turbines or wind farms. At the same time it did have the benefit of educating planners and also leading members of local authorities and councillors about renewable energy. But that is just a drop in the ocean. There are 400 local planning authorities and sustainable energy is a new area for them. They are not used to it. They are not trained to handle it. It is not surprising that they do not know very much about it and many of them are quite fearful of going down that road because obviously if you make a mistake, your mistakes find you out very, very quickly. The Government are working on this new planning policy statement to have every local planning authority consider sustainable energy as part of their evolving local development documents. There is a big gap there. Most local authorities will not be in a situation where they actually have the expertise to implement that policy. Something has to happen somewhere. I am sure the private sector will step in and there will be consultants who will be plying their trade round local authorities saying they can solve that particular problem for them. There may also need to be more help from organisations like the DTI on this particular issue.

Q603 David Lepper: Some of us were in California last year as part of the first stage of our inquiry and one of the schemes we saw there involved the supply by the electricity service company of low energy, very efficient refrigerators to small businesses in a scheme that aimed to get them all using them. Do you think in this country we need a scheme of that kind in terms of encouraging the uptake in homes or in businesses of the appliances that are going to be more energy efficient?

Mr Warren: Up to a point that is what the Energy Efficiency Commitment is intended to do but it obviously has a ceiling. As I understand what has happened in California to date, there has been a remarkable record there. Even though they have had

very substantial growth in wealth and in population, electricity consumption per head has stabilised over the last 15 years or so and that has been, as I understand it, because the regulators who oversee the electricity companies have basically said to them that it is cheaper for your customers for you to be helping them to save energy than it is for you to be investing in new power plants. That has been particularly possible to do because you very often have integrated utilities there and you are probably referring to Pacific Gas and Electric in this particular location.

Q604 David Lepper: Yes, that is right.

Mr Warren: In essence, if we go back again to the discussion we were having with the Chairman at the start of this session, that is the sort of ethos that one is trying to reach in this country, in reaching towards the whole idea of energy service companies. We will not be able to do work on the commercial refrigerating side of things as yet because all of the duties for them refer only to the residential sector. There are actually very few mechanisms, methods, public instruments which deal with the commercial sector and address the commercial sector at all in the UK, which is one reason why it has been an area which has seen exponential growth in energy use.

Q605 David Lepper: I just wondered to what extent one of the problems in this country is the 28-day rule that allows customers to change supplier. Is there a reluctance on the part of the service providers, the energy providers?

Mr Warren: In practice the regulator here, Ofgem, did offer the opportunity to relax that rule in order to enable new energy service contracts to be introduced. I do not know whether that was taken up very widely, but there is sufficient recognition within Government about the need to see longer-term investments into energy saving measures not deterred by the understandable requirement in a liberalised market that you do not tie in a customer forever, that it is perfectly possible to have effectively two contracts: one which relates to the energy saving measures and one which relates to the consumption. It is not perfect and it is not as easy to do as it is in the integrated market in California, but it is possible.

Chairman: Andrew, Mr Manders thank you both very much indeed for your contribution. There were one or two quite stimulating new perspectives, particularly in terms of landlord and tenant, which we have not heard of before and we are grateful to you for that. Standard warning: you cannot undo anything you have said, but if there is anything else you would like to send us by way of additional commentary, then the Committee is always grateful for further thoughts. Thank you both, not only for your oral evidence but also for the written evidence which you submitted earlier. Thank you very much.

Memorandum submitted by EDF Energy (CIT 22)

EDF Energy is one of the UK's largest energy companies. We are a vertically integrated company with a balanced portfolio of business throughout the energy chain—from generation through to supply. Most pertinent to this inquiry:

- EDF Energy is a major supplier of gas and electricity, with over 5 million electricity and gas customer accounts throughout the UK.
- We own and operate the electricity distribution networks serving London, the East and South East of England, which means that around one quarter of the UK population relies on our distribution networks for their electricity. This makes EDF Energy the largest electricity distribution network operator in the UK.
- We are the fifth largest electricity generator in the UK. We own and operate an 800MW CCGT (combined cycle gas turbine) power station at Sutton Bridge and 4 GW of coal-fired generation assets that are currently being fitted with Flue Gas Desulphurisation equipment as well as CHP and renewable generation assets.
- We are a major owner and provider of private electricity infrastructures in the UK including those for the major London airports, the London Underground, the channel tunnel rail link, the Docklands Light Railway and Canary Wharf.
- We are part of EDF Group, a leading European utility and a world leader in nuclear generation with over 40 million customers across the world.

EDF Energy is committed to finding the right balance between providing sustainable financial returns and investment.

1. SCOPE FOR INDIVIDUAL AND COMMUNITY ACTION

A. *Energy Efficiency and the Energy Efficiency Commitment (EEC)*

EDF Energy continues to support the Energy Efficiency Commitment, but despite the substantial investment by energy suppliers in the residential sector in recent years energy demand continues to grow and it is widely recognised that customer behaviour has changed very little. We believe the EEC could be strengthened in a number of areas:

- More market based mechanisms for encouraging the take-up of energy efficient products combined with longer commitment periods to avoid boom and bust business cycles within, for example, the insulation industry.
- Separate fuel poverty and carbon reduction targets to improve the focus and delivery of both objectives.
- Links with other mechanisms such as carbon trading.
- Greater flexibility to allow for the use of innovative technologies such as smart meters and micro generation.

Market-based solutions

We believe that the nature of EEC, ie subsidised measures—sometimes wholly—has led consumers to devalue energy efficiency. EEC has also had a distorting effect on the insulation industry; the effort to meet increasing supplier obligations of a stop/start nature has created detrimental business cycles, which undermines the development of sustainable businesses. EEC needs to move towards more market-based solutions rather than long-term subsidies, and suppliers need more certainty about commitments over longer periods, such as a six-year programme that will bring continuity for the industry and facilitate longer term product development. For example, initial high subsidies for products could be reduced over time as sustainable businesses develop to help create a normal market, as has occurred in the market for higher efficiency “A” label white good appliances.

Separate Social Objectives

We believe that there should be a complete separation of energy efficiency/carbon reduction targets from social objectives, ie the removal of the Priority Group obligation within EEC. This would result in suppliers delivering more carbon emissions reductions per pound of investment as they could focus on the able-to-pay customers and thereby achieve more at a lower overall cost.

We remain fully supportive of the Government's commitment to eradicate fuel poverty. However, the problem of fuel poverty is greater than the cost of energy alone. It is at heart a social, and income related, issue. We believe it would be more efficient if, within the existing EEC budget, energy suppliers gave an agreed sum to fund targeted specific social objective programmes such as Warm Front, which targets income

related and energy efficiency solutions to those most in need. Government could support this work through the involvement of the Department for Work and Pensions to ensure that support is given to those in most need.

Links with other mechanisms

As a further incentive to improve energy efficiency, suppliers that overachieve against their EEC targets could sell the surplus into an appropriate carbon trading market. However, target delivery would have to be defined in terms of carbon reductions. Ultimately, such a market might be part of a single system of carbon trading and could provide a means of tackling carbon emissions reductions amongst a broader audience than EEC currently covers. The aim would be to make carbon mechanisms interactive to allow suppliers to pursue the lowest cost options for achieving carbon reductions, and we would wish to work with the Government to explore the opportunity for more widespread carbon trading, such as white certificate programmes in the UK in the future.

Greater Flexibility

With the support of the newly passed Climate Change and Sustainable Energy Act, EEC should begin to include currently unaccredited technologies such as micro-wind, solar photovoltaic and bio-energy. This would have the effect of reducing carbon emissions while also engaging customers in managing their consumption.

EEC should also provide the flexibility to include, for example, the ability of a supplier to meet a set percentage of its target through an innovation category. These innovations could include measures such as trialling of behaviour change technologies (eg smart metering), and tariffs and advice/communications, which, following established principles, would receive an EEC credit uplift in order to make the measures competitive with others, to provide incentive to suppliers, and share the risk with Government. A prior example of such an arrangement was for refrigeration, where the 1.6 uplift helped achieve market transformation and a higher volume of energy efficient products.

Finally, EEC accreditation should be given for tariffs that encourage consumer demand reduction. EDF Energy is the first energy supplier to introduce a retail product, called Read Reduce Reward (RRR), which encourages customers who reduce their energy consumption. This would provide a real incentive to suppliers to create similar products. There would also be additional beneficial effects in that customers would become more aware and engaged in their own consumption management and at the same time it would also help to build the credibility of suppliers' energy efficiency efforts with customers.

B. Reducing Energy Consumption

While the energy supply industry has an important role to play in continuing to deliver energy efficiency improvements, all parts of our society need to be fully engaged if we are to change the deep-set behaviours relating to energy consumption across all sectors of the economy. We believe a reduction in energy consumption can be achieved through a combination of information, incentives and in some areas compulsion, such as the introduction of new product standards. The energy supply industry needs to support this effort and offer new and innovative energy efficiency services to customers to satisfy the demand that would be created. Examples include innovative tariffs that engage customers in actively managing their energy consumption and smart metering and real-time displays used in combination with a range of awareness-building measures.

Government has a key role to play in changing customer behaviour. Customers need to be persuaded to demand such energy efficiency offerings from suppliers. A vital element should be a high profile campaign to educate customers regarding energy efficiency. We discuss this in more detail in section F.

We also fully support the inclusion of energy audits in the Home Information Packs (HIPs) as soon as practically possible. This will serve to increase customer engagement in energy efficiency measures and, as such, in due course consideration should be given to extending the requirement for audits beyond HIPs and property exchange to homes generally.

When considering energy reduction it is important not to lose sight of the ultimate goal of reducing carbon emissions. For example, an increase in electricity produced from low carbon technologies delivers carbon reduction benefits if it displaces energy produced directly from fossil fuels. Any energy reduction targets should not prevent or provide a disincentive for this type of displacement.

C. Provision of Desirable Low Carbon Alternatives

As we have already stated, we believe there is a need for an element of compulsion in changing customer behaviour towards energy efficiency, such as through higher legal standards for energy efficiency in products. Through EEC and the efforts of energy suppliers, we have already seen a market transformation for energy efficient lighting and a significant increase in the purchase of A-rated white goods. More needs to be done.

Government should consider extending legislation for all white and brown goods to be sold under the same A-E rating system. Government should also look to ensure that higher energy efficiency standards are incorporated into products at the design stage, such as by either prohibiting standby on certain appliances, or limiting standby power consumption, or incorporating dynamic standby control. We welcome the Government's commitment in the "Energy Challenge" to "work at international and EU level and with manufacturers and retailers in the UK to remove the least energy efficient products from the market and to build markets for the best of them by setting a firm agenda to raise standards progressively, so stimulating innovation and competition in the supply chain".

We also welcome the Government's announcement in "The Energy Challenge" that stretching energy efficiency levels will be set for the Code for Sustainable Homes and that these will govern the future direction of Building Regulations and that Building Regulations guidance will be reviewed to improve compliance with them. The proposed introduction of energy performance certificates for new and existing houses will also provide incentives for home owners to improve energy efficiency standards. These are welcome developments for improving the carbon emissions from homes.

D. Potential and Barriers to Microgeneration

EDF Energy believes that microgeneration, producing heat and/or electricity on a small-scale from a low carbon source, has an important role to play in tackling climate change, but we should be realistic about its potential. We agree with the position in the Government's report "The Energy Challenge" which states: "We must recognise however that we will be heavily dependent on much of our centralised infrastructure for decades to come. We need to foster the growth and development of distributed energy in a way that maintains and strengthens the safety and reliability of supply. And energy must remain affordable".

In our submission to the Energy Review we stated that we thought the barriers to micro-generation should be reduced, such as cost and planning issues, to encourage its development.

The cost of current microgeneration technologies can make them unattractive, with long payback periods. The current DTI £50 million microgeneration "transform the market" fund is welcome, to encourage greater volumes of products to be produced and hence economies of scale to be realised. We also welcome the Government's commitment to a "fundamental change to the planning system" which has proved a barrier to all forms of energy infrastructure including micro-generation.

We believe further development of the technologies for micro-generation should be supported and trials should be run to find where this technology can be most effective. The other technologies for the future should also be explored and encouraged, such as hydrogen fuel cell technology—which may well prove a more effective solution for the longer-term.

E. Potential for Smart Metering

We believe that the time is now right to mandate the introduction of smart meters across the country. Subject to the successful conclusion of the Ofgem pilot, we would support government placing an appropriate obligation on the energy industry to fit smart meters over (say) a decade.

Smart meters (in combination with real-time displays) enable domestic and small/medium sized business customers to have visibility of their gas and electricity consumption as it occurs and provide a major incentive for them to adopt energy efficient behaviour. Furthermore, smart meters provide opportunities for suppliers to offer new services and new pricing structures that support energy efficiency, such as incentives in tariffs for customers to avoid peak demand times when relatively expensive generating plant is used. It is clear that benefits will accrue in the area of better billing, industry data integrity and the ability to provide clarity of consumption to consumers.

We believe that the Government and Ofgem must play their part in encouraging Smart Metering by removing regulatory barriers and improving the Business Case in the following areas:

- Overcoming the risk of "stranded assets".
- Clarity on the implementation of the Energy Services Directive.
- Making a clear commitment to include Smart Metering in EEC3, with the value to be determined by the trials which are currently being planned, preferably no later than mid-2007.
- Removing the requirement for two-year safety inspections, subject to the safety requirements being met by Smart Metering.

- Ensuring that the Interoperability Working Group which Ofgem will be setting up and chairing, agrees to a basic pulse output device and produces results in a timely manner (preferably by end of 2006.)

Trials of the technology will also be important to establish the benefits smart meters can bring. The EDF Energy Smart Metering Trial launched in April 2006, which is being managed in conjunction with fuel poverty charity National Energy Action (NEA), will install up to 3,000 electricity and gas smart meters in homes over the coming two years. One of the aims of the trial is to gauge how much energy consumers will save from becoming more aware of their energy use; estimates have suggested consumers would be able to cut their bills by between three and 10%. The smart meters will be monitored electronically (remote access), with display units located in the home for customers.

F. Awareness of Climate Change and Availability of Information

The difficulty in bringing about behaviour change was illustrated in the results of a recent survey EDF Energy undertook to inform our response to the Government's Energy Review. The majority of customers believe they have already adopted energy efficient behaviours, even though energy demand continues to rise strongly.

Information alone will not be sufficient to change deeply rooted behaviours. We believe a comprehensive range of information, incentives and, in some areas, compulsion is needed to bring about real change in behaviour. This will require significant commitment of resources by the Government. If Government can promote 'customer-pull' for energy efficiency products the energy supply industry will respond with a variety of services to help customers reduce their consumption.

2. BARRIERS TO UPTAKE OF CLIMATE CHANGE MITIGATION STRATEGIES

It is clear that while customers believe they have engaged in climate change mitigation, the extent to which they are taking action has not prevented a steady increase in energy demand. The biggest barrier to overcome is, as we have stated above, people's deep-set behaviours.

The barriers the industry faces include those stated above regarding the required improvements to EEC, overcoming planning restrictions and improvements in the available technologies.

Until recently the relatively low cost of energy has proved a disincentive to customers, but recent price rises have reduced the payback periods of durable energy efficiency measures, making them more attractive.

Government can also support efforts to make energy efficient products available by supporting research and development, supporting emerging technologies to the point of commercialisation (such as through EEC) and making energy efficient standards compulsory where appropriate.

3. ROLE OF GOVERNMENT, OTHER AGENCIES AND COMMUNITY PROJECTS

In customer research undertaken for our response to the Energy Review consultation, 34% of customers thought that Government should "take the lead in the UK on implementing and reducing consumption", more than double that of the next nearest bodies, which were charities at 16%.

EDF Energy welcomes the Government's announcement that all its buildings will be carbon neutral by 2012. Government and local authorities need to play a strong role in strengthening and enforcing standards in new build and to ensure when alterations to buildings are made, opportunities to bring the existing building up to current standards are taken.

We welcome the Government stating in "The Energy Challenge" that it will "strongly urge English planning authorities to set ambitious policies on renewable energy" and that it will be "setting stretching energy efficiency levels for the code for sustainable homes" which will "govern the future direction of building regulations".

4. ROLE OF NGOS

Our research shows that NGOs are often the most credible with customers, who rate them 3.5 on a five-point scale with five being "most trusted and reliable supplier of information on climate change and energy efficiency". (Local councils came second at 2.74.) It is clear that NGOs are a vital element in the battle to win hearts and minds and change behaviour.

5. DOMESTIC TRADABLE QUOTAS

EDF Energy believes that at this stage the introduction of personal carbon allowances would face considerable practical, social and political barriers. Furthermore, we doubt that an economic case could be made that the benefits would exceed the costs. In general we support measures by which the environmental impact of energy use is reflected in market prices, such as through the EU Emissions Trading Scheme (EU ETS). We support the expansion of EU ETS into more sectors of the economy, so that a more genuinely global carbon market is gradually created.

EDF Energy

September 2006

Memorandum submitted by Centrica plc (CIT 40)

INTRODUCTION TO CENTRICA

1. Centrica plc was formed in 1997 when the former British Gas plc was demerged to form BG Group and Centrica. In the UK, we trade under the brand names British Gas, British Gas Business, Scottish Gas and Nwy Prydain. We are the UK's largest energy supplier, supplying around 11 million gas and 6 million electricity customers in the domestic sector and around 900,000 customers in the Industrial and Commercial sector.

2. Centrica believes that individuals can play a key role in reducing carbon emissions and as a major supplier in the UK we are committed to offering advice and practical support to our customers and others on how to do this. In this submission therefore, we have concentrated on those areas with which we are most familiar: namely domestic energy efficiency. Individuals can also influence overall emission levels, however, through other personal choices associated with surface travel and aviation, for example, and we believe that carbon emission reductions need to be found across all sectors.

WHAT IS THE REAL SCOPE FOR INDIVIDUAL AND LOCAL COMMUNITY ACTION TO CONTRIBUTE TO TACKLING CLIMATE CHANGE?

3. Centrica believes that in establishing a strategy for tackling climate change there should be an overriding principle that all sectors should face the same or similar carbon price incentives to reduce the level of carbon emissions they generate.

4. Currently around 25% of all carbon emissions are generated in the domestic sector and energy efficiency can make an important contribution towards Government carbon reduction targets.

5. Individuals can make a range of choices that can limit their carbon footprint. In the energy sector, these include reducing energy consumption, becoming more energy efficient and moving towards greener energy where that is possible. These areas are expanded in the following sections.

The Energy Efficiency Commitment (EEC)

6. The Energy Efficiency Commitment (EEC) is one of the flagships in the Government's instruments to improve energy efficiency in the household sector and a key part of the UK's Climate Change Programme.

7. Energy suppliers have been committed to EEC and have delivered substantial energy savings under EESOP and EEC1. However, the success of previous programmes has been largely due to the flexibility that suppliers have had to deliver the programme, together with the emergence of new products and channels and growth in target audience through the inclusion of gas homes.

8. For EEC2, running from April 2005–08, the situation is very different. Traditional growth products such as appliances and compact fluorescent lamps (CFLs) are working at full capacity, whilst condensing boilers no longer receive as many EEC credits now that they are becoming mandatory under changes to the building regulations.

9. No significant new product developments are anticipated during the first three years of EEC2. Instead almost the entire programme, around 80% of the energy savings, will need to come from insulation. This is a heavy dependence on a sector which is already facing capacity constraints, with few options available from other areas. Centrica believes, however, if government is to transform domestic household energy consumption, it needs to consider enhancing EEC.

10. Realistically, a more radical evolution of the scheme is unlikely by 2008. However, we believe it is imperative to push through changes as quickly as possible with the overall aim of completing the necessary reform before the end of the current EEC phase.

11. Key changes to the scheme should be considered in the context that early agreement to the transition rules between EEC2 and EEC3 are required before any decisions about the proposed shape of future schemes takes place.

12. The following changes would enhance EEC and support delivery of the government's carbon targets:

Reward behavioural changes

13. To achieve the level of carbon emission savings required to reach the government's overall target commitment will require fundamental behavioural change by consumers. To facilitate this, there should be scope within EEC3 to reward for actions such as energy efficiency audits and consumption changes that could result in positive sustained behavioural change.

14. In support of this, the inclusion of smart metering and measurement devices within the remaining period of EEC2, and within EEC3, could encourage innovation and could potentially stimulate investment in smart metering for those customer segments where it would otherwise be uneconomical to do so.

15. These approaches could incentivise the introduction of innovative new tariff structures and product offers that reward consumers for changes in consumption. Linking this approach in with the carbon traded market would enable suppliers to be innovative and flexible to customers and pass on additional incentives for behavioural change.

Encourage investment and inclusion of new technologies

16. The current over-dependence on insulation which accounts for around 70–80% of EEC is ultimately unsustainable. There is an urgent need to widen the scope of EEC to incorporate a more diverse portfolio of energy efficiency products.

17. To encourage this, government must create a framework to attract investment and encourage new technologies. Under current rules, energy efficiency measures are prohibited unless a demonstrable energy saving can be verified.

18. There should also be greater sharing of risk, which currently lies entirely with suppliers and manufacturers. By allowing products to be accredited for EEC whilst the energy saving potential is being evaluated, this risk could be shared, which would encourage greater inward investment. This must be aligned to a more rapid process for accrediting products with EEC carbon savings.

19. The inclusion of new renewable technologies is paramount to increase the range of products offered to householders under EEC. Only micro-CHP is currently recognised. This should be extended to include other forms of renewable technologies such as micro-wind.

BUILDING AND APPLIANCE STANDARDS

20. Individuals can choose to replace appliances with more efficient equipment. This depends, however, on more energy efficient products being available, and consumer awareness of the benefits of these products. Centrica has been promoting energy efficient appliances under the EEC programme.

21. In addition to enhancing EEC, we believe that the government should implement a strategy for progressively raising building and appliance standards. The raising of boiler standards to the latest condensing technology combined with tougher building regulations have been very successful in increasing the base standards in these industries. This approach should be used to increase appliance standards and further raise building regulations, ensuring at the same time that the market has the flexibility to meet these standards in the most efficient manner.

22. To ensure improvements in home efficiency are met, it is important that the necessary controls are in place to ensure full compliance. The introduction of energy efficiency audits will provide the framework to introduce energy efficiency standards on the existing housing stock, potentially requiring sellers to achieve a prescribed thermal efficiency before they can put their properties onto the market.

23. We also suggest that the government should consider ways in which the new requirement under the Housing Act for an energy audit when a property is sold could be adapted for application in the rented housing market, in order to raise awareness and reinforce the incentive for landlords to improve energy efficiency.

24. Looking more radically at energy efficiency initiatives introduced in other countries, the government could look to set regulations for the household products sector that are far more challenging. This could include, for example, setting a very high energy efficiency standard that really stretches manufacturers to achieve the required energy savings for products sold in the UK.

25. This will encourage significant innovation and help radically transform the energy consumption and hence carbon emissions of these products. It will also be necessary to consider, in that part of EEC which is aimed at fuel poverty, the extent to which this new energy-saving technology is or can be made affordable for low income households.

MICROGENERATION

26. Technological developments, including microgeneration have the potential to deliver major improvements in household energy efficiency in the UK at either the individual or community level. A Society of British Gas Industries (SBGI) commissioned report entitled “Micro-CHP—Updated market projections” has estimated that micro-CHP products could realistically be expected to have displaced over 30% of annual domestic boiler installations by 2015.

27. This is estimated to provide carbon savings of 0.4 Mt per annum by 2015 rising to 1.1 Mt per annum by 2020. These market projections will require validation as product offerings are introduced to the market.

28. Centrica is actively exploring a range of microgeneration technologies including domestic combined heat and power, wind turbines and solar thermal panels. We are working with Microgen to develop a domestic combined heat and power boiler for UK homes. These developments have the potential to significantly change the type of boilers we use for our heating and hot water in the UK.

29. We also have a relationship with Ceres Power to develop the world’s first mass-market, household boiler powered by fuel cells. Unlike many fuel cells, the Ceres fuel cell can work on natural gas as well as hydrogen, making the technology immediately accessible by UK households with a gas central heating system.

30. Micro CHP is an important carbon reducing technology which is reaching a stage where it can now be manufactured to a high reliable standard at an acceptable size and at reasonable cost. However, pump priming of this market is important if consumers are to be persuaded to buy them and help the technology achieve critical mass.

31. We support the decision by the Government to reduce VAT on grant funded microCHP as a move which could offer reduction in household energy bills. However, for these savings to be significant it is vital that this reduction should be available for one-off domestic customers and on the total installation of the microCHP boiler and not just the product. In addition, microCHP should be given the equivalent grant funding on start up as other energy efficiency products such as photovoltaics.

32. British Gas has also signed an agreement with Windsave to make roof-top wind turbines available to UK households. We will be undertaking the first trials in Scotland and the South West later this year, and if successful, will look to roll the scheme out across the country.

33. The microgeneration industry is in the relatively early stages of market development, with a range of technologies at different stages of development. Some are poised for mass market deployment, some are still in development stage. Some of these technologies will reach mass market production which will help reduce the costs of the technologies but fiscal incentives such as capital grants or VAT reductions/exemptions on technologies will also help stimulate demand.

34. We welcome proposals in the Energy Review to introduce Permitted Development for domestic wind turbine which will help avoiding delay in installation whilst that can be associated with getting planning permission.

35. Industry are currently working together to develop arrangements for the export of electricity by domestic customers to the grid. As this becomes likely, it will require regulatory changes as well as investment in the grid and domestic meters.

SMART METERING

36. For households to understand and effectively manage their consumption, it would seem advantageous if they had more information about the energy they are using, based on smart meters or other devices. Furthermore, there exists some potential around the use of remote devices with existing meter technology. Ofgem’s Demand Reduction Trial and also other supplier initiatives will be helpful in establishing the potential for energy efficiency gains. Early research is required to test the impact on consumers of such technologies and to fully understand their potential to provide a way to enable consumers to manage and reduce their consumption in a long-term sustainable way.

37. Customer response to information provided by smart meters is dependent on that information being conveniently visible. This suggests the smart meter should be linked to a separate display screen. A cheaper and less complex way of engendering this response—at least in electricity—may be found in other devices which measure instantaneous consumption for households or for individual appliances.

38. A key element of overseas experience in electricity has been that introduction of smart meters has been accompanied by other policy initiatives, in particular novel tariffs reflecting the time of use, which are used to smooth consumption peaks. However, the effects of meters, tariffs and customer awareness campaigns must be understood if any smart meter programme in the UK is to be soundly based.

39. We note that in gas, Ofgem believe a seasonal or monthly tariff is more likely than the time of day tariffs envisaged for electricity. Such a solution might be achieved with relatively simple Automated Meter Reading (AMR), or even without changing existing meters to encourage and reward on-going changes in consumption behaviour, but again, further work would be necessary to understand the effects of such an approach.

40. The incentive of the competitive market will give suppliers another strong reason to really engage the customer and reward them for behavioural change, knowing there is also potential commercial advantage for being creative and innovative. Such an approach also provides an opportunity for greater linkage to energy services.

41. Linked in to what can be done around behavioural change, there is the possibility in the competitive market, if suppliers have detailed meter data, to offer customers the opportunity to benefit from new innovative tariffs that reward sustained behavioural change. In the longer term, if this can be linked to a move to a wider carbon traded market, suppliers could utilise the opportunity to trade carbon savings into a wider carbon market.

42. However, as Ofgem has acknowledged, underlying savings estimates as a result of the introduction of metering can only be illustrative. There is little or no reliable evidence yet of sustained change in consumption resulting from use of smart metering in this country. Claims of overall energy savings are often based on limited sample size, or the experience of other countries with very different climate and appliances, and evidence of sustained reductions is not yet available.

43. As a first step, Centrica is keen to understand how consumption monitoring devices may be useful in encouraging consumer awareness and reductions in energy use. We are also keen to test how far the provision of information to consumers can contribute to changing customer behaviour.

44. We would note that if higher tariffs and customer price awareness produce the expected changes in customer behaviour, current high prices may already be delivering the kind of changes which some assume are dependent on smart meters.

What are the barriers to uptake of climate change mitigation strategies at the level of the individual and how can they be overcome?

45. Historically, consumers have been generally apathetic towards energy efficiency and have been reluctant to invest in energy efficiency measures such as cavity wall and loft insulation. This situation is compounded by a general lack of awareness of the extent to which the individual can make a difference.

46. In our view, there is more scope to encourage energy efficiency measures as money saving initiatives, rather than specifically carbon saving initiatives. British Gas has recently proactively marketed an energy audit to around 9 million of our customers. Around 650,000 have so far completed and returned their questionnaire. The Energy Savers Report is thought to be the biggest energy census of Britain's homes, highlighting savings of around £184 per annum per household for those who have responded. We are currently analysing the responses and will be releasing the results of the Energy Savers Report later in the year.

47. Customer apathy to energy efficiency in general remains a barrier to take up and ultimately to a reduction in carbon emissions. Currently vulnerable customers such as the elderly and disabled can qualify for free insulation under the fuel poverty programmes run by energy suppliers and the Government. Despite this, take-up is not as strong as would have been expected. Furthermore, despite significant product subsidies in the able-to-pay section of the market, consumer demand could be stronger.

48. A further barrier is the cost of equipment, particularly in the early stages of a technology coming to market when economies of scale are not there to exert a downward price pressure. Modification of the current EEC scheme would allow energy suppliers to give grants towards new equipment, as is currently the case with condensing boilers.

49. Two key barriers to the installation of microgeneration technologies include technical problems associated with the installation of equipment in UK homes, and problems of acceptability of carbon reduction equipment in some instances.

50. There is an additional challenge in the rented sector when landlords may be reluctant to incur a capital cost of installing energy efficient equipment when the benefits accrue to tenants. Centrica believe that the most efficient way to tackling this would be by direct landlord incentives in the form of a tax break to the landlord for installing energy efficient measures, perhaps against VAT/ Corporation or Income Tax.

51. There is scope to develop marketing approaches that capture the consumer interest and offer additional benefits. Linking energy efficiency to fiscal measures is one way to do this. A trial launched by British Gas confirms that linking energy efficiency to local council tax bills is appealing and cuts through customer apathy.

52. As a market leader in delivering energy efficiency products and programmes, British Gas has taken an important step to help tackle this problem through an innovative scheme which aims to motivate this group to see the benefits of improved energy efficiency.

53. Working with a number of local authorities, British Gas has developed an initiative that encourages the take-up of energy efficiency measures by offering customers a discount of up to £100 on their council tax bills after having subsidised cavity wall insulation installed in their home.

54. Although the householder has to initially invest around £225 to install the insulation, the resulting savings on energy bills average around £150 per annum. Householders can also spread the cost of the cavity wall insulation—discounted from a normal retail price of around £430—over two years.

55. In addition, under the scheme customers are also entitled to a “Home Energy Audit” that highlights other areas where they may be able to save energy in the home, and potentially reduce their bills. Coupled with the council tax rebate of up to £100, householders could see their investment paid back within two years.

56. The installation of the cavity wall insulation is managed by British Gas and is installed by installers contracted to British Gas. Once the installation work has been completed, British Gas notifies the participating Local Authority who then arrange for the customers to receive the “rebate” on their council tax, £50 of which is funded by British Gas. The customer has the option of receiving the payment as a single payment to use as a rebate against their annual Council Tax bill or to spread the payment across 12 direct debit instalments.

57. The scheme was initially trialled at Braintree Council, Essex in 2004 and has now been extended to 25 Councils across the country including South Cambridge, South Hams, Taunton Deane, Conwy and Fareham. We are also in discussion with many other Local Authorities about joining the scheme in 2006. The scheme is promoted through enclosures in council tax bill mailings and the local press

58. Not all Councils have taken the decision to match British Gas’ funding, which is why customers participating under the Braintree Council scheme receive a payment of £100 and customers in South Hams and South Cambridgeshire, for example, receive a payment of £50.

59. We believe the scheme offers real benefits to householders by offering both lower energy and council tax bills and more energy efficient homes. So far the response to the scheme has been encouraging, demonstrating that there is an appetite for energy efficiency improvements that are linked to fiscal incentives.

60. The government should explore introducing a range of fiscal incentives, through, for example, council tax, stamp duty, VAT, to stimulate increased consumer pull for energy efficiency solutions.

61. Furthermore, in general consumers do not understand the cost benefits of installing energy efficiency measures, and the savings that can be made. However as energy prices have increased we are seeing more consumer interest in saving energy, but cost rather than saving the climate seems to be the key driver for this.

62. Energy efficiency products such as loft and cavity wall insulation are fairly dry subjects and some people perceive a high-hassle factor in terms of installation. Microgeneration products could change this perception as they seem to grab the public imagination more. There has been great interest, for example, in our domestic wind turbine trial announcement.

How can government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

63. A lack of consumer awareness around domestic energy efficiency measures can be addressed via consumer awareness campaigns by government and other agencies. The public sector also has a key role to play in leading by example. Community and school schemes are also valuable in creating awareness.

64. British Gas’ national “Think Energy” programme is a free online educational programme designed to teach students about different types of energy and the importance of energy efficiency. Educational resources, based on the national curriculum, have been developed for children aged from 7 to 18. Teachers, pupils and parents can access free downloadable resources from the website. Since it began, more than 52% of schools have requested the resources. In 2005 we launched a new “Think Energy” website to encourage children to get involved in the battle to save energy and combat climate change.

65. Fun online characters such as Billy Buzz and Power Pals have been introduced to help educate tomorrow’s adults about the dangers facing the planet. We hope “Think Energy” will inspire children to think about the energy they waste and the impact this has on the environment. The award-winning programme has been running successfully for four years and has already been used in thousands of schools, helping to develop an understanding of energy concepts.

66. National government has a role to play in setting improved building and appliance standards, reforming the planning regime to encourage low-carbon development. Fiscal measures will also have a role to play and the recent decision to reduce VAT on grant-funded micro-CHP is an indication of what could be done.

67. There is also scope for establishing a wider carbon market, and we would like to see government explore this. This would establish a framework for initiatives by energy service companies, suppliers and others, and would encourage the best practice and innovation in the domestic energy efficiency market.

68. British Gas is committed to helping our customers and others reduce their energy consumption and has significant plans for an awareness raising campaign in the coming months.

Here to HELP

69. British Gas' multi-million-pound "here to HELP" programme is a national venture tackling the root causes of household poverty in Britain's most deprived areas. It was launched in 2002 with an aspiration to help make one million households warm, safe and comfortable.

70. The programme offers energy efficiency improvements, benefits assessments, essential appliances and adaptors, home security measures, and advice from our charity partners—all for free. It has identified almost £8.5 million in unclaimed benefits, making a real difference to help improve people's quality of life.

71. The programme works through a partnership with six major national charities, each of them offering their own skills and experience in improving the quality of life for vulnerable families, older and disabled people. We refer people in need to the charity we think can offer them most help.

72. Many local authorities and housing associations have signed up to the programme and have seen the difference it can make to their communities.

73. Our partners are Help the Aged, Family Welfare Association, National Debtline, Scope (includes Capability Scotland), Royal National Institute for the Blind and Save the Children.

Centrica plc

September 2006

Witnesses: **Ms Jill Harrison**, Director Energy Efficiency, Social Programmes and Prepayment and **Mr Jon Kimber**, Head of Energy Efficiency, Centrica plc and **Mr Vincent de Rivaz**, Chief Executive and **Mr Richard Sykes**, Head of Customer Market Development, EDF Energy, gave evidence.

Q606 Chairman: We bid welcome to our second set of witnesses in this inquiry. For the record, representing Centrica is Jill Harrison, the Director of Energy Efficiency, Social Programmes and Prepayment—I did not know you were so generous that you went round prepaying all your customers' bills, but it is always nice to find somebody who is generous—and Mr Jon Kimber the Head of Energy Efficiency; on behalf of EDF Energy, Mr Vincent de Rivaz, the Chief Executive and Mr Richard Sykes, the Head of Customer Market Development. You are all very welcome and you got a flavour of some of the things that we are going to ask you about from the few moments you spent with us before coming onto the witness stand. The Committee are obviously aware of what has been going on in terms of the field of the Energy Efficiency Commitment, but it would just be quite helpful to spend a moment or two looking at the economics of EEC. One thing we have learned now is the shorthand of this during the course of our inquiry. Am I right in saying that effectively, although the Government have set targets to energy providers under EEC, the financing of the expenditure which delivers the EEC programme, although it looks like it comes from you, effectively comes from the customer? Is that right?

Mr de Rivaz: First of all thank you very much for your invitation. We are pleased to be here and to contribute to the Committee's inquiry. We are all in a business which makes investments, from these investments we aim to have an efficient business which is getting some revenues from the customers and the investments we are making through the EEC programmes are no different from the others in this respect.

Q607 Chairman: The reason I ask that question is that the impression is almost given that somehow EEC is being provided by the Government, but it is not: it is effectively energy consumers who are

paying for some energy customers up to now to have the potential of some benefits in various ways. From the EDF standpoint and indeed Centrica, are you able to give us a flavour of your respective companies' investments in EEC and what that represents as a proportion of your turnover?

Mr de Rivaz: Richard will give you the details. Fundamentally you are right to say that EEC works as you have described. Whilst we have to recognise that the Energy Efficiency Commitment so far has been globally effective and has achieved a lot, at the same time I would be in the camp of those who think that there is room for improvement.

Q608 Chairman: Would you like to define that, because you anticipate my next line of questioning?

Mr de Rivaz: What is probably important is to recognise that at the moment most of the money which is invested in EEC goes 80% to one specific type of measure, insulation in the wall cavity. It is not very wise, if we are ambitious, to put all our eggs in the same basket. So for the future one improvement would be to find the way, through market mechanisms, to embrace other measures than the one we are focused on at the moment. The second significant improvement that we would recommend for consideration would be to clarify the role of EEC in terms of energy efficiency, energy savings and the role of EEC in terms of tackling the fuel poverty. At the moment, the fact that there is a sort of confusion between the two roles means that we are not delivering very well on either of these roles. I would suggest that clarification would result in a more efficient tackling of fuel poverty and at the same time be more efficient in energy efficiency.

Q609 Chairman: It would be very helpful to have Centrica's perspective on that, because you have been very involved in that in quite a high profile way. Perhaps I could just focus for both of you. If you were now designing what EEC3 should look like,

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what should its characteristics be? In other words, Mr de Rivaz indicated that there were ways that he thought it ought to be improved and rationalised and EEC3 is obviously the opportunity to do that and, if so, what should it look like?

Ms Harrison: I agree with some of the comments that Vincent has made. In terms of characteristics, we would look for a separation of some of the social aims of EEC from the carbon objectives of the mechanism. To try to deliver both out through one mechanism sometimes makes us sub-optimal and it restricts us in our ability to deal with some of the social dimensions of fuel poverty, because we know for sure that fuel poverty needs holistic solutions that go beyond energy efficiency. The other thing we would want to see is the encouragement of more innovation to bring forward some of the new and emerging technologies into the mainstream. The fact is that the current mechanism is 80% reliant on insulation and yet we have an aspiration to move towards a low carbon economy and the new things coming through to replace insulation, which in a diminishing market needs to be reflected within EEC to encourage the investment and the deployment.

Q610 Chairman: Just to interject there, would that address the point which the Association for the Conservation of Energy made that 50% of our old housing stock, and perhaps that also goes for old commercial buildings, are not easily subject to an insulation solution? Would the technologies that you are talking about address that untouched sector and what are they?

Ms Harrison: They would go some way towards addressing it.

Q611 Chairman: What are they?

Ms Harrison: We have microgeneration technologies, things like biomass and combined heat and power, but the other aspect of hard-to-treat properties is that the properties have solid walls and at the moment the solutions for addressing those are very expensive, so in a way EEC needs to embrace those in a bigger way than it has done historically. The third point for us would be that EEC should focus on outcomes not inputs. At the moment, the way in which energy credits are earned in the scheme is that you have to install a product; you either have to install a low energy light bulb or insulation or a rated appliance or whatever. We believe that a lot of energy saving can come from behavioural shifts in consumers and yet that is not recognised within EEC.

Q612 Chairman: Let me just ask a question on that. Being a British Gas customer in my house in London, as a citizen I sent off for my guidance and a little box arrived. I opened it up with a great deal of enthusiasm and I found two energy saving light bulbs in it, thank you very much, and a little leaflet and a sort of rating as to what my property was. However, there really was no positive follow-up to it. I received the information and thought that was jolly interesting and looked around for two places to put the light bulbs. Do you not think that that kind

of scheme needs to have a bit more positive follow-up to say "Well, Mr Citizen, what are you going to do now"?

Ms Harrison: Yes and in fact you hopefully will receive some follow-up from us shortly. What we are trying to do is get customers on a journey where we introduce the concept of rating your home and we give advice on the energy saving report that you saw. In fact we have had 1.5 million responses to that which is just a phenomenal response to a form that we sent through the post, so we do know we are getting consumer engagement there. The next stage will be to follow up and say we had their report, these are the recommendations we made, ask what action they have taken and what more we can do to follow up and provide support to them now.

Q613 Chairman: Just following your thought process, does that response lead you as a company then to say "Here is a range of technological solutions, some of them mainstream, some of them newer ones" and talk with the customer about how that will move forward? Is that part of the strategy?

Ms Harrison: Yes. In your box you should have had a leaflet which was describing some of the solutions and technologies.

Q614 Chairman: I did indeed; yes.

Ms Harrison: We plan to follow that up with another update sheet to all the people that participated, where we go on and encourage more interest and more use of some of those things.

Q615 Chairman: You have both described your aspirations and the characteristics, if you like, of what might be called EEC3. Do you sense that the Government are minded to follow your line of thinking, bearing in mind that the emphasis, as you have both made very clear, on EEC1 and EEC2 has been this confused picture between some of the low-hanging fruit in the general area of energy efficiency and the specific target for the fuel poor? Do you see any kind of sophistication in the thinking of Government on this?

Ms Harrison: From our discussions with Defra, they are open to some of the suggestions that are being developed, but often what we find is that statute does not allow that and we have to find creative ways to work within the statute that is there.

Q616 Chairman: Just help me out a minute. You said that the statute does not allow it. Which statute is this and what does it not allow?

Ms Harrison: I understand the Energy Efficiency Commitment is vested in statute.

Q617 Chairman: So what needs to be changed?

Ms Harrison: The challenge with social dimensions is that you often need to deliver solutions that go beyond energy efficiency, but the Energy Efficiency Commitment requires you to deliver an energy efficiency saving. So if you wanted to give assistance to consumers through some form of financial support, by doing benefit entitlement checks or whatever to address the income dimension, that is

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not provided for within the scope of the current EEC. Until 2011 there is no real opportunity fundamentally to shift the thinking unless we can find a creative way to do that under the existing legislation.

Q618 Chairman: So the climate change bill might be such a vehicle?

Ms Harrison: It could be.

Mr de Rivaz: I would like to concur with what Jill has just said on several points. First of all, clearly there is a role for the Government and there is a distinct role for the market to deliver. I am pretty confident that the Government are taking the right approach in the sense that the quality of the consultation which is taking place in the Government in the context of the Energy White Paper after the Energy Review is an example of a Government which in my view is really listening to all those who have something to say and something to contribute. If I had to make some specific suggestion about the progress which might be made, in addition to the distinction between tackling fuel poverty and energy savings, there is room for the Government to be more specific about the standards, about the norms that should be compulsory, in terms of buildings, in terms of some technologies which will be used. There is an example on which I think there is an interesting debate and that is how to make a breakthrough in the use of smart meters, an element of which could be part of EEC, or at least part of the global picture on energy efficiency. I am not sure at the moment that we are taking the clear decision which would help to make this breakthrough. So some decisions are clearly in the camp of the Government, but in time we as companies, we as the market in charge of delivering this policy, have to be both ambitious, which we are, and modest about what we can achieve because it is a journey, it is gradual. We are in the industry after all to deliver power to our customers and we are doing so, but we are more and more in the business of giving empowerment to our customers, giving the customers the ability to make real choices. One example I would like to share with the Committee is the product which at the moment is already taken by 3% of our customers—3% is not 30%, but it is a good beginning—a product, Read, Reduce, Reward, by which we incentivise our customers to read and to reduce their consumption. Ninety-five% of those customers are really doing what this product is designed for: they are taking responsibility for understanding better what their consumption is and they are doing that with the clear goal of reducing their consumption. Having said that, we have to recognise that in terms of energy efficiency in this country there is a big gap between the awareness of the issue and the commitment. It is like a brand: you can have a strong brand with a strong awareness rate but not the level of commitment, which is the moment when the customer's view really changes positively towards a brand. Awareness regarding climate change is huge and the Energy Review, the Stern review and many, many statements from the politicians, from the media have contributed to that.

If we look at the surveys we have made amongst our customers, it is impressive how much our customers are interested in this topic. It is impressive how much they think that something has to be done and at the same time, the commitment level is not yet there. They do not yet see what their individual role is, what their individual behaviour can do to contribute.

Q619 Chairman: Why?

Mr de Rivaz: First of all we have to recognise that we are in a new paradigm; it is a new context. The climate change agenda, the importance of acting now, have only been understood very recently and maybe five years ago we were not at all aware of the importance of this issue. There is this kind of timeline between consciousness of the problem and change in the vehicle. The second thing is that at the moment, for many reasons the customers are still very much focused as a priority in their behaviour on the price issue, which we can understand. The price has been going up, there is a lot of volatility and there is a real issue of the bills. One day they look at us as suppliers and as a priority ask us to keep the price affordable. However, the example I have given of our product is encouraging. It is encouraging because it shows that there is a growing appetite and our role as an industry is to lead our customers on that journey, to embark them on that journey towards being realistic, being ambitious and it is what we in EDF Energy are committed to do.

Q620 Chairman: Let us just follow on your first steps. It is a wonderful declaratory statement and I am sure it will play very well at the annual general meeting, but if you are going now to take your customers on the journey, you are going to remove a very important barrier to engagement by the public in moving forward in the collective battle, to use that word, against greenhouse gas emissions. What are going to be your first practical steps to get people to do a variety of things? What is the plan?

Mr de Rivaz: The first thing we have to do is, as a company, to change our own behaviour. To be very specific, in the coming months we are going to publish what will be our own manifesto.

Q621 Chairman: A dangerous word that; you are coming into our territory. We understand about manifestos.

Mr de Rivaz: I am not trying to compete with the politicians. I am really trying to change the mindset in the company. To give you an example, many of you will have seen the film *The Inconvenient Truth*. I have decided that all the employees of the company will be invited to see it; it is one of the very powerful communication tools that we have to debunk the arguments of those who are still in denial about the reality. Not all our employees can read the Stern review, but many of them can be really moved by this film. From that we will set some targets for CO₂ emissions' reduction for our buildings, for our transport, for the way we dispose of our waste and we will set clear targets, not only at our annual general meeting but for the entire company and

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publicly, so that we can be accountable for what we are promising to do ourselves. We do have to start with ourselves if we want to convince our customers. The next example I would like to give regarding our customers is clearly to go further with our Read, Reduce, Reward product and we shall take some initiatives in the coming months to enhance this product. We shall work through the Energy Efficiency Commitment programme phase three, if the possibility is given to us, to expand what we have started to do; it will be a marathon, it is not a sprint, but we are committed to that because fundamentally we are no longer in business to sell units, to sell more and more units, but to sell services, helping our customers to make the best use, the best choices in energy consumption.

Q622 Chairman: How are you going to get the customers to believe that this is not some subtle plot to enhance the company's profitability? You made the point earlier that you are in a commercial business and you have to make a rate of return for your shareholders and some people have been a bit confused by supplier companies having lots of special offers to reduce the consumption of the very product that drives the business.

Mr de Rivaz: I know these kinds of questions do exist and we are listening to our customers, but at the moment they do not think that the suppliers are genuinely willing to do it. However, I am encouraged by the success of our Read, Reduce, Reward product. Just because there is a lot of cynicism around does not mean we should not believe strongly that we have to change the way we run our business. Yes, indeed we are going to reduce the units sold, but at the end of the day we think we are creating a level of moral contract with our customers that will increase the loyalty of our customers and it will pay off in a competitive environment where it is very important to reduce the churn of our customers. We are not a charity and we are not doing that just for philanthropic reasons: it is part of our vision to be running a profitable business.

Q623 Chairman: Perhaps you ought to send all the customers a copy of Mr Gore's film as well so they can share in that.

Mr de Rivaz: Why not? It is a good idea. I do not know whether we could send a copy of the film but we could invite them to a screening and have a discussion with them. We are in a business where we have to listen to our customers; we have to engage with them. It is no longer the world where the supplier is just selling power: we have to provide empowerment.

Q624 Chairman: British Gas have engaged in a rather clever way in that, for example some of the energy saving measures they have been putting forward have been encouraged by people getting a reduction in their council tax. Perhaps you would like to share with us how that scheme operates and what savings have been attributed to it. Is it a one-off reduction or does it carry on in perpetuity? How many local authorities have shown an interest in it

but why is it restricted to the other half of the 50% of houses, because they are the ones who can take the benefit of insulation? Why should the people of the other type of houses be discriminated against under this programme?

Ms Harrison: In terms of the council tax rebate, what we are trying to do here is to find innovative ways to get middle England engaged in insulating their homes and we know that historically it has been incredibly difficult to get people to buy cavity wall insulation for example. It is not very expensive to buy and it delivers huge energy savings but we just have not had the engagement and council tax is just one way in which we have tried to do something very different and tried to hook into consumer psyche around not liking to pay council tax. We teamed up with Braintree Council initially just to do a trial on offering customers £100 rebate on their council tax bill. Braintree funded half of that and we funded the other half which is effectively what it would probably cost us to market this product through our own channels. We had a huge take-up and Braintree's phone lines got jammed very quickly. That was done some time ago. We now have 40 local authorities that participate in the programme, it is growing and that covers something like two million households potentially who could actually pursue insulation through that scheme. The one thing we have found from consumer research is that 35% of people who opted to take that product have said they would not have done so had it not been for getting a council tax rebate.

Q625 Chairman: Let me be clear on a point of detail. Is it a one-off reduction?

Ms Harrison: Yes, the council tax reduction is obviously a one-off. You have the product installed and then we notify the local authority that that has been done. The council then put the rebate through on the council tax bill, but of course the benefits in reduced energy costs from the installation run on for the lifetime of the house.

Q626 Chairman: Having engaged up to two million households, come back to the question I asked a moment ago. Fifty% can take advantage of it, but there could be others. You said earlier in your answer that you were looking at a range of technical solutions to try to address the issue of the 50% of properties who cannot be the beneficiaries of cavity wall insulation. Is there a plan to roll out this model for this 50% who cannot participate at the moment?

Mr Kimber: Yes, there is a plan. We do intend to increase the reach of the proposition; obviously at the moment it is mainly just for cavity wall insulation. Similarly there are other products that we can bring into the mix in terms of loft insulation, other traditional products. There is a whole raft of other products coming through, for instance microgeneration, et cetera. We have taken the approach that we have offered this proposition and we are slowly rolling it out. There is huge enthusiasm from local authorities to get engaged in this, so we

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are hopeful that in the next six months to a year we will have a full range of products that we can offer through that particular mechanism.

Q627 Chairman: Mr Rivaz, you have mentioned the fact that your company is moving in the direction of selling energy services. From your knowledge and contacts with others in your industry, do you think that is going to be a general move?

Mr de Rivaz: I cannot speak on behalf of my competitors. I would just repeat the point that we cannot afford to be just a provider of units and that a way to differentiate ourselves will be to embark our customers on this journey. We have to be clear about what an energy services company is about. One example I am pleased to share with the Committee of what we are doing at the moment is this joint venture that we have with the London Climate Change Agency which is really part of the ambition to transform London progressively. It is based on a very, very clear vision that the large cities will make a big difference in this battle for climate change. Eighty per cent of people live in cities so it is a very good ambition for London to be a kind of beacon in the world in this respect. At the same time we have to be realistic; we are going to deliver this ambition project by project and there are economic rationales to build around these projects which are based on three simple ideas. One of the objectives is to persuade consumers to use electricity for heating. A contribution from developers is another of the means and we think we can make a case that the awareness and new commitment of people to contribute to the low carbon economy will add value for the developers to their projects, if these projects are going to deliver this low carbon future, which is the basis of the economics of this joint venture we have with the London Climate Change Agency. I should say we have to be very pragmatic project by project, but that is the direction in which we are moving.

Q628 Chairman: I should like to move to the question of smart metering. We explored this briefly in our previous session. The objective is with a different type of meter to communicate to the customer the characteristics of their energy consumption and to give them a better indication as to the costs of their actions. I wonder whether you could respectively, starting with Centrica, tell us what the present policy of your company is about smart metering. What information do you think your customers need to get more control over their consumption patterns and what are you doing to introduce it, if you think it is a good idea?

Ms Harrison: Historically, we ran some trials with automated meter-reading technology. The evidence from that is that we did not actually manage to get a shift in consumer behaviour but that was probably long before the focus on climate change became part of consumers' interest. At the moment we have some smart meters on trial in electricity in some pre-payment customer households because we are trying to understand whether the information from a smart meter can help customers to budget and whether the

facilities that you might get with a smart meter, like being able to top up and pay for your credits in different ways, can actually deliver a service to customers that customers value and want. So we have those on trial at the moment. They have been on trial for about six months and we are just at the stage where we are beginning to get some early learning. The other things we have on trial at the moment are some consumer devices which in many ways replicate the information that you might get off a smart meter. You plug them into your house and you can see what happens when you switch appliances on and it will tell you how much you are consuming and how much that is costing you and some of them will tell you how much carbon you are emitting. We have some of those on trial and in fact we have made a bid for some money that Ofgem have that came from some joint funding from the Treasury and Defra, a bid to roll out a much larger trial on those consumer devices. We believe that actually having these devices that you can read in a room that is convenient to you, for example in your kitchen rather than under your stairs where your meter might be, will be of great benefit to consumers.

Q629 Chairman: Are these smart meters nice to look at? They are not horrible great big boxes which people say they cannot have in the middle of the living room?

Ms Harrison: No they are very modern and some of the consumer devices are very nicely designed and would sit in your kitchen very comfortably.

Q630 Chairman: You can sit and be mesmerised all day, can you?

Ms Harrison: You can be mesmerised. When you install these things the problem is, if you have kids, that they will run around the house and switch everything on so that you can see how it works, so you tend to get a temporary surge in consumption and then it drops back. They do certainly seem to be valuable to consumers, so we certainly want to do more trialling of those as an alternative to smart metering. In terms of smart metering per se, our view is that mandating is not appropriate and that smart metering should be deployed on a commercial basis. Not all homes will need a smart meter; some will run quite happily with things like consumer devices which are much lower cost. We would like to see smart metering encompassed within the EEC3 programme so that we can actually be expediting the deployment with some incentives.

Q631 Chairman: From a Centrica point of view, if you achieve the deployment of these devices in accord with what you have just said, do you have a rough idea what it would cost you to do?

Ms Harrison: I am sure we have; I do not have that information with me.

Q632 Chairman: The reason I ask that question, and I shall put the same one to EDF in a second, is that it is a question that you have only so many investment pounds and if you are looking for optimal outcomes, is that necessarily the best way? I know it is currently

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what I call the “buzz phrase”, everybody keeps saying “smart metering”, but is that necessarily the best way to assist in getting information to consumers which will focus them on their energy behaviour?

Ms Harrison: That is absolutely right. The approach that we have taken is to look at the customer segments that would most benefit from having a smart meter, which is why we have someone testing the pre-payment segment where customers not only need more information to help them budget, but also where they can find different ways to pay, so the whole service becomes much more convenient. In the debt segment, there is probably a good business case for putting smart meters in to help people understand the cost of the energy that they are burning. However, as I say, not all households need a smart meter or would want a smart meter or would benefit and in those cases, cheaper alternatives like consumer devices with a one-off cost are probably a much more appropriate solution. We would very much favour a commercial driven approach.

Mr de Rivaz: May I first of all confirm that EDF Energy has a trial going on at the moment. We are installing 20 smart meters per week through a joint action with the National Energy Action organisation which is a charity. We have also, as Centrica have done, bid to join the Ofgem trial. We are in a cycle of trials, which is good news, because the idea has been there for years, if not decades, and we all thought that in the absence of real trials, we would not make real progress. Having said that, there is an open debate at the moment. Was it wise for the regulator to put the metering activity into the entire area of the competitive market, as has been done? An alternative would have been to leave the meters with the distributors, with the DNOs, and to make part of their role as regulators to enforce gradually the level of investment from the DNOs into smart meters. It is what some other countries have done, for instance in Italy. I do not know if it is too late for the regulator to change his particular view of the world regarding that, but I would have thought it would be more efficient to do that as part of the quality of services required from the distributors, which by the way will not prevent the suppliers using this core device to provide additional services and to develop some business initiatives to make it even more efficient for the customer, according to the customers’ needs. The base in my view should be developed through the DNO regulated business. One danger is talking a lot about smart metering and not making the breakthrough; they are potentially part of the solution to the energy problem because they are designed to help the customers to take ownership, to understand, to measure and to decide, which is very important. Today they are more part of the problem because it is sad for the industry that this technology is more or less from the beginning of the 20th century technology, it has not improved. Everything else has improved in our business, new technology has come in, but the meters are still based on old technology. I really believe we still have to achieve a breakthrough. I am not sure we are brave enough at

the moment to make the radical choice we should make. However, let us be pragmatic, let us see what the trials will tell us, what the customers’ behaviour through these trials will tell us but be honest and try to find an early breakthrough solution.

Chairman: Right, I should love to pursue this but we are up against some constraints in the way that the Committee operates and my quorum runs out at half past five. I want to move on just to get your observations about the whole field of microgeneration and micro-CHP. Centrica were talking about that so Peter, would you like to take us into that?

Q633 Sir Peter Soulsby: The Energy Saving Trust told us that 30 to 40% of the UK’s energy needs could come from microgeneration, micro-CHP distributed generation more generally. First of all, is that a proportion that makes sense from your perspective? Is that really the potential that is there? Secondly, what are the incentives needed to get potential investors into the technology that is needed? Thirdly, which of those technologies actually has the best potential for development? Three for the price of one there.

Mr Kimber: We are in a very fortunate position in Centrica in that we have just been appointed as a framework supplier under the low carbon building programme phase two, which is in the public sector; so we have quite a wealth of experience in terms of dealing with microgeneration companies and the different types of technologies that are available. Thirty to 40% in the short term seems very optimistic, not necessarily because of the technology constraints but probably more so in terms of the installation capability that currently exists within the marketplace. We would have to build in the expertise, the training skills and experience, et cetera. It certainly is a long-term objective. In terms of the products and the incentives that consumers need, private householders can now receive grants up to 50% on certain technologies through the low carbon building programme. Andrew Warren commented earlier that there is a surplus of applications at the moment for those particular technologies. If you took that grant funding away, would there still be the demand? Probably not. So there does need to be an incentive there for customers currently and it certainly is needed for the organisations working this environment to make their businesses commercially viable in terms of the numbers of installations they are completing day on day. Which technologies work? A lot of them have a role to play. Very much all the technologies there can play a role to varying degrees. We believe that the way forward is probably through heating systems because people have to replace their heating systems. One point two million boilers are installed every year and some of the new technologies being developed now in terms of micro-CHP and fuel cell technology can potentially make quite a big impact in that marketplace in a very short space of time. Some of the other technologies will take longer.

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Mr de Rivaz: I fully agree with what Jon has just said so I will not repeat what he has said. Just a comment about microgeneration in general, which is part of decentralised generation. It is very important to recognise that in the next 20 to 25 years, over one generation, decentralised generation will become more and more part of the overall system. At the same time it would be foolish to say that we can get rid of the centralised system. We have to combine the two and there will be for a very long period of time a very important for the centralised system. At the same time, not only as suppliers but also distributors running the largest distribution network in the UK, we are very much aware that it will gradually change our business. The role National Grid is playing for the centralised system in balancing demand and supply at the central level will become more and more an additional role that we will have to play at distribution network level where we will also have to balance supply and demand from the decentralised generation. In discussions that we have had with our regulator, we are insisting on the fact that we should think of what the impact of this new evolution will be on the level of investments and on the responsibility that we will have to take. Microgeneration is an important element of the overall picture. Part of the whole picture is the development of decentralised generation and it is something we need to discuss more and more with the regulator to see how it will impact on the vision of the future.

Q634 Chairman: You have given a glowing endorsement for it. Why are you so miserly in what you pay for the electricity that people generate by micro systems when they sell it back to the grid?

Mr de Rivaz: You are right; there is a debate about the level of the threshold of exemption of the use of the grid. It is a very important question because it is not reasonable to see the development of decentralised generation on a significant scale without seeing the global picture, which is how the system would be balanced. It is probably not true to say that decentralised generation can develop without networks. Having said that, what is a fair share of the cost of the networks to be taken into account? There is a debate going on about the level of exemption and we have to be very pragmatic about that. We cannot imagine a world in which there will be a huge development of decentralised generation without taking into account the impact on the system and at the heart of the system locally are the distributors, the distribution networks' operators and it is an interesting question.

Q635 Chairman: Coming back to Centrica, I have a boiler which is 10 years old and I am wondering what to do. Do I wait and wait and hope that some whiz-bang box is going to come from you or from somebody, or do I make an investment that will last me another 10 years in the best of conventional today? This is a bit like wanting the latest computer and just when you have decided to buy it there is

another "latest" computer. Why is it taking so long to get these new whizzo products that you have just been talking about available for us?

Mr Kimber: I can understand your dilemma; I have exactly the same dilemma myself actually. These products do take a long time to bring to market and it is not just the actual technology and developing the technology, it is providing the support infrastructure as well, so that when we put them into people's homes, we can support the technology correctly and the maintenance requirements, et cetera. They are very complex, the technology for micro-CHP, particularly fuel cells, is incredibly complex and the companies that we are working with are working very hard, they know there is a prize involved if they can bring their product to market first of all, but when they bring it to market, we want the product to be correct and to do what it says on the box and we want to make sure we have the right support infrastructures to ensure that customers are satisfied with that product. We want to make sure we get everything right before we bring these products into the marketplace.

Q636 Chairman: So when?

Mr Kimber: Soon.

Ms Harrison: We have been working on a micro-CHP boiler for some time and we have some on trial now. It depends how those trials go in terms of how fast they come to market. We have also been trialling wind and again it depends on whether or not we are satisfied with the results of that when they come to market. We also have a major partnership with Ceres Power to develop a fuel cell boiler, which is the most exciting technology. The simplicity of it means it probably will get to market before CHP does in a micro sense, but not yet, I am afraid.

Q637 Sir Peter Soulsby: You can tell me if I am wrong, but I get the impression that the development of microgeneration has been somewhat over-hyped, particularly in the short term. I hope you can tell me I am wrong.

Ms Harrison: The best example of that is probably micro wind. They are almost like style statements for people and there has been a rush without people thinking about whether they have the right wind speed in their area, whether they have the right height of house, whether it is going to generate enough electricity for them. I do think some of that has been over-hyped.

Q638 Chairman: You were talking about the big debate, about things like buy-back price and the costs and the implications of microgeneration for the grid. Germany pays four times the buy-in price as the sell-back price and yet it seems they manage to produce this trick without it costing the generators, the supply companies, any money because it is just diluted as a cost over all the consumers. Is that the route we should follow?

Mr de Rivaz: Generally speaking, we would not support policies which favour any kind of technology, including microgeneration, irrespective of cost and irrespective of environmental benefits.

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When there are huge subsidies, any kind of state subsidies, the danger is that you move away from the market-driven actions and then you do not trigger the right behaviour. We should not support policies which favour microgeneration irrespective of cost and other benefits; at the same time some barriers which can be removed. We believe, for instance, that the installation of microgeneration should fall under the general permitted development order where no specific consent is required. There is a general problem with regard to planning issues in this country, be it for large constructions, be it for small constructions, which is to make it more efficient, but we are not here to discuss planning issues.

Q639 Chairman: Are you as a company involved in the development of any of the technologies? We have heard that Centrica have two devices that they are looking at. Are you involved in any developments like this?

Mr de Rivaz: At the EDF group level there is a significant programme of research and development to develop microgeneration. Like Centrica and many others we have not yet reached the stage of being able to say when we will have developed these new technologies to a commercially viable level, but there is no doubt that it is part of our agenda. We do not at all consider that these microgeneration ideas are not appropriate; quite the contrary. But, I repeat, in the long term we should not trigger the wrong behaviours.

Q640 Chairman: Talking about behaviours, there has been quite a lively debate and discussion about personal carbon allowances. Do you think that they are realistic, viable, useful, or just a bit of politicians' talk?

Mr de Rivaz: When we embark on such a journey to change the behaviour of the customers, we should avoid embarking with too much luggage. When you have too much luggage it is not very easy to move, if I might make this comparison. At the moment, to go straight to a personal carbon allowance system, which could be attractive, is in reality potentially counter-productive. It would be too complicated, too bureaucratic and too costly; we are not yet there. I am not saying that in some years' time, when progress has been made in the hearts and minds of the people, this idea cannot come back, but in our view it is not a priority today to develop personal carbon allowances. As regards low carbon economy, towards which we all want to go, coming back to EEC, there is a discussion, probably an interest, around looking at how to make the actions made in the EEC more tradeable, which at the moment is not the case. I agree that globally we should develop mechanisms which really incentivise people to invest in low carbon technology through the market mechanism.

Chairman: I am going to have to draw stumps there because unfortunately we have run out of time to carry on what was a very interesting dialogue. If Centrica want to drop us a note with your views on PCAs, it would be very much appreciated. May I thank you both for your written contributions and your contributions today. You have seen the efforts of the Committee to look at ways of removing barriers to the citizen becoming more involved in reducing their carbon footprint and if you have any further thoughts on the subject which we have not been able to discuss today that you wanted to drop us a further note about, we should be extremely pleased to hear from you. Thank you very much indeed.

Supplementary memorandum submitted by Centrica plc (Cit 40a)

PERSONAL CARBON ALLOWANCES

1. Centrica believes that personal carbon allowances (PCAs) are an interesting concept and may offer some potential in encouraging individuals to cut their own emissions.
2. Precise details of the government proposed scheme are limited and our further comments therefore relate to PCAs in general terms.
3. Centrica has three broad concerns personal carbon allowances which we believe will need to be addressed before any proposals for such a scheme were brought forward:
 - (i) How would such a scheme be administered and monitored? As the scheme would potentially cover every adult in the country it is likely to be a significant IT project to manage this national database, and to facilitate the arrangements for trading. If the Government decides to use energy supply companies to provide information, or support the scheme in another way the complexity of this request would need to be recognised and an appropriate level of remuneration accrued.
 - (ii) How would personal carbon allowances fit into a broader carbon strategy? The Government would need to be clear about what behavioural change it was trying to achieve, and what level of emission reductions it could expect from the scheme.
 - (iii) Would personal carbon allowances be addition to or in replacement of other forms of environmental taxation? It is likely that any personal carbon allowance scheme will cover activities already subject to carbon and other environmental taxation. Energy usage, for example, is subject to a carbon tax via the EUETS, and petrol is subject to an environmental tax via the fuel duty escalator. The potential for double taxation is high.

COMPETITION IN THE METERING SECTOR

1. Centrica believes that metering competition in the UK has been successful. British Gas' costs of gas meter reading per normal cyclic read have reduced by over 50% between 1998 and 2005, and the costs of gas meter operation have reduced by over 20%.

2. In addition there have been major improvements in the service to customers. In meter reading, dual fuel meter readings have been introduced and gas and electricity service standards have been harmonised, the meter reading week has been extended from Monday–Friday to Monday–Saturday, including early evening visits, there has been an improved appointments service and better service level agreements. According to research, the proportion of British Gas' customers receiving at least 3 company reads has improved from 49.4% to 56.5%.

3. Furthermore competition has benefited all customers, not just British Gas customers. Competitive pressures have forced meter manufacturers and National Grid (Transco) to reduce their prices too; new players (eg banks) have entered the market, prepared to fund new meter opportunities; companies have formed dedicated metering subsidiaries with a strong profit focus. The result is keen costs to suppliers, which to some degree have offset recent rises in energy prices.

4. Without competition, more regulation would be required to ensure prices are kept low and customers receive an efficient service. Without a competitive metering market, it is doubtful whether UK customers would have seen new services such as combined gas/electricity reads.

5. Competitive markets are always more complex than monopoly ones. This is true for meter reading and meter operation, just as it is true for gas and electricity supply. But Centrica believes that the cost of that complexity is far outweighed by the savings. British Gas puts its savings over five years at several hundred million pounds, for an outlay of less than £100 million.

6. Metering competition supports supply competition. Suppliers have tighter control of service quality and another source of differentiation; suppliers also have a natural incentive to ensure high data quality, which is critical in metering. Improvements in meter reading and data processing have resulted in electricity settlement performance increasing from 88% to 95.7%.

7. Competition supports innovation in metering as suppliers have the incentive to deploy new technology eg smart meters where it will reduce costs or improve service, for example through reducing the number of estimated readings for hard-to access properties. In a monopoly market, there is the possibility a distribution company will see such new technology perhaps as a threat or as more probably as an opportunity for guaranteed profit (through an assured regulatory return on capital).

Centrica plc

February 2007

Further supplementary memorandum submitted by Centrica plc (Cit 40b)

1. When we talked at the NEA parliamentary dinner a couple of weeks ago, you asked met to let you have some further thoughts on a few issues that you felt the Committee could usefully consider.

INNOVATION WITHIN EEC3

2. As you will be aware, Defra is currently running an interim consultation on changes to the next phase of EEC. This is in advance of a fuller consultation which we are expecting in the spring. British Gas has responded to that consultation and I am happy to let you have a copy of our response if you think that would be helpful.

3. Although the detail of EEC3 is still under consultation, there is no doubt that a consensus has emerged that the next phase of EEC, due to start in 2008, should be predicated on a significantly increased commitment from suppliers, both in terms of fiscal spend, and on the carbon savings required.

4. If the carbon savings being envisaged are to be achieved, we believe that EEC3 has to provide an environment where new approaches and technologies that contribute to demand reduction are nurtured and embedded. In that context, we welcome the proposed inclusion of microgeneration, feedback devices, and behavioural changes within the product/measure mix, and would urge the Environmental, Food and Rural Affairs Committee to actively support this approach.

5. EEC needs to provide a sustainable environment for suppliers and third parties to proactively pursue innovation. To create this environment, stakeholders, including the Government, and energy suppliers, will need to share the risks associated with innovation. This is essential to nurture demand reduction technologies for the future. It is our view that the structure and processes associated with the current EEC programme have made little, if any, contribution towards stimulating innovation.

6. Innovation can be categorised in a number of ways.

- Firstly, through substantial improvements in traditional energy efficiency products. A mechanism already exists within the EEC framework to support these kinds of products although due to the high level of improvement required (around 20% for most products) this is rarely used. British Gas would like to see the improvement threshold lowered to a more appropriate level.
- Secondly, there are a range of new products that require support to establish a market foothold. We believe that all categories of renewable and microgeneration technologies should qualify for an innovation uplift in EEC, probably of 50%, something that is currently only afforded to MicroCHP. We would also like to see the current practice of restricting energy savings when interacting with the Low Carbon Building Programme removed.
- Finally, there are new products or services where the energy saving potential has yet to be quantified. For these products we recommend the introduction of an ex-ante score, and a faster way of accrediting new innovative measures. The aim should be to ensure that all potential measures are assessed and a decision to approve or not approve made within 3 months of the initial submission.

INCREASING INSTALLATION LEVELS IN TENANTED PROPERTIES

7. You are right to identify that in the tenanted market it is extremely difficult to drive behavioural change. The key problem is that even with a reduced cost of installation through a supplier scheme, there is an initial outlay for landlords. All of the benefits, however, in terms of lower bills and warmer properties, accrue to tenants. It is not yet clear that more energy-efficient properties command a higher market rent, and there is likely to be a preference from landlords to spend money on those areas that will increase rental value, for example, painting and furnishings.

8. Furthermore, this sector of the domestic housing stock is difficult to engage with. The recently introduced Green Landlord scheme, is a good example. The scheme provides significant tax breaks for private landlords to invest in energy efficiency. However, the landlord must still fund the installation of energy efficiency measures. Private Landlords' prime objective when investing in improvements is to enhance the property's rental or resale potential, and energy efficiency is not a key driver at present.

9. In that context, some kind of mandated scheme will be necessary to encourage the take-up of insulation measures in the UK's rented sector.

AN OVERARCHING CARBON POLICY

10. As the issue of climate change becomes more acute, we believe that government and opposition parties have rightly recognised that every sector needs to contribute to emission reductions. There are a range of policies currently being discussed that aim to drive emissions reductions, and the policy environment in which Centrica is operating is changing quickly. Whilst supportive of efforts to reduce emissions, we believe that some consideration needs to be given to an overarching climate change strategy, and in particular, how different policies will interact with each other.

11. In particular, the desired behavioural change needs to be considered and the most appropriate policy driver introduced. The potential for double taxation where environmental taxes are introduced is a further consideration. Customers, for example, already pay a carbon tax on electricity bills through the EUETS which feeds through from generators, as well as contributing to renewable generation development through the Renewable Obligation, and domestic energy efficiency measures through an EEC payment. In that context, we would question the equity of introducing further environmental taxes on customer bills.

12. I hope this has helped to clarify our thoughts on the areas you raised at the dinner. Please give me a call if you think I can be of further help.

Centrica plc

March 2007

Wednesday 31 January 2007

Members present

Mr Michael Jack, in the Chair

Mr David Drew
Patrick Hall
Lynne Jones

Daniel Kawczynski
David Lepper

Memorandum submitted by Mr Jon Cape (CRED 1)

BACKGROUND AND EXPERIENCE

My work background embraces housing, economic development and utilities. In a personal capacity, experience also includes co-operative development and church and wider community engagement in environmental issues. I have three current roles in making this submission:

- (i) As a member of Stirling Methodist Church and through this the Eco-Congregation Stirling Network. The Eco-Congregation programme in Scotland, and elsewhere in the UK has been very successful in engaging church congregations (and now also other faith communities) in practical action to promote sustainable development. In Scotland, some 130 churches have now completed accreditation as eco-congregations and 400 more are seeking to do so.
- (ii) As founder (with Stirling Methodists) of local and district level community initiatives: Going Carbon Neutral Riverside and Going Carbon Neutral Stirling. The former is now a broadly-based voluntary association in the Riverside area of Stirling (a community of some 1,500 people). It has set in motion a structured Going Carbon Neutral Programme which includes the key components: engaging the community, quick wins, capturing baseline carbon footprint data, larger (mainly energy and transport) initiatives, and regular footprinting and feedback.
- (iii) As creator of the Home Energy Co-op. This is a new co-operative esco, currently in business planning stage with support from Scottish Executive, local authority, housing association and other key stakeholders. Home Energy Co-op funds and manages energy in the home and community (embracing energy efficiency and renewable energy investment). It provides a positive response to address both the enthusiasm and the obstacles which private individuals and social landlords (and others) express as well illustrated in the 2006 market research conducted by NCC on behalf of the Sustainable Development Commission (report entitled "I will if you will").

KIND OF ISSUES I WOULD LIKE TO RAISE

I believe that I can make a valuable input to the work of the Committee across all six areas of interest highlighted in the November press notice. Key points include:

- An adequate response to climate change will require a step change in attitude and behaviour by Government, business and households. No one of these by itself will be sufficient.
- Joined up Government is imperative: for example, a doubling of air passenger numbers by 2030, as UK Government currently seeks to provide for¹ is not consistent with effective tackling of climate change even with plausible advances in technology and scope to reduce growth in other sector even further to compensate.
- Whilst detailed methodologies for contraction and convergence must still be worked through, the principle is the only fair approach: it should set the tone for action by all.
- The Going Carbon Neutral and Eco-Congregation movements show the real power of well-structured community action to change both attitudes and behaviour: initiatives such as these should be vigorously supported: with cash as well as words.
- Initiatives like Home Energy Co-op can play a major role in overcoming widely acknowledged obstacles to the substantial and rapid investment in energy efficiency and renewable energy in the home and local community which is now essential. We need a major shift to esco models of energy provision, but people are rightly very concerned at the prospect of tying themselves in, long term, to one private supplier.

Mr Jon Cape

January 2007

¹ A rise from 228 million today to 465 million by 2030 according to figures attributed to the Transport Secretary.

Memorandum submitted by Garry Charnock (CRED 6)

I would like to apply to give oral evidence at a public hearing at CRed on the morning of 31 January 2007.

MY BACKGROUND AND EXPERIENCE (VERY BRIEF)

In January 2006 I inspired Ashton Hayes Parish Council to adopt a proposal that my community (near Chester) tries to become the first carbon neutral village in England. The proposal was accepted and we called a public debate that was attended by 75% of the adult population. Since then we have completed our carbon footprint of the village, in alliance with the University of Chester, and instigated a host of projects involving all aspects of our lifestyle. We have also been awarded a £26,500 DEFRA grant under its Climate Challenge fund and numerous other financial awards. We have carried out door-to-door lifestyle surveys over 50% of the houses and now have over 20 people actively running climate-change related projects. We have also attracted over £13,000 in business sponsorship and much more than this in business support and expertise.

In addition, we have inspired around 24 similar sized communities in the UK to follow our example (and several overseas) and will be hosting the first “grass roots” carbon neutral conference on 14 April 2007 in Chester. We also inspired Chester City to adopt the University of East Anglia CRed programme, the first city in the UK to give its citizens a pathway to carbon neutrality.

The project has featured on BBC Radio 4 and World Service programmes and local radio, TV and press.

Full details of our activities can be seen on www.goingcarbonneutral.co.uk

The issue I would like to raise concerns the best ways to inspire communities to take ownership and action on climate change. I would like to relate our experience in the hope that others will learn something from our approach. I can bring information from our surveys and demonstrate what other communities across the UK are doing as part of our shared “grass roots” initiative.

For information, I am a Chartered Civil Engineer and specialist technical communications consultant and I have lived in Ashton Hayes for 23 years.

Garry Charnock

January 2007

Memorandum submitted by Dr Roy Alexander (CRED 16)

I would like to apply to give oral evidence at a public hearing at CRed on the morning of 31 January 2007.

BACKGROUND AND EXPERIENCE

I am a Reader in Geography at the University of Chester with research and teaching interests in the environment and sustainability. For the past year I have assisted Garry Charnock to develop the Ashton Hayes Going Carbon Neutral Project by means of which our community in Cheshire is aiming to become England's first carbon neutral village. I have directed the technical aspects of the project, devising the survey of the domestic carbon footprint and engaging staff and students from the University of Chester to assist with its implementation and analysis. I have also been involved with communicating the project to a wider audience by means of presentations, at events ranging from parish council meetings to national conferences, and media interviews (local press, radio and TV, BBC Online, BBC World Service). Together with two colleagues I have recently written an article describing the Ashton Hayes project and evaluating its impact and sustainability.

The Ashton Hayes project inspired Chester City Council to adopt the University of East Anglia's CRed system, by which each of its citizens will be provided with a personal pathway to carbon reduction. I was closely involved with the introduction of CRed Chester, am a member of its steering group and have secured the support of the University of Chester to provide administrative and analytical services to the project. I coordinate the monitoring and analysis of both the Ashton Hayes and CRed Chester projects through the Department of Geography and Development Studies at the University of Chester.

When talking to community groups from around the country, a frequent comment that I get revolves around the benefits that accrue from the close linkage between the Ashton Hayes project and the University of Chester, usually followed by a question as to how others might forge a similar link with their local university.

I would like to raise two issues:

- First, the important role that Higher Education Institutions can play in promoting and supporting carbon reduction initiatives in their local communities and the means by which Government might encourage such participation.

- Second, to share our experience about the initiation of a grass roots project and what we have learned about it may be sustained.

Dr Roy Alexander

January 2007

Memorandum submitted by Mr Jason Borthwick (CRED 25)

I am a Diversification Consultant advising small to medium size businesses and domestic developers on ways to diversify and to save running costs by being greener with their buildings and systems. My experience, to give this advice, has come from my own business activities, which include the development of tourism and retail facilities on the north Norfolk coast at Deepdale Farm (www.deepdalefarm.co.uk)

The main evidence I would like to put forward to the committee is the lack of understanding by environmental organisations and authorities about the triggers and motivations required to make most individuals and businesses become environmentally conscious.

There is a large amount of talk about reducing carbon footprints, becoming carbon neutral and other similar jargon. To the masses these mean nothing. There is also a belief by environmental pressure groups that there is a moral responsibility to be environmentally conscious. What is actually required to connect with the vast majority of individuals and businesses in the UK is a mixture of legislation to remove non environmentally friendly choices and education about the savings that could be made if a business or individual were to consider the environment.

A prime example of legislation is the fact that you can still buy light bulbs that aren't energy saving. If government is genuinely interested in reducing the UK's carbon production then this is a vital piece of legislation. The same could be said for packaging materials, where legislation could outlaw materials that aren't biodegradable or recyclable. Products could be banned if they can't be switched off properly, rather than staying on standby. It should be compulsory for chargers, for example mobile phone chargers, to be intelligent and switch off their power use once the device they are charging is fully charged. A huge opportunity was missed with the latest building regulations, that at conception started very strongly, but which were watered down dramatically before actually coming into force.

In terms of education, householders and businesses need to see simple details of the money they could save by taking into account the environment. The general impression is that being green will both reduce the quality and enjoyment of a product and cost more. From my experience neither of these impressions are correct, as we run environmentally conscious tourism facilities and are graded and reviewed as being excellent quality at an excellent price. We've saved thousands by installing energy efficient lights, solar panels to heat water and rain water capture to flush toilets. If a business is shown a simple spread sheet of the savings made by similar businesses when those businesses installed environmental technologies and changed their systems, this will be much more of an incentive. Investment must be made to create these evidence sheets and to train advisers to visit businesses to explain the evidence and help businesses select the right technologies and systems to save them money. Once the first few companies have seen the benefits and the possibility of huge savings, other businesses will be prepared to pay for that same service.

The British public are not going to want to have extra work or a reduced experience by being green. Therefore councils and government need to consider systems that will make it as easy as possible for householders to become green. The average Brit won't choose to be green out of a purely moral calling, they need a lot of incentives, most of them financial. The idea of being charged more for producing more rubbish is excellent, however this needs to match a discount for those of us who produce very little or no rubbish. There must also be a legal obligation for councils to offer full recycling services, as many have gone for cheap recycle plants that will recycle enough to meet government targets, but unfortunately don't allow the recycling of many products, which are recyclable, but which require a more sophisticated recycle plant.

I hope I get the opportunity to give oral evidence to the House of Commons Environment, Food and Rural Affairs Committee (EFRA) on 31 January.

Mr Jason Borthwick

January 2007

Witnesses: Mr Jon Cape, Mr Garry Charnock, Dr Roy Alexander and Mr Jason Borthwick, gave evidence.

Q641 Chairman: A wonderful, natural hush has just fallen over the assembly here, and so I think everybody now anticipates that the witching hour of 11 o'clock has come round. My name is Michael Jack, the Chairman of the Environment, Food and Rural Affairs Select Committee of the House of

Commons. May I welcome the members of the public who have come to hear our evidence session today at the University of East Anglia. The other members of the Committee are here. You can see that they all have their names displayed in front of them. This occasion today is a full, on-the-record

evidence session and I would like to thank in advance our shorthand writer, who I am sure will do an excellent job in recording everything that witnesses and indeed the members of the Committee say. As I said to some of the witnesses that I met earlier, what you say is recorded and cannot be undone. On the other hand, if you have a lapse of memory and wake up tomorrow morning thinking, "Oh, there's a very good thing that I really wanted to tell the Committee!", then let me say at the outset that you are very welcome to write to us with any further thoughts. The procedure this morning is that we will have three panels of four people who will give evidence to us. Each one will make a short, five-minute presentation. I have been asked whether some can stand. It is whatever makes you feel comfortable. If you want to stand or sit, that is fine. The only thing I would not recommend is kneeling, on the grounds that the microphones may not pick up your supplications to the Committee! After the panel have given their evidence, then around the table, as they catch my eye—or some will not be able to restrain themselves from launching in—members will be asking you questions within the 40 minutes that we have at our disposal. Before going through the panel and introducing them—I will give a short biographical summary which will save the panel members having to do it—may I put on record my sincere appreciation to the University of East Anglia for hosting us and for the travel arrangements. It is the first time that the Committee has travelled to take evidence in a biodiesel-powered bus, for which we are very grateful. We are particularly grateful for the input to this session from the university's Carbon Reduction programme, the initiative known as CRed. When the Committee was looking at its programme of work, we had the benefit of its leader Marcus Armes briefing us and, as a result of that, stimulating our interest in a series of inquiries under climate change issues. The first one, on bioenergy, we have completed; *Climate change: the "citizen's agenda"* is the one we are here today to take evidence on; that will ultimately be followed, we hope, by pre-legislative scrutiny on the Climate Change Bill; and, after that, the blockbuster report on what will take place with regard to the Kyoto Protocol in 2012, when that finishes. As you can see, therefore, we take our responsibilities as a Committee in this area very seriously indeed. With those words of introduction, may I introduce the first panel. Our first witness will be Mr Jon Cape, who is a member of the Eco-Congregation Stirling Network, founder of local and district community initiatives such as Going Carbon Neutral Stirling; and he is currently planning the Home Energy Co-op, which I am told is a co-operative energy services company. Mr Cape, you are our first witness and you have your five minutes, starting now.

Mr Cape: "It is not right to be alarmist but it is right to be alarmed." Those are not my words but the words of David Miliband, the Environment Minister. I used those words to open our first public meeting of Going Carbon Neutral Riverside. People have got the message. A month after that, I was sharing a stall with youngsters from the local schools' eco-team, and I

had carefully prepared lots of one-liners about why climate change was so important. They were not necessary; the debate had moved on. Ordinary parents were asking not whether or why, but how and what. "What is it that we need to do?" and "How do we go about it?" The aim of Going Carbon Neutral Riverside, and now Stirling too, is to give those "How?" and "Why?" answers, in very practical support to local communities. There are six components in the programme. Engaging the community, often working through schools. Then the quick wins: it may be "Put a jumper on", "Turn the heating down", "Use the tumble-dryer less". But how? What are the practicalities of doing what may seem like simple things? Then the strategic initiatives to reduce carbon emissions. We are just embarking on a sustainable energy study for our area, looking at what are the real, long-term energy solutions. Fourthly, offsets. In what way, after we have reduced, can we offset remaining emissions? In particular, looking at local offsets, we can bind in and benefit the local community. Lastly and key, regular footprinting. Footprinting at the start; measuring the carbon footprint from the community and then, a year later, and successfully, measuring it again—to give people real feedback about the impact that it is having. I was talking to a taxi driver on the way here. This university's work is well known to him and the issue is well known to the people who use his taxi. People will often say, "It's too big a problem". We cannot allow that message to happen; it must be, "It is a problem; we can address it". Using the analogy of the ozone layer, it was a problem but it is being cracked. This is a problem; we can crack it together. However, it does need big behavioural shifts by government, industry and community. No one of those alone can do this. My second hat is with Eco-Congregation Stirling, where I am co-chair. It was in fact the origin of Going Carbon Neutral Riverside. There are now 130 churches in Scotland accredited as eco-congregations. I have several dozen examples of practical action that all of those churches are taking in Scotland and in England. I will not go through them all, but I can give you the information. We are talking about installing heat pumps; installing turbines; zoned heating arrangements and a wide range of other energy efficiencies; energy road shows; eco-fairs; lift-sharing; other transport initiatives. This stuff works, and it does need support for it to continue. My third hat is the Home Energy Co-op. It is a new initiative. It does not yet exist and it is in the planning stage. Using the jargon, this is a co-operative ESCo. Its starting point was the Sustainable Development Commission's market research report last year called *I Will If You Will*. Ordinary people were saying several things. They were saying, "Yes, I like this stuff. I like this sustainable energy. I can see the need for it, but here are the 'buts'. I don't want to be first. I don't want to go it alone. I can't afford the up-front cost. I don't really fancy the idea of a long-term contract with my utility, because maybe I don't want to be locked in to them". Home Energy Co-op has been designed to break down each one of those barriers, to present a solution that can work. We have discovered that

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those barriers do not just apply to homeowners; they apply to social landlords and they apply to developers. Home Energy Co-op will be working first with social landlords, who are amongst the best early adopters in this field, and moving on in a planned fashion to cover both developers and new homeowners and also existing homeowners. We support, and I think that the Government has supported, the idea of a big shift to ESCo-type models in the energy world. I think that the co-operative ESCo model can play a big role in shifting consumer behaviour. Yes, it does need a long-term relationship for this to work, but it is a long-term relationship by the customer with a body which represents your interests, which is the co-operative ESCo. Finally, there are some challenges to ponder on. There are four points. First, we do need long-term support for renewables. We can see things coming and going. There was support for community energy schemes; now it has gone. There was support for biomass, but only in the short term. We do need certainty and the Government are right to say, "Yes, let's get zero-carbon new housing by 2016", using certainty and long-term building regulation changes to shift that. We need long-term 'sticks' like that, but we also need long-term 'carrots' to make this thing really work. We need the certainty and not the stop-go. Secondly, offsets, which play a key role. They must complement and not be an alternative to carbon reduction. We do need accreditation and the Government are talking about that, but it must accommodate local offset schemes which can engage the local community. Thirdly, there is a big danger in mixed messages. We need joined-up government. Planned capacity growth, as is presently the case, for doubling air passenger numbers over the next 25 years really does give people a mixed message: 'Yes, the Government talk this up, but they are not really serious. Otherwise, they would not be saying, "We can double air passengers"'. We really do need to think that through seriously. Fourthly, there is weightless growth. We need a full debate about economic growth. Colin Challen MP has quite rightly said that we need to shift our ideas about growth and what is possible. Politicians cannot do that on their own; they need to do that in debate with voters through an informed debate about weightless growth. Can we break the link between economic growth and emission growth? If we can, I believe that some form of Contraction and Convergence policy is the only fair context in which to have that debate and, over the coming years, it is a vital debate for us to have.

Q642 Chairman: Thank you very much indeed, and you are absolutely bang on time! Our next witness is Mr Garry Charnock, who inspired the Ashton Hayes Parish Council—which I think is in Cheshire, is that right?

Mr Charnock: Yes.

Q643 Chairman:—to adopt a proposal that their village became carbon neutral. He was involved in helping them to complete the carbon footprint of the village. They were awarded Defra Climate Challenge funding assistance and, I think as a result

of that, 24 similar-sized communities have followed the example. You are, I believe, a civil engineer working as a brand and communications director for a company known as the RSK Group, an environmental engineering consultancy. Mr Charnock, this sounds like *Mastermind*, does it not?
Mr Charnock: It feels like *Mastermind*!

Q644 Chairman: Anyway, you have some masterful thoughts which you are now going to share with us. The floor is yours.

Mr Charnock: I would like to give you a few insights into the journey we have had for the past 12 months in Ashton Hayes. Starting off, the idea was inspired by Sir David King, the Government's Chief Scientist, and Lord Oxburgh of Shell, when I heard them talking at the Hay Festival in 2005. At that meeting, they basically agreed that if everybody in the meeting went out and did something about climate change, the whole of our society could tackle it. So I went away for a while, thinking about what on earth I could do as an individual. I started to notice that companies like Toyota, DHL and HSBC were declaring their attempt to be carbon neutral. After living in a village in Cheshire for 25 years—a small, well-knit village with a good community—I thought, "Why can't a village repeat what a company is trying to do?". It is quite a manageable size and if our community could not do it, how on earth could a big community do it? So I went off to the local pub for the pub quiz, talked to a few of my friends and asked "Would this be a crazy idea, to try and become carbon neutral?". To my surprise, I got tremendous support. Dr Alexander, here on my left, also said that the University of Chester would support such an effort if our community tried to do this. I thought, "How do you do this as a citizen?" and I decided that the parish council was the best route, because it is a democratic route in our small society. I went to give evidence to the parish council on why I was concerned about climate change, and asked them if they would consider trying to be England's first carbon-neutral village. This met with a degree of surprise but at the same time, because of all the support of people coming to the meeting, I think they felt that people who did not normally come to the parish council meetings and who stood up and said something had something to say. So they voted to embrace the idea, but put two conditions on me. One was that I had to join the parish council. The second was that we had to have a public meeting to judge whether or not the idea would be accepted by our community. In January last year, therefore, we had a public meeting where we said, "We're trying to be the first carbon-neutral village. Does anybody want to support this?". We had a meeting at the primary school, where we had already embarked on a project for the children, looking at vehicles of the future. To our surprise, on a freezing cold January night, we had 400 people turn up at that meeting. That was about 75% of the adult population of the village. At that point, the parish council was convinced that, yes, there was a concern here. We asked people at the meeting, "Why did you come to this meeting?" and they said, "Because we

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are all concerned about it, but we don't know what to do about it as individuals. Are you seen as a crank if you start to put a solar panel on your roof, and so on? But, if the community works together and shares ideas, we feel that we'd like to join in". So that was how it started. In addition, I was particularly concerned that, on an idea like this, we did not spend the parish council's money. With my background and knowing local businesses and industry, I went out and, very rapidly, got a local business to provide £3,500 in funding to sponsor the opening event. Also, the school was very keen to join in, because they felt that the children would benefit from such a project—measurements, and this sort of thing. Other people came on board. I think that this is one of the interesting points of our project. We have the Women's Institute helping us; we have the Scouts and Brownies helping us. What the project has brought about—and we saw this on the first night—is the interaction in our community, which is a lot of fun. I think that is the thing we have noticed over the year. The other element to the success of our launch was the media coverage. We congratulated the press in our area for supporting the idea. It was not just because they supported it; it was because the message they gave out was to the wider community. People, seeing stories in the press, think that this is a worthwhile scheme and will come to it, and I think that is an important point to learn. The backing we had from Cheshire County Council and Chester City Council, who were fantastic in not putting any obstacles in our way—they came to our meetings to support it—also reassured the community that this was not a crazy idea. Dr Alexander will talk about the footprinting study we did in the village last May and how we calculated our emissions; but, since then, what we have noticed is that more and more people have come on board. We are pleased about this, because we expected things to die away. Traditionally in village projects, things tail away; but we started off with a couple of people running the project and now we have 28 people volunteering. One of the key points there is that many of them are scientists who, for the first time, have stood up in our community and said, "This is an issue that, as a scientist, I have to stand up and say something about". We have had people like the local pub landlord, who has said, "I think that we should try to make the pub go carbon neutral", and he is benefiting tremendously. The fact that he is doing it really influences our community. Also, the fact that we have had support from people like the University of East Anglia has been very useful. We have had tremendous interest from other communities: about 25 up and down the UK, but also two in Australia. We have actually twinned with a village in Australia which is trying to be Australia's carbon-neutral village. That has a real benefit to us because, from the publicity, we are sharing ideas across the world. It is very useful. The sharing of ideas between people who trust one another in a village is very useful. If neighbours show each other how much they have saved by using energy-saving light bulbs or by having a new boiler, it really passes the message round. I will end by saying that we have had a very

successful year. We have had a lot of fun and we are really enjoying doing it. I think that it has brought the community together. It is a classic example of us working really well with local authorities, business, and the university. There are a few key things to say. One is that the trust within the community has been very beneficial. People standing up and saying something has been very beneficial. It is a lot of fun. The school has been a tremendous catalyst. We have noticed with other communities that the primary school is a real catalyst for permeating the message throughout the village. The press coverage has been essential. Businesses should not be forgotten. A lot of businesses think that this is very important to their corporate responsibility, and they say their businesses are made up of individuals who are also very worried about this. With the Defra grant—and I think that Defra have been very sensible in how they have offered this grant, which was to communicate the ideas—we have made a video of the whole year and we are also making a toolkit at the request of Defra, which we can give to other communities. Finally, we are having a conference in April—a grass-roots conference for other communities who want to share the ideas. The one thing that we would really like is to have someone in authority locally who could be, as it were, a carbon-neutral ambassador for our village. Instead of us all as volunteers trying to go to lots of meetings, we would have one person who could guide us into some of the answers, saving all the volunteers a lot of time and making the whole thing easier. Thank you very much for listening.

Q645 Chairman: Thank you very much indeed. You have certainly communicated your enthusiasm and commitment to what you have done in Ashton Hayes, and that is very useful. Dr Alexander has already had pre-billing from Mr Charnock. Dr Roy Alexander is a reader in geography from the University of Chester. I think that you are the technical co-ordinator for the initiative that Mr Charnock has just described to us. You are also a member of CRed's Chester Steering Committee. Dr Alexander, the floor is yours.

Dr Alexander: Garry has provided us with an introduction of the Ashton Hayes project. I will just fill in a little bit of the detail and then look at one or two other issues. As well as working at the University of Chester I am also a village resident, and was one of the people in the pub that night with whom Garry chewed the idea over. I knew immediately that this was something that engaged closely with many of the things we were trying to do in my department but also more broadly in the university, and so I said, "I am sure I can get the commitment for at least five years to support this project"—and that is how it has turned out. Our first task was to devise and carry out the survey of the domestic carbon footprint of the village. Using the standard sources of information—particularly helpful from the University of East Anglia and also sources from Defra and other areas—we produced a questionnaire and recruited a group of students to implement that questionnaire face to face, because

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we felt that this would get the largest number of responses. In our village of about 370 or so houses, we had 170 responses to it. We therefore have an almost 50% coverage of the village, in terms of information about the characteristic of the houses; how much insulation they have; for some of them—not all, unfortunately—their energy bills; their travel habits; transport use; number of flights per year, and so on. From that, we were able to carry out a pretty accurate assessment of the carbon footprint of the village. We therefore have the domestic footprint. We have a small number of small businesses, and we are still working with them to establish their footprints. We have analysed the data and have fed it back, not only to the parish council and disseminated it more widely, but we have also produced a personalised feedback to each individual resident who took part, telling them what their footprint is; telling them what the general findings were; but, particularly, giving them a set of recommended tailor-made actions that they can take, from low-cost, short-term through to high-cost, long-term actions. The next objective, of course, is to go back and follow that survey up. We are recruiting another group of students to do a follow-up survey which we are devising in the spring of this year, to see how the project is progressing. We are also working on an assessment of the carbon sink within the parish, in terms of vegetation, soils, particularly trees, and an evaluation of the tree-planting activities that have taken place over the last year. Another role is to write and report this material in popular organs and also through the media, and we have just published our first academic paper on an evaluation of the project. Perhaps I could re-emphasise some of the points that Garry has made about the reason why I think our project has been successful. Reflecting upon the reasons for the successful implementation of the project, five things seem to be central. First, the project is community-led, both in the initiation of the idea and the high degree of community involvement as the idea began to take form in practice. Second, considerable effort was made after the initial launch of the scheme, through media coverage, the development and maintenance of a website, and so on, to maintain the project's early momentum. Third, the initiative was driven from the start by a diverse, multi-agency partnership of villagers, business, the University of Chester and local government. Fourth, the participation of the local primary school ensured considerable interest among local children and, through them, their parents and their wider family members. Finally, the key role played by a small number of highly motivated individuals in driving the project forward should not be underestimated. On the other side of the coin, this becomes a key issue in terms of the future sustainability of this and similar projects. Also, as part of our obligation under our Defra award, Garry and I between us, and one or two others now, go out and present our project to other organisations—from communities, parish councils, through to national conferences. A question that frequently arises, particularly for me, is that there is always a serendipitous link here

between the support of the university and people within the village taking this forward—"How can we get that for our community?". Universities have a key role to play here. It is a classic role for universities. To some extent, there is a moral obligation on us to act as advisers and facilitators. There may be ways in which that could be incentivised more widely across our education sector. Second, to emphasise another point that Garry made, there is the need for personal and local support. There is plenty of information about the issues of climate change in the press and the media generally. There are a number of opportunities to get information and advice about what individuals can do. However, making that link between what is available and getting individuals to make the behavioural change needs support and trust at a local level, and a bit of hand-holding. That is an area which needs to be investigated, in terms of how it is put in place, not only in small communities but also elsewhere. I think that is all I need to say for now.

Q646 Chairman: Thank you very much indeed. That has certainly developed the thought process of Garry Charnock. The final witness in our first panel is Jason Borthwick, who is a diversification consultant, advising small to medium-sized businesses and domestic developers on ways to save running costs by being greener with their buildings and their systems.

Mr Borthwick: The experience that I use to give this advice is basically from my own business activities, where I have developed eco-friendly tourism and retail facilities on the North Norfolk coast at Deepdale Farm. We decided there to consider the environment at every stage of the business development, but mainly from a business point of view—so both from a marketing and a financial point of view. Indeed, anything we did needed to add up and to make sense for the business. The main evidence that I would like to put forward to the Committee is in relation to the misunderstanding of environmental organisations and other authorities about the triggers and motivations required to make most individuals and businesses become environmentally conscious. There is a lot of talk about reducing carbon footprint, becoming carbon neutral, and other similar jargon. However, many individuals want to make changes and become more environmentally aware, but they feel that they are a small fish in a very big ocean and that their efforts will make very little difference. Often there is a belief by pressure groups that the moral responsibility to be environmentally conscious should be enough. What is actually required to connect with the vast majority of the UK is a mixture of legislation to remove the damaging environmental products and services, and education about the savings that could be made if a business or an individual were to consider the environment. The British public make their customer choices on a mixed basis of cost and convenience. For example, price is normally the primary motivation; however, if the process of switching is hard work then convenience will outweigh price. A prime example of legislation that

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would be effective is the banning of all non-energy efficient light bulbs. Almost every standard bulb has an energy-efficient alternative but in many cases demand is limited because of the cheap nature of the lesser product. The same could be said for packaging materials, where legislation could outlaw materials that are not biodegradable or recyclable. Electrical products could be banned if they cannot be switched off properly, rather than staying on standby. It should be compulsory for chargers—for example, mobile phone chargers—to be intelligent and to switch off their power use once the device they are charging is fully charged. Why is it that you can still buy disposable nappies that are not biodegradable, especially with landfills full of nappies that take over 200 years to break down? A huge opportunity has been missed with the latest building regulations that, at conception, were radical but which were watered down dramatically before actually coming into force. Even the water companies have serious concerns about how they will supply all the new houses that are wanted, so why are not more water and energy-saving technologies compulsory in new and converted buildings? In terms of education, householders and businesses need to see simple details of the money they could save by taking into account the environment. The general impression is that being green will both reduce the quality and enjoyment of a product, and will cost more. From my experience neither of these impressions is correct, as we run environmentally conscious tourism facilities and are graded and reviewed as being excellent quality at an excellent price. Even customers not interested in the environmental aspects of our business like the product we provide. We have saved thousands by installing energy-efficient light bulbs, solar panels to heat water, and a rainwater catcher to flush toilets. By showing companies or individuals a simple spreadsheet of the savings that could be achieved through installing environmental technologies and changing the way they act, many more could be encouraged to consider the environment. Investment must be made to create these evidence sheets and to train advisers to help people select the right technologies and systems to save them money. Once the savings are clear, there will be more demand. The British public will not want to have extra work or a reduced experience by being green. Therefore, councils and government need to consider systems that will make it as easy as possible for householders and firms to become green. The average Brit will not choose to be green out of a purely moral calling; they need a lot of incentives, and most of them financial. For example, the idea of being charged more for producing more rubbish is excellent; however, this needs to be matched by a discount for those who produce very little or no rubbish. There must also be a legal obligation for councils to offer full recycling services, as many have gone for budget recycle plants that will recycle enough to meet government targets but unfortunately do not allow the recycling of many products which require a more sophisticated recycling process.

Q647 Chairman: Thank you very much indeed for some very interesting ideas. We now move to the opportunity for the Committee to ask you some questions. I wonder if I could start. You have all been very positive about what has been achieved. You have given us a hint as to things which the Government could do to assist. However, can I start with Mr Charnock? You have had the experience—and perhaps Dr Alexander can also address this—in dealing with a real community. You have done very well in getting the idea of carbon neutrality accepted, but what have been the problems you have encountered when people have come back and said, “Yes, I’d like to do my bit, but . . .”? When you look at the ‘but’ question, how does that stack up with the areas of official help, and how have you removed barriers or encouraged the rate of progress?

Mr Charnock: First of all, everyone in the village that I have spoken to has said, “Yes, I’d like to do something”. It is not generally a ‘but’; it is that they would like to do something that they are able to do. In terms of their houses, people are very willing to have a go at the light bulbs and insulation, and all they really want is reassurance from neighbours that it works. So what we have done to overcome that obstacle is, first of all, to show bills between neighbours which show that a condenser boiler saves you a third of the bill. That really works, because they do not feel as if they are being sold anything. We have gone beyond that point, because we now have 28 people on our team in the village and we have formed ‘carbon clinics’, which are specifically to address this. These are members of the community who can be called at any time and, if someone wants insulation, they not only advise them but will also facilitate it and get over that hurdle of doing. It is moving from the hurdle of thinking to the hurdle of doing. That is one issue and that is what we are doing. On the bigger things such as panels for planning and wind turbines—because we are going all the way from energy-saving light bulbs through to considering a micro grid—because our area is a conservation area, we have talked to Cheshire County Council and Chester City Council about what the rules are, because they are not defined. They have sat down with us and we have written our own guidance for the people in Ashton about what they can do; but we would like more clarification up and down the country, because we see this confusion as an issue everywhere we go. Also, on things like wind turbines, none of us is very certain what the answer for these roof turbines is. What we have encouraged the community to do on those issues where we are uncertain, therefore, is for the school to have one—where we can all look at it on the school roof, see whether it works, and assess it before everybody starts sprouting turbines on the roofs of their houses. We are trying to address each issue, but we have not found people to be generally negative. We have even found people who have not analysed the cost of a solar thermal panel saying, “I feel morally obliged and I want to do this. I do not do a cost-benefit analysis when I buy a carpet, and I feel that I want to do this on my roof”. So it is not

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always a straightforward cost-benefit. I will hand over to Roy now, to see if there is anything he wants to add.

Dr Alexander: There is not much to add to that, other than the fact that our approach has been such that, if people are being severely negative or raise a lot of doubts, then we have politely said, "Fine, that's your opinion. We recommend that maybe you look at this piece of information, or maybe watch *An Inconvenient Truth*". We have dealt more with the positive effect, accentuated the benefits and tried to bring on board people who are already showing an interest. Interestingly, some of the people who were initially the most sceptical have become converts.

Q648 Patrick Hall: I have a lot of questions but I will restrict it to one. Could I focus on the Ashton Hayes Parish Council initiative, which I know nothing about other than what you have just said? I do not know the population or the socio-economic makeup of that settlement, nor the other 24 schemes in England and others overseas. Presumably there is some similarity in terms of size. What I would like to know, therefore, is how one would go about transferring that exercise from a small and possibly reasonably affluent community—but I am making assumptions which you may correct me about—to the cities, where the majority of people live. Have you tried to do so, because you go round advocating this way of approaching these matters? Do you think, if you have not tried it, that you perhaps ought to attempt to do so in some city, high-rise council estate? That is the real challenge, is it not?

Dr Alexander: Yes. It is one that we are now taking on board. As we mentioned, our project was instrumental in getting Chester City Council to adopt the University of East Anglia's CRed system, so we have a CRed Chester satellite site now. Both Garry and I sit on the steering committee and we are trying to take this initiative forward within the city and district of Chester. From our experience, the advice we are giving there is that this works much better on a local basis, and so we are trying to work with neighbourhoods within the city. That is the way forward. We launched in October and we have had a certain amount of success so far, but our big push is coming up in the spring. We are recruiting a group of students to explore some initiatives. We will let them brainstorm and see how we can promote it in these different parts of the city, and certain different socio-economic areas of the city.

Q649 Patrick Hall: In Chester?

Dr Alexander: Within Chester, yes.

Mr Cape: We have been debating exactly that in Stirling, building out from the initial initiative in Riverside. I cannot say that we have done it yet, but we have been working in depth with the council. We are looking in particular at working in conjunction with the fuel poverty strategy of the council, where we are engaging with low-income communities. The headline message is about ways to save the household money. Fuel poverty and energy efficiency work, which is about both saving money

for the household as well as saving on carbon emission, is the starting point for that kind of initiative. We are now looking to work Stirling-wide.

Mr Charnock: I have been asked by several large conurbations about what they would do. From our experience, which is just one small village, it would be to focus on the primary school catchment area and to have all of your channel of information that way; then to get on board some support, such as from the university. Certainly, in the 25 communities with which we have been involved, the common theme has been the importance of the primary school in helping with the changing behaviour of the community.

Q650 Daniel Kawczynski: With regard to the Ashton Hayes village, it obviously sounds very successful but will the council implement this across a wider area? With regard to planning applications, if somebody wants to extend their home in this village or if they submit some form of planning application, will it be easier to get through if they fit in with these eco-factors, or will it be very difficult to get something through if it does not fit in with that? Also, have parish precepts gone up at all as a result of this project?

Mr Charnock: I will answer the parish precept one first. We have not spent one penny of our parish precept in a year on this project. All the money has come from sponsorship from local business and from the Defra grant, as part of the communication. I think that is quite key.

Q651 Chairman: Just to give us a flavour, how much have you accumulated in your pot to fund what you have done to date?

Mr Charnock: The Defra grant was £26,500 over two years, which is a separate pot. At the launch we got £3,500. I do not have the exact figure, but I would think probably a further £3,000 has come in during the year from business. But it is not just money: a lot of businesses have provided their staff time. For example, we have geographical information systems, we have electronic mapping of our biodiversity, which is being done by one of the firms. We have communications being done by another firm. We have other firms helping with advice. Architects are helping us. So the sponsors are not always giving money, and sometimes it is much better for the staff to get involved in the project. We have one firm called Andy Foster Architects, for example, who are designing new school buildings for us with straw bales around them—we are having a community project. In answer to your question, therefore, we have not spent a penny of the parish precept. The other two questions related to what happens on planning issues. We have worked hand in hand with the city council and that has been very successful. The parish council has taken these issues on board, and we do not object in a hard way; we just advise people that, as a village, we would like to see more of this. We now have two people who are trying to build carbon-neutral houses in the village because of the project. The idea is to learn from them. We have one builder who is building an

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extension to a conservation house and who is trying not to take anything on site or take anything off site, to a tip or anything like that. He is working through reusing all the materials on his site. Again, this is part of the project. It is all about working together, rather than saying, "You can or cannot do this". It is like talking to one another. I am afraid I cannot remember the third question.

Q652 Daniel Kawczynski: It is the concept that, now it is a success in this one village or hamlet, what plans are there to roll it out across a wider area of your borough?

Dr Alexander: Within the local area, we are working with groups that have approached us. The city council and county council are speaking to us about how they may do this, and we have suggested that the best thing is to go with the communities which approach them, asking for help. We are providing assistance, not just to other communities within Cheshire but across the country, by putting everything we have done so far together into what we are calling a "carbon-neutral toolkit". It will involve the survey, all the steps we have taken, and how we got the media engaged. We will be making them freely available via our website. Again, it is something we are producing as part of our Defra award. We will be providing those to everyone who attends our grass-roots conference that we are running at the University of Chester and in the village afterwards in April—again, part of the Defra award.

Q653 David Lepper: To Mr Cape initially, could you tell us a little more about the steps taken to set up the Home Energy Co-op? Perhaps I could also ask the whole panel this question. Mr Cape, I think you mentioned the lack of trust that some people have in the existing utility companies as energy service companies. I wonder if you have had discussions with the existing utility companies, and if other members of the panel share that view regarding the scepticism the public has about that energy service company role for the existing utilities.

Mr Cape: First, the Home Energy Co-op concept came from me during the summer of last year. I have been working closely with a group of housing associations in Scotland to develop the proposition from business concept to fundable business plan. I am pleased to say that we have had very strong support. Fife council has given us grant support to help in that development process. We are now on a path which leads through to quarter one next year, for that fundable business plan to be in place with social investment financial backers, with whom we are in close discussion at this point. We have also been discussing closely with other stakeholders, homeowners, utilities, and starting the utility dialogue as well. As far as utilities are concerned, I am not saying that people distrust the utility *per se*; what they distrust is the idea of, "Do I really want a ten-year contract?" or something like that. It is different if it is the co-op, because that is representing their interests. I think that there is very

good scope for solid relationships with utilities, but on a footing that can protect people's interests and that they feel comfortable with.

Mr Borthwick: With regards to the utility companies, a prime example is the water companies. When we were setting up, what we wanted to set up was a rainwater system to flush all the toilets in the whole hostel and the campsite. We approached Anglia Water, who are our local water company, and to say that they were unhelpful would be kind. They were actively trying to find reasons why we should not be doing this, and yet we can have 400 or 500 people on the site in a day; so you can imagine how much water gets flushed down the loos. They brought up reasons like, "Oh, no, the Government will be legislating on this soon; so you wouldn't want to put a system in that you may have to rip out in six months to a year". As it happens, the Government still have not brought in the legislation. This is six years later, and we would have been flushing with rainwater for six years. Because we are water-metered, technically we could have done it and it would not have made any difference to us; but they were saying, "Well, we may have to reconsider", and so on. Without spending an awful lot of time on legal fees and advice, we had to make the decision at the time that we could not go ahead with it. Since then, we have installed a smaller system, and we are now using that as a test case to put in a bigger system. However, the cost of installing afterwards is three or four times what it is to install it at the time of building or conversion.

Q654 Lynne Jones: I would like to ask our Ashton Hayes representatives how you ensured that your data collection from different households was consistent. You had 170 questionnaires and you have 370 households. How did you scale up that data to give your whole-village footprint? What was in it for the students to get involved? Is the replicability of your method dependent upon the recruitment of students or other similar volunteers? Therefore, how replicable is it as a model throughout the land? Finally, you spoke about the importance of maintaining momentum and you will repeat the audit after a year. Is there any way in which you are assessing progress between the two annual audits?

Dr Alexander: I will take the last one first. The purpose is to follow up last year's survey, to find out what changes have taken place and also to interrogate people's energy bills and see where the savings have actually been. We can calculate from some of the initiatives they have taken, but we want the actual figures year on year in terms of reductions in the amount of energy used. That is what we are hoping has happened. In terms of the survey itself, the survey was absolutely consistent because we drew up a survey questionnaire that the students had to stick to. We piloted it; we checked it; we have made some changes since, of course, because you never get everything right first time. The students then administered that, most on a face-to-face basis. In terms of analysis, we then broke the results down by house type. We separated out the detached

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houses, the semi-detached, bungalows, and so on. We had a good sample from each of those house types. We calculated the average and the spread of data from each of those house types, and then did an audit of the whole parish—how many of each type did we have. Then it was simply a case of multiplying up to get our first estimate of the overall footprint, which is just under 5,000 tonnes per annum from 1,000 residents in about 370 houses. In terms of the students and what they get out of it, we use an existing device. It is always best to use existing devices; it saves time. Our university was very early in the game of having students do work-based learning. For something like 15 or 20 years, all of our second-year students have had to do work-based or experiential learning for the whole of the summer term of their second year, where they go out into the workplace. I simply offered this as a project within that module and it was taken up enthusiastically by a group of students, most of whom were geographers. They were extremely happy to do this, because they had a natural interest in the area; they could see it would support their studies. Also, they found that they got an awful lot out of it and would strongly recommend it. It will make it easier for recruiting this year to get my second group, because they enjoyed it enormously. We had our first anniversary event last Thursday, when we showed our new video. I got some student volunteers to come along and help out with that, to take people's names and addresses. They came up to me afterwards and said, "We are already committed to something else for work-based learning next term, but can we come and volunteer? If we have any spare time, we would like to come along and help". They get engaged. We run a Millennium Volunteer scheme and we have also drawn on quite a lot of student support through that.

Q655 Lynne Jones: And the replicability?

Dr Alexander: That is something that a number of communities have addressed with us, and I think that is where there is perhaps some incentivisation. My advice has been, "Here is the survey". We have such a big sample, what I am looking at now statistically is how small we can make that sample and get roughly similar results—what is the tolerance? So that we can say to other communities, "Don't bother going for a 50% sample; you are within 95% of that using this method. If you only have a 10% sample, that is easier to do. But get in touch with your local sixth form or further education college or university and try and get some support that way".

Q656 Mr Drew: How do you build in the frustration of delay? This area is one where lots of people promise, lots of people have idealism, but if my own experiences are anything to go by you end up having to wait. I wonder if you have any ideas on how you can chase up the lack of delivery, and whether you can do that communally.

Mr Charnock: Having the project sponsored by business sponsorship really speeds up the project. You do not have to wait for grants or any support; you get the money straightaway, and off you go. The second thing is having the press involved in a project and seeing that the project is building in size. At our event last week we had the same number of people turn out as did the year before. I think that the press support incentivises the local councils to do something. We have not had any delay. In fact, some things, such as a footpath to the railway station that we needed, have been accelerated by about five years by this project. We have not really seen a delay. We may now see a delay on things like trying to improve our school buildings, but I am not sure that we will. The biggest delay could be on our micro grid concept which we are trying to do. However, we are seeing people like Scottish Power offering to help us with things like that as well. From our viewpoint, therefore, we have not experienced delays or frustration. Would you agree with that, Roy?

Dr Alexander: I would. It is partly the way that we have organised the project. Because it is small-scale and it is within the community, we have been able to move things forward quickly—for the reasons Garry has given. It is also because, for the first year, we ran it between us and we can make decisions quickly that way.

Q657 Chairman: Mr Borthwick, do you want to have a quick 30 seconds?

Mr Borthwick: Just to say that, by getting business involved, you do manage to step things forward. If you are waiting for the councils or public bodies to do things, then things take an awfully long time. If you get business involved or multiple businesses involved, you can move things much quicker, because they have to make business decisions and they cannot wait for a committee to make a decision; it has to be a look at the bottom line and then get on with it.

Chairman: Thank you all very much indeed. There were lots of questions that we would have liked to have put to you, but sadly we cannot. Time has beaten us. We will move on as quickly as we can to our second panel. Thank you all very much.

Memorandum submitted by Mr John Riley (CRED 3)

Here is my proposal to be considered for the public hearing due in Norwich on 31 January 2007, on the subject of "Tackling Climate Change"—a chance to have YOUR views heard:

1. I have worked hard for the last three years to educate people on the need to take action and reduce their energy use and resulting CO₂ emissions, to mitigate the onset of Climate Change . . . but to little effect.
2. I am now of the opinion that education is not going to work quickly enough to stop us hitting the buffers hard and very soon, with regard to the changing climate and ensuing weather extremes.

3. Therefore, I am now a staunch advocate of Carbon Rationing, as it is the only way of making absolutely sure that we keep our emissions within a safe limit. In the same way as we brought in food rationing in 1939, to make absolutely sure that we didn't over consume.

4. We must also promote an International Carbon Rationing Framework, as it is the only sure way of keeping CO₂ concentrations worldwide to a safe level. Without this, anything we do in the UK will be completely futile.

I am very keen to make this point to the committee in January and would ask you to consider including me in the 12 people if at all possible.

Mr John Riley

January 2007

Memorandum submitted by Dr Laurence Matthews (CRED 13)

BACKGROUND AND EXPERIENCE

I have worked in UK industry for 20 years, and also as a university lecturer. My specialist fields during this time were management science and forecasting, both of which involved not only technical knowledge but also an appreciation of the practical issues that drive, and resist, change in organisations and in consumer behaviour. I currently live in Taunton and am a writer with no industrial or academic affiliation.

ISSUES I WOULD LIKE TO RAISE, UNDER THE INQUIRY HEADING OF "OBSTACLES FACED BY PEOPLE AND HOUSEHOLDS WHO ARE TRYING TO MAKE A DIFFERENCE"

1. The carbon "social contract" between individuals and government

My wife and I would like to play our part in carbon reduction, but beyond the basic measures we see various obstacles to doing so effectively. We face the usual problems (availability of information, practical restrictions, financial disincentives and bureaucratic processes). However dwarfing all these is the psychological effect of the framework of rules in which we are operating, whereby taking voluntary action in isolation is largely futile—apart from setting a good example.

There is a "social contract" here: by and large, individuals will play their part only if government plays its part too. Central government's part of the contract is to set effective binding caps on UK carbon emissions—with some form of "cap and trade" mechanism to achieve them. No more, no less. Refusal to act decisively here, with non-binding "aspirations", only partial coverage of the economy, or lip-service carbon taxes, would leave Defra exhorting us to "do our bit" without government doing theirs, and would be seen as a betrayal of trust, leading to frustration, despair and non-cooperation.

I believe that the importance of this link is so great that any proposals for citizens' participation in tackling climate change which don't firmly address this issue would be at best ineffective and at worst a distraction from effective action.

2. Domestic "Cap and Trade" arrangements

Given 1, and given the urgency (in avoiding climate tipping-points) of introducing a "cap and trade" system, I would like to use the final minute of my allotted five minutes to draw attention to a simple brand of domestic cap and trade system which seems to have largely escaped attention in recent reports prepared for Defra. This is essentially the "Cap and Share" scheme as advocated by Feasta (the Dublin based think-tank), which has many of the benefits of schemes like Domestic Tradable Quotas, but is so simple that it could be implemented in the next parliamentary session (possibly as a transitional arrangement on the way to a more complex system such as DTQs or Personal Carbon Allowances).

Dr Laurence Matthews

January 2007

Memorandum submitted by Mr Doug Hoffman (CRED 27)

I was Waveney District Council's Energy Efficiency Officer for 15 years until I retired in 2002. I am now back in the area and would be very keen to attend, and maybe even contribute to, the forthcoming meeting at UEA on 31 January.

Below, in brief, are a few of my thoughts on the topics for discussion mentioned in the EDP.

MICROGENERATION

I take it this refers to the really small domestic units of around 1 to 5kW electrical output. I confess to being puzzled by some of the hype on these, viability of Combine Heat and Power units used to depend on 5,000 running hours a year and I can't quite see a domestic unit achieving this without some heat being wasted, but I will come with an open mind.

OBSTACLES

Where to start? In no particular order of importance;

Apathy; People cannot see what difference their own individual efforts will make, and in the workplace, (constantly being reorganised and downsized), who will have the time, (or admit to having the time), to even think about saving energy?

PRECONCEIVED IDEAS

The usual old chestnuts come to mind, such as "It's cheaper to leave an immersion heater on all the time"; have they never heard of Newton's Law of Cooling? I suppose not. Less obvious is the so-called independent consultant who has a favoured HVAC contractor, who, in turn, has a favoured equipment supplier, so the customer may not get the most energy saving deal.

Some people equate energy efficiency with cold homes or offices.

VESTED INTEREST

Preservation of the *status quo*, (don't rock the boat).

Some managers appear to be of the opinion that the more it costs to run a department, the more important they appear, so they won't be interested in savings.

LACK OF RESOURCES

Usually financial, but can also apply to technical know-how.

It is well known there is a national skills shortage.

DEVOLVED RESPONSIBILITY

Try to find out who is responsible for lights being left on unnecessarily in a medium or large organisation. In the current blame culture, more time is spent fireproofing backsides than actually achieving anything.

REDUCTION OF ENERGY CONSUMPTION

Education and awareness, plus penalties for flagrant and persistent causes of waste. How about setting up a system of "Energy Wardens" to patrol urban areas, with similar powers to Traffic Wardens? Many times I have made a point of asking a shop or pub manager why they have several kilowatts of external lighting uselessly burning on a sunny day, only to be treated with indifference, or worse, and thinking "if only I had some authority behind me".

Maybe real reduction will only take place with a reduction in population. (Nature's way)?

Hope to be of some use to the cause.

Mr Doug Hoffman

January 2007

Memorandum submitted by Mr Bill Butcher (CRED 34)**THE ATTRACTIONS OF PERSONAL CARBON ALLOWANCES**

My name is Bill Butcher. I live near Minehead in Somerset. I have three children and I am alarmed at the forecasts of environmental and economic breakdown in their lifetimes as a consequence of climate change. In response, I heat my home with biofuels, light it with low energy light bulbs powered by a green electricity tariff, buy local food at farmers markets, recycle everything recyclable, cycle 20 miles to work in summer on an almost zero carbon electric bike and in the winter get wet at bus stops waiting for infrequent and unreliable buses. Overall I have reduced my personal CO₂ emissions to around one tonne per year while enjoying a full and active lifestyle in a rural area. Most people could do this, but we need government to work with us.

In 2005 I established a Somerset campaign called the Big Switch. This encouraged individuals to switch lifestyles to low carbon living. In 2006 this was adopted by Wildlife Trusts across the SW England region, the campaign attracting over a thousand pledges and a saving of hundreds of tonnes of carbon dioxide equivalent.

Through my personal experiences and those of the Big Switch campaign I am convinced that a policy of Personal Carbon Allowances would be the most effective and fairest way of reducing emissions from individuals. Although campaigns such as CRED (www.cred-uk.org) and the Big Switch (www.bigswitch.org.uk) can inspire thousands of people and show that it is possible for people to change lifestyles without losing quality of life, they will not reach the majority. The biggest disincentive for people to change their lifestyles is seeing that the majority will carry on with carbon intensive living.

Personal Carbon Allowances would be mandatory for everyone and ensure that targets for reducing emissions are met. The policy would use the market mechanism efficiently and preserve choice for the individual. Green taxation, on the other hand, is top down government that does not guarantee behaviour change to meet targets. Personal Carbon Allowances reward carbon thrift and penalise carbon profligacy. Those who wish to carry on emitting at high rates can do so provided they buy extra allowances from those who have some to spare. Provided the policy is combined with effective measures to address fuel poverty, the poor would benefit.

Personal Carbon Allowances, if combined with other policies, would deliver many climate change objectives by gradually suppressing demand for damaging activities, such as driving and flying, while stimulating demand for energy efficient products and services. For example, public transport would be stimulated by many people switching away from cars to avoid paying for extra carbon units. Rural buses need to be five times as frequent and efficient as they are now to make them a viable alternative. Restoring regulation of bus services and investing in better services, using revenues generated by the policy, would generate a win-win situation that would be widely welcomed.

Personal carbon allowances should also allow for a fair distribution of emissions reduction effort between government, business and the individual. The position of London as the global carbon trading centre would be strongly re-enforced, and UK clean energy businesses would be stimulated to expand to help other countries reduce their emissions. The policy could even generate the most efficient economy in the world and put us way ahead of our competitors. This should be attractive to all political parties and present an opportunity for consensus.

Government has an absolute duty to protect its citizens from damaging climate change, a duty that so far it has failed to discharge. I urge the Select Committee to recommend that all necessary research and preparatory work is undertaken without delay for the potential introduction of Personal Carbon Allowances, in line with Phase 3 of the European Union Emissions Trading Scheme, by 2013.

Mr Bill Butcher

January 2007

Witnesses: **Mr John Riley, Dr Laurence Matthews, Mr Bill Butcher and Mr Doug Hoffman** gave evidence.

Q658 Chairman: A very warm welcome to the second panel, which comprises John Riley from the Scottish Action on Climate Change, established by a group of individuals concerned that “not enough was being done by the Government to educate people fully on the potential impacts of climate change and to provide practical tips and solutions to help mitigate the problem”. Mr Riley, would you like to have your five minutes and start our second panel off, please?

Mr Riley: I will give you a little bit of background on how I got involved and what we have done. I am actually an estate agent. A sharp intake of breath!

Q659 Chairman: That is so reassuring because, in the esteem stakes, we are down at the bottom but you are slightly below us! And slightly below that are journalists!

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Mr Riley: Where are the solicitors? I am an estate agent, and where I was coming from was as a concerned parent. A real concern when I started to look into the climate change problem was that there was very little education from the Government on just how urgent the problem was. When I started to research it a little further, I discovered that the Energy Saving Trust had prepared all these leaflets and had not actually mailed them out to anybody. As individual householders we do not have the leaflets, and as small businesses we do not have the leaflets which told us that we could get a free energy survey done—which absolutely amazed me. We went carbon neutral as an estate agency business through—I have forgotten the name of it now—a carbon neutral project. We also started to put out some energy saving tips with our property schedules. That was our way of trying to educate people on the simple things that they could do. I started doing presentations to various groups: Rotary Clubs, schools, business groups—anybody who would listen, basically. The local Rotary Club was one of the few that actually did anything as a result of the presentation. They helped me to organise an eco-forum in our town, which was basically getting all the specialists together with all the various technologies to say, “Here are the things you can do if you want to make a difference”. I suspect that that same Rotary Club will help me with our carbon-neutral project which we are hopefully starting next month, which was as a result of Garry coming and giving his talk in Stirling. It is spreading: slowly but surely. The spin-off group that came from that first eco-forum was Scottish Action on Climate Change, which was a small body of about six people who said, “We should be doing more”. We set up a website; we organised some leaflets with energy-saving tips which were delivered round our community. Seeing as the Energy Saving Trust did not do it, we did it ourselves. We linked up with the I Count coalition, which was a Stop Climate Chaos coalition, and we have been doing our bit as part of that. Along the way I read the book *How We Can Save the Planet*, written by Dr Mayer Hillman, which was emphasising the urgency of the problem and the need for carbon rationing if we are to solve this problem quickly enough. He also talked about the need for an international framework, which was Contraction and Convergence. If we are to solve it as a planet, we can do our bit individually, which I think is important, but if there is no international framework where every country works together, we are on a hiding to nothing. That makes a great deal of sense to me, and we need to do this. When talking to the general public, nobody had heard of Contraction and Convergence. Even though it had been proposed in 1990, nobody knew the term, nobody knew what it was all about, nobody knew the name Aubrey Meyer. That really concerned me, because it made sense that here was a fair framework for solving the problem. I thought, “What can I do to make a difference here?” and I went and interviewed Aubrey Meyer and Mayer Hillman. I put that interview on to a DVD and sent that DVD to all the MSPs in Scotland. We are now in the throes

of preparing a better-quality one for all you MPs, to explain what Contraction and Convergence is and how it works. We are also trying to put some money behind a cinema-quality film, which will cost us £2 million to put together, to explain it to the world. You have seen *An Inconvenient Truth*; here is a potential solution. So if you have £2 million to spare, I am all ears!

Q660 Chairman: Not only have we heard it here first, but also an Oscar bid! I am very impressed. Thank you very much indeed for your contribution. We now move to Laurence Matthews, who has a background in management, science and forecasting and has worked in universities and the transport industry. He is now a writer.

Dr Matthews: I would like to make two points, and I am speaking as an ordinary householder. I live in a normal house and I am not a campaigner. As you have heard, my background is in industry. My wife and I are trying to do our bit. However, sometimes I do think, “Why do I bother?” This is not because I do not care; I am fully aware of the seriousness and urgency of tackling climate change. It is more a sense of frustration and helplessness. If I use my car less but all around I see car travel and air travel rising, then my efforts will be futile. We have already seen some excellent examples of reducing carbon here today, but if overall carbon emissions are still going up then these will not be of any use. The psychology of all of this reminds me a lot of watching management trying to implement change in industry. Changes in organisations work best when the people involved are inspired by a clear goal; when they understand their part in the plan; and, crucially, when everybody sees that everyone else is also doing their bit—and that is not just the workers but also the management. Similarly with carbon reduction, I feel that there is a sort of social contract here. We are being exhorted to do our bit, but the Government need to play their part too if this is to happen. For my money, the Government’s part of the bargain has to be to bring in a serious, mandatory emissions cap. It is as simple as that. You are probably worried that we will resist and protest. No doubt some of us will. But others are far ahead of you and we want you to stop dragging your feet. The majority of us, I guess, are in the middle. Most of the time, we want to get on with the rest of our lives. However, we do want to stop climate change and we cannot do it on our own. Give us credit. We know that a cap, just like income tax, has to be mandatory if it is to work. Without one, all your efforts to encourage energy efficiency, energy saving, and so on, will be at best ineffective and at worst a distraction from effective action. My second point is that we also need to tackle emissions fast. If it is to be done fast, it has to be simple. I have been looking round and the simplest approach I have come across that will work in the UK is one called ‘Cap and Share’; but I have noticed that this is not amongst the options in various reports prepared for Defra. Perhaps people do not realise just how simple it could be. If I may, I will describe Cap and Share in two sentences. Determine a national cap, as per

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Contraction and Convergence—as with any cap and trade system—but simply share it out equally amongst all the adults in the country. That is all of it, not just 40%. As an individual, you get this as, say, monthly share certificates which you can sell through banks or post offices to the primary fossil fuel suppliers. That is it. No need for carbon debit cards; no need for tracking individual transactions; no need for policing emissions trading with tens of thousands of companies. For me as a consumer, I just pay more for carbon-intensive goods, and that is just like a carbon tax, but I get the money from selling my certificates. If I use less carbon than my share, then I come out ahead. That system is transparent; it is fair; it is achingly simple; but also it is empowering. My certificate is exactly my share of the carbon budget. It is my tangible connection with the country's national effort to reduce carbon. If you will allow me a soundbite, it is an upstream system but it has a downstream psychology to it. I am not wedded to that particular scheme: any scheme will do. We just need to reduce our emissions, and this is one way of doing it quickly, simply, cheaply and fairly. There may be other ways too, but this is one to beat. This is a mark in the sand. There is no excuse for doing less than this or for doing it less quickly. This could be done next year. Whatever method is chosen, my plea to the Government would be this. Please bring in a cap; please keep it simple; please do it fast. People like me would be so relieved and so inspired that we would carry out our part of the agenda quite happily.

Q661 Chairman: Thank you very much indeed. I should make it clear that we are not the Government. Sometimes we may want to be, but we are here to listen and to put ideas to the Government, so thank you for making that so very clear. Now Mr Butcher, who established the Big SWitch programme in Somerset, to encourage people to switch to low-carbon living. He is active in reducing his own household's carbon dioxide emissions. Mr Butcher, share your experiences with the Committee.

Mr Butcher: I have three children and I am alarmed at the forecasts of environmental and economic breakdown in their lifetime, as a consequence of climate change. In response, I heat my home with biofuels; light it with low-energy light bulbs powered by a green electricity tariff; buy local food at farmers' markets; recycle everything that is recyclable; cycle 20 miles to work in the summer on an almost zero-carbon electric bike; and, in winter, get wet at bus stops, waiting for infrequent and unreliable buses. Overall, I have reduced my personal CO₂ emissions to around one tonne a year, while enjoying a full and active lifestyle in a rural area. I believe that most people could do this, but we definitely need government to work with us. In 2005 I established a Somerset campaign called the Big SWitch. This encouraged individuals to switch lifestyles to low-carbon living. In 2006 this was adopted by Wildlife Trusts across south-west England and the campaign attracted over 1,000 pledges and a saving of hundreds of tonnes of carbon. Through my personal

experiences and those of the Big SWitch campaign, I am convinced that a policy of personal carbon allowances would be the most effective and fairest way of reducing individual emissions. Although campaigns such as CRed and the Big SWitch can inspire thousands of people and show that it is possible for people to change lifestyles without losing quality of life, they will never reach the majority. It is our experience that the biggest disincentive for people to change their lifestyles is seeing that the majority will carry on with carbon-intensive living. Personal carbon allowances would be mandatory for everyone and ensure that targets for reducing emissions were met. It is therefore certainty of outcome that has to be one of the main attractions of this potential policy. It would use the market mechanism efficiently and preserve choice for the individual. That is absolutely critical from the individual point of view, I believe. Regulation and taxation do have their place in the overall policy mix, but people do not like being told by government precisely what to do. They want choice, but they also need to be told the constraints, the limits on the effects of their behaviour. Personal carbon allowances reward carbon thrift and penalise carbon profligacy. Those who wish to carry on emitting at higher rates can do so, provided they buy extra allowances from those who have some to spare. Provided the policy is combined with effective measures to address fuel poverty, the poor would benefit. Personal carbon allowances, if combined with other policies, would deliver many climate change objectives, by gradually suppressing demand for damaging activities, such as driving and flying, while stimulating demand for energy-efficient products and services. For example, public transport—which is dear to my heart—would be stimulated by many people switching away from cars to avoid paying for extra carbon units. Rural buses need to be five times as frequent and efficient as they are now, to make them a viable alternative. Restoring regulation of bus services and investing in better services using revenues generated by the policy—for example, from auctioning off allowances to business—would generate a win-win situation that I believe would be widely welcomed. Personal carbon allowances should also allow for a fair distribution of emissions reduction effort between government, businesses, and the individual. The policy could even generate the most efficient economy in the world and put us way ahead of our competitors. Finally, government has an absolute duty to protect its citizens from damaging climate change: a duty that so far it has failed to discharge. I urge the Select Committee to recommend that all necessary research and preparatory work is undertaken without delay for the potential introduction of personal carbon allowances.

Q662 Chairman: Thank you for putting that so very clearly. The final member of our second panel is Mr Doug Hoffmann, who has the shortest introduction of all, because he is a retired energy efficiency officer for a local authority. Which authority was it, Mr Hoffman?

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Mr Hoffman: Waveney District Council—just down the road.

Q663 Chairman: So you are truly local. The floor is yours.

Mr Hoffman: I am not truly local. For 15 years I was not terribly energy-efficient, I must admit, because I commuted back to Gloucestershire every other weekend.

Mr Drew: God's own county!

Q664 Daniel Kawczynski: Stroud, no doubt!

Mr Hoffman: The Forest of Dean, actually. However, I will be uncharacteristically brief. My pet beef at the moment is the amount of energy wasted with unnecessary lighting, mainly during daylight hours. I returned to Lowestoft recently for family reasons, and I could not help but notice multi-storey car parks, of which Lowestoft has two, brightly lit all night, despite the fact that the upper levels on one are locked off after midnight and the entire one at the Britten Centre is locked, barred and bolted from 9 pm onwards. One of the things I did before I left was to get the security man at the Britten Centre car park to switch lights off when they locked up, despite howls of protest from the politically correct brigade who said, "We must leave some lights on, in case somebody breaks in and they might hurt themselves"—to which I said, "Good"! However, I did establish that procedure. At the other one, the lights were switched off by time switch for the upper levels. When I came back, I found that everything is ablaze with light. Being suitably incensed, I reported back and I was told, "Oh, no. They go off. They are on time switches". Patently they were not going off. I tried reporting higher up the tree and it was, "Oh, we'll look into it". Nothing happened, so I went to the *Lowestoft Journal*, who published an article. A council spokesman said, "They do go out at night". That was 23 November. Fast-forward to 12 January when, after lots of prodding from the *Lowestoft Journal*, the same council spokesman—who is now communications consultant—says, "We can't switch them off at Battery Green car park because they are wired in with the ticket machines and the ticket machines have to be kept warm". I am not sure that is completely true. However, that is the sort of response you get from a local authority. What I am trying to get round to is this. How can local authority be made accountable to central government? I approached the Carbon Trust, because we have lost the regional energy efficiency officer we used to have—a chap called Joe Heffer, who took early retirement. Before he retired, his job description was altered. The lady who has taken over from him, who has no contact at all with local authority, suggested that I tried the Carbon Trust. They said, "No, we are business and commerce. Try the Energy Saving Trust". The Energy Saving Trust said, "No, we deal with domestic energy matters. Try the Carbon Trust". I have in front of me a letter from Ian Pearson, Minister of State for Climate Change and the Environment.

Q665 Chairman: What does he say he is in charge of?

Mr Hoffman: This, funnily enough, is through my local MP back in the Forest of Dean, where I brought up the topic of what a good idea it would be to have energy wardens with the same powers as patrolling traffic wardens. If the Government have money to throw away on these proposed inspectors for DIY improvements in households, so that they can jack up your council tax, would it not be better spent doing something more positive to reduce energy consumption? He took up the cause and this letter is a result of his making enquiries. According to Ian Pearson, both the Carbon Trust and the Energy Saving Trust do provide support for the public sector. Local authorities are part of the public sector, I always thought. Yet when I contacted those organisations, both denied having any contact whatsoever. So now I am stuck. All I can do is go to the press. However, I do take heart from the previous speakers on the Ashton Hayes project and I note that they are intending to expand to more populated areas—the city of Chester, anyway. That was one of the things I was going to say. How can we apply this sort of thinking to a fair-sized town? It has to be through the local authority; but how can the local authority do it? In particular, a cash-strapped one, which has always been the problem with Waveney where, despite lots of green posturing, any energy efficiency projects had to be cash-driven. A lot of very worthwhile projects were knocked on the head because we could not make a two-year-or-less payback on paper.

Q666 Chairman: Thank you very much indeed. You are not planning to move to Ashton Hayes, are you?

Mr Hoffman: I would not mind. I have a grandson who lives in Warrington.

Chairman: Thank you all very much indeed for your contributions.

Q667 Daniel Kawczynski: First of all, Mr Hoffman, you have a very good MP in the Forest of Dean, Mark Harper.

Mr Hoffman: Yes, indeed.

Q668 Daniel Kawczynski: I would suggest that, given what you have said to us, you should definitely go to the press. If a minister is giving you inaccurate advice, you should certainly take that up with the press. My question is to Mr Butcher. You have a connection with Somerset council, I believe. You are employed by Somerset council, are you?

Mr Butcher: No, I am not. I am employed by the Somerset Wildlife Trust.

Q669 Daniel Kawczynski: What connection do you have with Somerset council, if any?

Mr Butcher: No formal connection. The trust is working with the council on one or two partnership projects.

Q670 Daniel Kawczynski: In my area in Shropshire, we have been so impressed with the work of Somerset council—you will know the sort of work that they are doing in terms of biodiversity

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schemes—that we have had representation from Somerset council to tell us how we could emulate that. It is very encouraging work that they are doing down there in Somerset. On your point that people should be monitored, somehow have carbon targets for themselves, and that this should somehow be managed by the state, you have made that decision consciously yourself to reduce your CO₂ to one tonne, but it would be an extremely bureaucratic and costly process for the state to make sure that was implemented by every single citizen. Is it not better to ensure that people do it on a voluntary basis, particularly as there is growing interest amongst the young to do this anyway?

Mr Butcher: That is a very key point. I personally do not believe that a voluntary basis will work. You are probably seeing an unrepresentative sample of citizens here in your session today. We are all the keen ones, the committed ones, the early entrants, if you like, into reducing carbon emissions. There are some fantastic things going on. However, this sort of voluntary activity, if it ever reaches 100% of the population, will take 50 years—two generations—and that is far too slow to address the urgent climate change crisis. The Government are about to introduce a statutory target for reducing emissions by 60% by 2050 in the Climate Change Bill, as I understand it. The next big question is how you will ensure getting there. Your choices are regulation, taxation, or some form of cap and trade system. It seems to me that, of those options, a cap and trade system, personal carbon allowances, is the least state-controlled option out there, because it does preserve choice. Okay, the “state” may be an independent, monetary policy-type committee; it may be that the Carbon Committee which will be set up under the Climate Change Bill should run it, rather than government. There is an element of bureaucracy, but the Centre for Sustainable Energy produced a report for Defra in December which showed that there is potential for linking it with the banking system, for example, with minimal additional administration. So I believe that it will work; it can be done with acceptable administration cost; and it will be seen to be extremely fair by individuals.

Lynne Jones: I have a comment for Mr Riley, a very quick question for Mr Butcher, and perhaps a more complicated question for Dr Matthews. First of all, you have done a lot to improve the image of estate agents this morning! As regards your DVDs, however, I have to tell you that MPs get loads of DVDs and we very rarely—or perhaps I should only speak for myself—get the time to watch them. I would advise you to send your DVDs to our constituents, perhaps to inspire them to nag us about doing more on climate change. I think that would be more effective and have more of an impact on MPs than sending this material direct to us. Secondly, Mr Butcher, you cycle to work in the summer but not in the winter. I do not cycle as far as you do but I do it all year round. Why do you not cycle in the winter? To Dr Matthews, I think that what you have advocated is the Feasta Cap and Share scheme. Would that not require the setting of a price for

carbon? I am not exactly familiar with the scheme, but are you not basically saying that everything we consume should have a carbon price added to its cost, and then we get these allowances which offset the extra cost we are having to meet as consumers? Is that how it works? How would you set the price of carbon? Those are my three comments.

Q671 Chairman: Mr Butcher, do you want to take us out of our misery and tell us why you are not pedalling in the winter months?

Mr Butcher: Maybe I am just too soft! It is a perception of personal safety. Cycling on busy roads in the dark is just a bit beyond my acceptance level of personal risk.

Q672 Chairman: Before we have a debate on cycling, Dr Matthews, deal with the difficult issue.

Dr Matthews: The price is set by supply and demand, just as it would be with auctioning upstream. I do not want to take up the Committee's time with anything technical. If the Committee would find it useful, I will send in a couple of pages of notes about that.

Q673 Chairman: That would be very helpful, thank you.

Dr Matthews: The main point I was trying to make is that it can be done without any bureaucracy, very simply, in a fair way, and it would tackle a lot of the problems of complication in introducing something like personal carbon allowances. It could be done next year, and as a transitional method to dovetail seamlessly from existing schemes like the Emissions Trading System, which are already partially there, through to personal carbon trading—

Q674 Lynne Jones: Every item that you consume, every journey, would have to have an extra tax on it, would it not?

Dr Matthews: It would be fed in right at the top end and would feed its way through invisibly, just like a carbon tax. What you would find is that carbon-intensive products and services, such as buying your petrol or gas for your home heating, would become more expensive; renewable sources or less carbon-intensive goods and services would not be going up. There would therefore just be the normal price incentives. I very strongly agree with somebody on Panel 1 who spoke earlier, saying that is the most effective way of changing behaviour in the majority of the British public, who are not in the forefront of enthusiasm for carbon reduction schemes. We are caught in a serious psychological bind here of stress. We know how urgent the problem is. It is not sufficient to think about what scheme might be introduced in 2020; we need to tackle the problem now, or else we shall have to face our children and tell them why we did not. This is something that could be done very quickly.

Q675 Chairman: Can I follow up on a practicality? As MPs, we have to deal with what I call the hard luck cases. I will give you just two examples. Both of you who talked about carbon allowances talked

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about an equality of allocation between individuals. How do we deal with the difficult case? For example, the elderly person or disabled person who needs to consume an above-average use of energy because of their personal condition, or a situation where somebody lives in a house of multiple occupation, where they have a bad landlord, a complete inability to influence the thermal property of where they are living, and therefore cannot take action to maximise their carbon budget.

Mr Butcher: The link with fuel poverty is a very key question. For personal carbon trading to be fair and effective, it has to be combined with a much-increased government programme to address fuel poverty issues. So that, while overall the policy would be progressive, ie it would produce a net benefit to the poor and disbenefit to the more affluent, there are exceptions, particularly in the area of fuel poverty, which need to be addressed separately. The question of landlord versus tenant I do not have a ready answer to, but I feel sure that those clever civil servants the Government employ could work that one out, if they put their minds to it.

Chairman: That is an interesting observation. David Drew?

Q676 Mr Drew: What the three of you have talked about—and indeed even maybe Mr Hoffman—is the balance of tolerance that may actually be challenged by this threat that we are faced with. We have to stand for election. That is one of the sad things in politics. The problem at the moment is that, when people talk about some of the direct controls that you have advocated—which I personally have advocated—the view in the gossiping rooms of Westminster is that the public will just not wear this. They may wear a market solution, gradually, but if you start telling people, “You are not going to use your car. You are not going to light your house. You are not going to be able to use this particular . . .”—I know the argument is, “Well, there’s choice”, but choice becomes very limited if you really want to deal with this issue. How would you advise us, as politicians, to go out and sell this idea?

Mr Butcher: It is probably the central issue overall. If government tries to tell individuals precisely what to do, how many light bulbs they can have on at a time, or whatever—or even how many flights they can take—they will be extremely unpopular and will suffer at the next election. However, if government says to the public very clearly, “Okay, we have a major problem here. We are all in this together—government, industry, individuals—we have to solve this, and it is urgent. We have maybe five or 10 years to act. Government are going to do their bit in the public sector. They are also going to incentivise industry to do its bit, through emissions trading and other mechanisms. Now we need the public, individuals, to do their bit. We are not going to tell you precisely what to do, but these are the limits within which you can act, through a cap and trade system”—Contraction and Convergence, as we have heard—then, overall, the majority of people will see that as reasonable and fair. There will be howls of protest from some parts of the press, as there always

are, but I think that the majority will go with it. In particular, if it can be taken out of the political arena as far as possible and a consensus is developed, so that it is not a party political matter, and if targets are seen to come from the science approach rather than politicians, then you will be able to get it through.

Dr Matthews: I would like to suggest that occasionally our elected representatives are too timid in giving us the benefit of the doubt of being able to see this sort of thing. We are hard-pressed motorists but then we get home and we are parents. We are able to understand the difference between two questions: “Would you pay more to save the planet?” and “Would you vote for a plan that made everybody, including you, pay more to save the planet?”. A lot of these do not actually reduce to paying more. They will be portrayed that way by vested interests, but what they require people to do is to change behaviour. Not go and live in a mud hut or anything; not necessarily change their behaviour drastically; but definitely to change their behaviour. If people do not realise that they have to change their behaviour, we have a serious problem here. I believe that people do realise that.

Mr Riley: I would draw the analogy with 1939. When we went to war, we knew we had to limit our consumption of food. We did not mess about, trying to persuade people to eat a bit less or change the taxation on certain foods; we just brought in rationing, because we knew it had to be done. We are in a similar situation today. We have to do it.

Q677 Chairman: Do you not think, Mr Riley, that the essential difference is that it was very evident to everybody in 1939 what the common enemy was?

Mr Riley: Yes.

Q678 Chairman: Part of the problem, which has come out both from this panel and the previous one, is getting through to people that action is needed now and it is not an action that can be postponed.

Mr Riley: Make the film *An Inconvenient Truth* free for everybody to see—seriously.

Q679 Chairman: Plus your own £2 million blockbuster!

Mr Riley: Absolutely.

Chairman: The last question is from David Lepper.

Q680 David Lepper: We have heard a lot about your views, all four of you, on the importance of decisive action, whatever that may be, by central government or local government. Mr Riley, you said a couple of things that got me thinking about networks spreading information and advice as well. You are an estate agent and you told us about some of the actions you have taken as an estate agent, through your profession. Do you find other estate agents like-minded, and is there any scope for them?

Mr Riley: No, that is a problem.

Q681 David Lepper: You also mentioned another network which I found interesting and that was the support you had had from Rotary. I imagine that

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was financial support. I am wondering whether there is any scope there in terms of national or international spreading of information through an organisation such as that, which you think is feasible.

Mr Riley: As far as the estate agents are concerned, I failed miserably. I am part of an organisation called RE/MAX, which is one of the biggest estate agent networks in the world. I presented to the 70 office owners in Scotland, “Climate Change: the problem—it’s urgent. I have a pile of leaflets here, guys, which you can give out with your schedules, if you would like to purchase a few”. Nobody took me up on it, out of 70 estate agents. That was a bit galling. That did not work, therefore. In terms of the network, I think there is a big job that can be done. I am going to a meeting on Saturday where we will discuss how we can use various networks to spread the Contraction and Convergence message. If the churches are on board, there is a big job that the churches could do here to spread it to their congregations. So, yes, I do believe that is a way of doing it. The forum today is so interesting, because we are listening to what other people are doing. We are not aware of what is happening out there in the big world. It would be great to get some form of networks spread out across the country, where we can all go and listen to what is happening and take that message to our communities.

Lynne Jones: It is a shame that Mr Riley appears to be the exception that proves the rule!

Q682 Patrick Hall: Listening to this talk about cap and share, cap and trade, and all sorts of concepts around carbon trading allowances, what would happen if we had one of these schemes for this country and there were more people needing to

consume more than their allowance and therefore needing to buy credits from people consuming less? It just does not add up, does it?

Mr Butcher: That is the beauty of the market mechanism. The response there is that the price of carbon units goes up, until the system is back in balance.

Mr Riley: There is the incentive to look at low carbon technologies and reduce your energy use. You cannot just say, “This is an infinite amount of carbon units”. It just would not work. It has to be capped, if we are going to stay safe.

Dr Matthews: The property market works perfectly happily, in the real world, here and now, on the basis of there being a finite supply of land in the country. We just have to move to a system where people realise that there is a finite supply of carbon emissions which we can, as a planet—and certainly as a country—emit and survive. What is safe?

Q683 Patrick Hall: But you have to compel people to participate in this.

Dr Matthews: Exactly.

Q684 Patrick Hall: And that is a wholly different world from the one that we are in.

Mr Riley: What is the alternative? That we try and persuade people and, 50 years down the road, we still have not managed to persuade them? Some scientists are saying that we need a 90% reduction by 2030.

Patrick Hall: Some of you are going to write to the Committee to describe in simple English how this would work, and that would be helpful.

Chairman: Thank you very much. It is always good, as a politician, to be posed the really difficult question and, in terms of the challenge you have thrown out with reference to personal allowances, you have genuinely given us a lot of food for thought.

Supplementary memorandum submitted by Dr Laurence Matthews (CRED 13a)

SUMMARY

1.1 This note responds to an invitation to outline “Cap & Share”, following my evidence to the Committee on 31 January 2007. Cap & Share (www.capandshare.com) is a cap and trade system which has been developed by the Irish NGO Feasta (the Foundation for the Economics of Sustainability). After outlining the relevance of Cap and Share to the “citizen’s agenda”, this note gives an explanation of the scheme, and a quick summary of its pros and cons relative to other schemes. Finally a simple numerical example is appended to make it “real”.

RELEVANCE TO THE “CITIZEN’S AGENDA”

2.1 The first duty of a government is to protect its citizens, and averting catastrophic climate change is part of this duty. This is an urgent global problem, and needs to be tackled using a global framework such as Contraction and Convergence (C&C). Implementing such a framework requires a mechanism for limiting the carbon emissions in each country to defined limits or “caps”.

2.2 Emissions reductions in one place are futile if emissions elsewhere grow unchecked. All local initiatives, whether on an individual, household or community basis, will be futile unless we impose an overall UK or EU cap. (This note refers to the UK throughout, but is equally applicable to an EU-wide scheme). In a similar way, and as references to China illustrate, the UK cap will itself be futile unless it forms part of a global agreement.

2.3 However, bringing in a UK cap swiftly would do two things: it would furnish experience with a cap and trade system, and possibly influence the shape of systems later adopted globally; and it would strengthen negotiators' efforts to bring in a global solution such as C&C. Only with such a framework will climate change be tackled effectively, and will local initiatives be meaningful.

WHAT EXACTLY DO WE MEAN BY A "CAP"?

3.1 A cap is a fixed amount of CO₂ emissions the country allows itself to release in a given year. The cap is set by policy makers, based on scientific advice, to ensure that safe levels of greenhouse gas concentrations are maintained. (Clearly this can only be done with reference to a global framework such as C&C). The cap will vary from year to year, with the amounts for future years getting progressively smaller. Large reductions will be needed, but these can be phased in gradually (to allow for experience to be gained with carbon reduction schemes and technologies) provided that we start now.

3.2 A cap is a reliably achieved limit, and so a cap can only work on a mandatory basis. Aspirations or piecemeal actions do not amount to a cap. Applying carbon taxes does not equate to a cap, because the imposition of a tax does not guarantee any fixed level of emissions.

3.3 Finally, a cap must embrace the whole economy. Including large companies in an Emissions Trading Scheme (ETS), but excluding small companies, would not provide complete coverage and so would not constitute a cap.

CAP AND TRADE SCHEMES

4.1 Cap and trade schemes enforce a cap by issuing permits, which need to be acquired and then surrendered against carbon emissions. Only a finite number of permits are issued, which guarantees that the cap is met, but these permits are tradable. What differentiates the various cap and trade proposals is who has to acquire and surrender the permits.

4.2 An upstream cap and trade system applies at the point where fossil fuels enter the economy. The fossil fuel suppliers, those who import fossil fuels or extract them from the ground, are the ones who have to acquire the permits.

4.3 By contrast a downstream system such as Domestic Tradable Quotas (DTQs) applies at the "end-user" end of things. All individuals (or households) and companies have to acquire permits. Individuals, who account for some 40% of emissions in the UK, have personal carbon allowances and engage in personal carbon trading. Companies participate in a parallel ETS.

CAP AND SHARE

5.1 The Cap & Share system takes the national cap (all of it, not just 40%), and simply shares it out equally among all adults in the country. Individuals get their share as, say, monthly or quarterly share certificates, and sell them—through banks or post offices—to primary fossil fuel suppliers. The fossil fuel suppliers have to surrender certificates to match the fossil fuels they introduce into the economy. That's all there is to it.

5.2 The price paid by the fossil fuel suppliers for the certificates is then built in to the price of fossil fuels, which then flows through the economy (as with a carbon tax). For me as a consumer, carbon-intensive goods and services will cost me more. However, I get the money from selling my certificates, and if I use less carbon than my share, I will come out ahead.

5.3 The numerical example in the appendix to this note illustrates how this works in practice.

AN UPSTREAM SYSTEM

6.1 The "cap" in Cap & Share operates at the upstream end—at the point where fossil fuels are introduced into the economy. This means that it is simple, cheap and fast to implement. All these advantages stem from the fact that fossil fuel suppliers are the only entities which need to be monitored and policed. (This involves perhaps a hundred companies, as opposed to tens of thousands under DTQs).

6.2 Cap & Share is efficient (since it uses price signals throughout the system) and effective (since it captures all emissions, in particular the emissions from all companies, regardless of any size threshold). It is also transparently equitable.

6.3 These advantages of Cap & Share also apply to other upstream systems such as the Sky Trust proposal, which simply auctions the permits and recycles (redistributes) the revenue raised. If the recycling is by sharing it out equally, then it is equivalent to Cap & Share. But Cap & Share has a very different psychology to it.

A DOWNSTREAM PSYCHOLOGY

7.1 For me as a consumer, there are two important factors built into the psychology of Cap & Share.

7.2 Firstly, my certificate (denominated in tonnes of CO₂) is exactly my share of the country's carbon budget, so is my tangible connection with the national effort to reduce carbon. (Contrast this with DTQs where individuals only see the 40% attributable to direct emissions). This directly confronts the feelings of helplessness and dislocation felt by much of the population, by providing "ownership" of the problem and its solution. (And globally, under C&C this would also become my share of global emissions).

7.3 Secondly, Cap & Share is "rights-based". It recognises my entitlement to my share, which I then sell upstream, rather than my being handed down an "allowance" or "ration". It is not a state handout (which I have to trust the government not to raid in the future). It captures a robust fairness (equal shares for all is unarguable, in the same way that one-person-one-vote is unarguable as the basis for democracy).

7.4 Both these are strong advantages when considering the public acceptability of the scheme. But these advantages are achieved without the need to educate everyone in carbon budgeting, and without any of the cost of the machinery for tracking individual carbon purchases or the "Big Brother" concerns (misplaced or valid) associated with it.

CONCLUSION

8.1 An effective cap and trade system which engages the public and resonates strongly with a global solution can be achieved without resorting to full-blown carbon trading between individuals and companies. Because of its simplicity, Cap & Share could be implemented extremely quickly. And with climate change, time is of the essence.

APPENDIX

A NUMERICAL EXAMPLE

9.1 This artificial example is purely to illustrate Cap & Share, and to show how it achieves the same results as personal carbon trading using Domestic Tradable Quotas (DTQs). In this simplified example we suppose petrol is the only fossil fuel and that the country only has two people, A (for Affluent) and B (for Basic).

9.2 Suppose that petrol is 90p per litre, and that A uses 100 litres per month and B uses 20 litres per month, so that their total consumption is 120 litres.

9.3 Suppose that we wish to achieve a cap on emissions that equates to 110 litres per month. We issue certificates totalling 110 litres; the fossil fuel suppliers have to acquire these certificates, and are thus limited to supplying 110 litres of petrol into the system. But A and B are used to consuming 120 litres between them, so there is more demand than supply. This means that the petrol price goes up.

9.4 As the price goes up, A and B reconsider their use of petrol, and start to use slightly less. The more the price goes up, the less they will use. Suppose that by the time they have reduced to 110 litres the price has gone up to £1.20 per litre. We might have A using 92 litres (down by 8%) and B using 18 litres (down by 10%).

9.5 Meanwhile let's look at the fossil fuel suppliers. Suppose they are used to making 22p per litre profit. They are now only selling 110 litres instead of 120 litres, so they increase their margin by 2p per litre to make the same amount of profit overall (since $120 \times 22p = 110 \times 24p$). They are charging 30p more for petrol (it is now £1.20, up from 90p), and so can afford to pay up to 28p per litre for the certificates. So (in a competitive market) the certificate price will be 28p.

9.6 Under Cap & Share, A and B get certificates for 55 litres each, and they sell these certificates at the bank, getting 28p each for them. So A and B fare as follows:

	A	B	
Petrol cost	£110.40	£21.60	at £1.20 per litre
Income from certificates	−£15.40	−£15.40	55 x 28p
Total cost	£95.00	£6.20	

9.7 Next, let's look at exactly the same scenario under DTQs. We start with the same situation: petrol at 90p per litre, A using 100 litres per month and B using 20 litres per month, giving a total consumption of 120 litres.

9.8 Suppose once again that we have a cap of 110 litres. This time we issue A and B with a quota of permits for 55 litres each. These permits are needed to buy petrol.

9.9 This time the fossil fuel suppliers aren't involved. As before, they can only sell 110 litres instead of 120 litres, so they increase their margin by 2p per litre to make the same amount of overall profit, and the pump price rises to 92p per litre.

9.10 A is used to consuming 100 litres, so wants 45 more than his allocation of 55; and B is used to consuming 20 litres, so his allocation of 55 is 35 more than he needs. So A wants more permits than B has to sell, and the price of permits goes up.

9.11 As the price goes up, A and B reconsider their use of petrol, and start to use slightly less. The more the price of permits goes up, the more A has to pay for each permit, and the more B can get for any unused permit. The price of petrol is effectively the pump price plus the going rate for a permit, and the more this effective petrol price goes up, the less petrol they will use. They will behave exactly as before: by the time they reduce to using 110 litres, the effective price has gone up to £1.20 per litre. At this point the going rate for permits will be £1.20 – 92p = 28p.

9.12 As before we will have A using 92 litres and B using 18 litres. This is achieved by B selling 37 permits to A. So A and B fare as follows under DTQs:

	A	B	
Petrol cost	£84.64	£16.56	at 92p per litre
Buying/selling permits	£10.36	–£10.36	37 x 28p
Total cost	£95.00	£6.20	

Notice that the total cost is exactly as before. But this time A and B have had to use up permits (using their carbon debit cards) every time they bought petrol.

NOTES

1. This example has deliberately been kept simple (although factors such as transaction charges, different fossil fuels, the separate treatment of electricity, etc could easily be incorporated).

2. It serves to show that Cap & Share can have an equivalent effect to DTQs. Indeed Cap & Share can be implemented as a transitional measure which could evolve into personal carbon trading later if desired. With Cap & Share, as with DTQs, there is a need to decide on details (eg how to treat children) and a need for concurrent actions (eg measures to address fuel poverty).

3. There isn't a problem of "petrol running out at the pumps" under Cap & Share, any more than there is under rationing or DTQs. Excess demand is taken care of by the price rising; in the case of DTQs it is the price of permits, in the case of Cap & Share it is simply the price of petrol. In the same way, land never runs out either. Nobody can afford as much as they'd like, but that's a different matter.

4. Companies, as well as consumers, are having to buy petrol at the higher prices, and will tend to pass these prices on, eventually to consumers. The price rises of various goods and services will depend on how much fuel has been used in their manufacture and distribution. Carbon-intensive goods will go up somewhat, and low-carbon goods hardly at all. This all happens automatically, and consumers simply see the final retail prices. As a result, consumers will gradually tend to favour low-carbon goods and services. These effects will differ under DTQs depending on how ETS permits are allocated to companies. As an upstream system, Cap & Share can embrace Steve Sorrell's "hybrid" approach to dealing with the existing ETS as a transitional measure.

Dr Laurence Matthews

February 2007

Supplementary memorandum submitted by Doug Hoffman (CRED 27a)

I would like to add to my limited presentation, which I hope I kept brief and to the point.

I tend to have an opinion on most topics concerning energy efficiency and conservation, with much of it based on practical experience. I was once asked by my manager if I had ever met an "expert" with whom I agreed, to which I replied; "Many, but not usually those trying to sell me something".

There is an awful lot of hype surrounding environmental projects, probably produced by P.R. men trying to induce some enthusiasm in a largely apathetic and ignorant public. Trouble is; sooner or later, reality butts in with a shout of; "Look at the King: he's got no clothes", and credibility is destroyed.

As a possible example; will planting trees really effectively offset Carbon Dioxide produced at 35,000 feet? OK, it's better than nothing, but come on; a restriction on flying merely for the self-gratification of a cheap holiday abroad would be more use. Maybe the masses could then spend a subsidised working holiday planting whole forests of trees. Even then, if the trees are deciduous, they tend to shut down in winter, when Carbon Dioxide emission is likely at a peak. I know we must think global, but there is a limit to a tree's sphere of influence.

My real gripe is false claims, whether from equipment manufacturers or outfits claiming to be “green”. In my, admittedly limited, experience, despite “green” posturing at executive level, businesses and Local Authorities seem to have middle management either too lax, or overwhelmed with core business, to check, or even care, whether staff switch items off when not needed, or set controls appropriately. Worse still, they resent outside interference.

Whether incentives or threats are required to produce improvement will be up to someone more psychologically educated than me to decide. I can only point out lapses of which I become aware, and where better to start than the Authority for whom I tried to reduce energy use for years? How to get them to listen?

I shall be contacting CRed through their affiliation with Waveney Chamber of Commerce in the hope of gaining more clout with Waveney District Council than I had when I was their Energy Efficiency Officer.

Also on the subject of false claims, there seems to be an appalling lack of consideration of the effect of varying severity of successive winters when assessing the effectiveness of energy efficiency measures applied to heating systems. David Miliband himself said, in a Radio 4 interview, that it was difficult to apply energy targets due to weather variations. Hasn't he heard of the concept of Degree Days?

He also said that targets don't reduce energy use/actions do, which I heartily endorse. My philosophy has always been that “monitoring and targeting” is all very well, but let's have some “observing and reacting”. Of course it costs more, and means someone has to actually do something other than clack at a keyboard and look at a screen all day.

If all that wasn't bad enough, we now read of an attempt by the American Enterprise Institute to offer inducements to U.E.A. scientists to put a “spin” on the latest I.P.C.C. report (A.E.I. is apparently funded by U.S. oil Co's).

It puts me in mind of a small U.K. company who commissioned unbiased, reported, tests on their innovative central heating control system, by the reputable E.A. Technology, at Capenhurst, then chose to ignore some of the less palatable findings when publishing their “proven savings” claims. It is my understanding that they went bust a couple of years ago, which is a pity because their system had some merits.

In the same vein, Waveney District Council's leader proclaimed the green credentials of the Authority, whilst locked multi-storey car parks remained illuminated all night, and described suggestions that the Council had been wasting energy, as “unhelpful”. I could be a damned sight more helpful if they hadn't been in denial in the first place.

Enough of my favourite soapbox. In my original submission, I wrote that I was uncertain about the parameters of microgeneration, but I was somewhat confused by claims of the effectiveness of the domestic Combined Heat and Power. I have recently become aware of criticism, in the *New Scientist*, (September 2006), of the cost effectiveness of small scale (ie individual household) photovoltaics and wind turbines. At present these do lack the economies of scale, but do demonstrate commitment on the part of the householder, and every little helps. (When the ½ pence was abolished, the decision to round up or down must've made a significant difference to the profits of banks and businesses). Also, the householder striving for self-sufficiency will become even more aware of the need to reduce energy consumption to conserve their hard won resource, so that the proportion produced in-house becomes an ever greater percentage of the whole.

That is why I will always advocate that Energy Efficiency and Renewables should go hand-in-hand.

Once again, the foregoing opinions are personal and do not necessarily reflect Solar Energy Alliance policy.

Doug Hoffman

February 2007

Supplementary memorandum submitted by Mr Bill Butcher (CRED 34a)

PERSONAL CARBON ALLOWANCES

A brief guide to how the policy would work

The purpose is to provide incentives to individuals to reduce carbon emissions, through rewarding carbon thrift and penalising carbon waste. It is a cap and trade system.

Government, or alternatively the independent Carbon Committee, would set an annual budget for the total amount of carbon that all individuals will be allowed. Initially this will be around 40% of all UK carbon emissions, the proportion that individuals are directly responsible for. This is the cap. The budget would be reduced each year in line with emissions reduction targets, currently 60% by 2050 (proposed statutory target in the Climate Change Bill) but adjusted over time to take account of science-based revisions of the reductions necessary to avoid runaway catastrophic climate change.

Each individual adult would be given a free equal allowance of carbon for the coming year eg 5 tonnes or 5,000 units (a unit being a kilogramme of carbon equivalent). Children would probably get a half allowance. This allowance would be electronic. Each time an individual pays for one of five things—electricity, gas, oil, petrol, plane ticket—he/she surrenders the number of carbon units equivalent to the carbon emissions generated by use of that energy. Again this would be an electronic transaction through the energy supplier, airline booking or petrol station. A separate carbon debit card might be necessary or it might be handled through existing banking systems.

Individuals who use less than their allowance can sell their surplus units through any bank or post office or to other people. Individuals who feel they need to use more must buy extra units. Extra units will normally be available for sale at banks, post offices and petrol stations. Visitors to the country will need to buy these units direct in order to buy petrol etc. Any individuals who don't want to trade can simply instruct their bank to sell their allowance immediately, and then rely on buying units at the point of purchase.

The trading price of carbon units will vary according the degree of scarcity in the market. If on average people find it easy to keep within their allowance then units will be oversupplied and the price will be low. If on average people find it difficult and want to exceed their allowance then units will become scarce and the price will rise. In these circumstances the incentives to change behaviour to low carbon products and services will increase and drive the behaviour change.

Businesses, organisations and the public sector will also join a cap-and-trade system. This could be an extension of the European Union Emissions Trading Scheme. Here government would hold a weekly auction of carbon allowances, similar to the sale of government debt. Again the annual budget would be reduced in line with emissions targets. Brokers would sell units on to individual businesses and organisations through the banks. The revenue generated by government in the auction process should be invested in improved low carbon public services eg public transport and addressing fuel poverty.

The interactions between personal carbon allowances, business cap-and-trade and the EU ETS need to be researched and planned carefully to provide a seamless system.

In a report to Defra in December 2006 the Centre for Sustainable Energy described the areas of personal carbon allowances that need investigation. The report sets out a five year road map to a potential introduction of the policy.

The key advantages of the policy may be summarised:

1. Certainty of outcome. Provided the budget is set properly the system ensures that emissions reduction targets are met.
2. Preservation of choice to the individual. Within the constraints of the cap, individuals can choose to continue whichever carbon intensive behaviour they wish.
3. The policy raises awareness of the need to reduce carbon emissions in daily decision making across the whole population.
4. The policy is progressive. Overall, the affluent are higher carbon emitters than the poor. If unequal use of carbon across the population continues the policy transfers resources from the affluent to the poor. Fuel poverty, however, must be solved.
5. The policy is fair. Everyone gets an equal allowance.
6. The policy provides for gradual change in society to a low carbon economy, with long term certainty that allows individuals and businesses to plan ahead.

Bill Butcher

February 2007

Memorandum submitted by Ms Helen Deavin (CRED 17)

BACKGROUND

I have a long term interest in wildlife and the natural environment and am very concerned about the impacts of climate change on our planet. For this reason I am very interested in the actions that citizens can take to reduce their carbon footprint

I have worked for the RSPB for the past seven years having completed a degree in Ecology and currently represent the RSPB on the East of England Climate Change Partnership. My work has focused on the impacts of sea level rise on the wildlife of the region and how conservation organisations can work with government to address these issues.

ISSUES

As an individual, I have recently re-insulated my roof space and all the bulbs in my house are low energy. I am now saving up to have double glazing installed in my home. I walk or cycle to work everyday and have recently joined the "Freecycle" network, a website that allows unwanted goods to be used by others instead of thrown away. All of my home electricity is supplied by "RSPB energy" a renewables based scheme with Scottish and Southern Energy. I would be very keen to install small scale renewable energy generation on my property but have found the cost to be prohibitive. In addition, the RSPB has been forced to scrap a scheme promoting solar energy for household use despite calls for action from MP's across the political parties and a desire by individuals to help tackle climate change.

Solar power is one of several forms of green energy that could replace fossil fuels but annual funds for domestic users of "micro-renewables"—such as solar panels and small wind turbines—were cut from £5.36 million to £3.5 million in the budget last March and more than £2.7 million of that has been allocated already. The rest may now be rationed each month. More cuts are planned next year, the industry says, and in 2008, grants for household micro-renewables will drop to just £1 million. The money is made available for small-scale use of renewables in the government's Low Carbon Buildings Programme. The Government provides a much larger fund for the installation of green energy schemes in public buildings such as schools and town halls.

I believe that unless the public have a clear steer from Government about what is expected of them, ultimately we'll fail to address the domestic impact of climate change. Many of the public feel powerless: they get confused by the vast amounts of contradictory messages on what car to buy, or whether offsetting makes any difference, but most of all we worry that our actions will not be reciprocated by others, either here or abroad, and therefore won't make a difference.

Ms Helen Deavin

January 2007

Memorandum submitted by Rev. David Hares (CRED 20)

I appreciate the opportunity to give evidence regarding issues relating to climate change.

My wife and I are a domestic householder who have done what we can to install long-life light bulbs, to lag our loft space using reconstituted fire-proofed newspaper (with the help of a useful grant), to install a modern gas boiler and radiators and to log onto a power supplier who undertakes to supply power from renewable sources where possible.

The situation of my house, facing south, would allow the effective use of a converter for hot water on the roof. However, the present pay-back time for such an installation is woefully too long for me to proceed. I would think that a five year period would attract people to make the investment. I suggest that if there were a determined policy of grants (whether locally or through a national agency) towards the costs, it would tip the balance for me—and, I believe, for many other householders. This in turn would lead to clear economies of scale and the overall consequent savings over time in emissions.

Rev. David Hares

January 2007

Memorandum submitted by Glenn Buckingham (CRED 35)

I am sure it is too late to take part in the CRed meeting with ministers but if anyone wishes to use any of the following for the common good I am more than happy for that to happen with due acknowledgement. Also if any further thoughts are required I am more than happy to help. My thoughts are as follows.

I believe simple messages to encourage people to think about energy use are necessary, for example when fuel is purchased at the filling station the receipt should show the amount of carbon that will be released when it is consumed i.e. x litres of petrol multiplied by the carbon value approx 2.3 I believe so therefore 40 litres of fuel used would result in 92 kgs of carbon released. Messages like use wisely etc could be added. Could cars be fitted with a carbon meter? Large fuel consuming cars should be taxed heavily at every opportunity, purchase tax, road tax, and scrap tax. Fuel tax is difficult.

This same carbon accounting could appear on all energy bills, gas, electric, heating oil, coal. And every appliance, vehicle with figures for embedded carbon.

Encouragement for increased interest in public transport is vital and its carbon benefits could be advertised on timetables/tickets.

Where organisations organise meetings of people for leisure or business, now that many people use email facilities then vehicle sharing should be encouraged to get to the event by emailing delegate/participants lists so that shared use of vehicles takes place.

Carbon auditing software/calculators should be freely available.

Easy access to home energy advisors, creation of this service (thermal imaging cameras/electrisaves for hire)?

Air transport should carry statutory carbon offset charges per flight divided per passenger so that low occupancy is not encouraged.

Air flights should not be allowed less than one hour in the UK.

As is already happening local food is being encouraged, and local stores should allow farmers/producers access, farmers markets should be used wisely. Air freighted food should be treated in the same way as passenger air traffic but do we need (spring onions from Mexico are not necessary in January)

Local power generation should be encouraged in all forms that are carbon efficient; the power system will then be rather like the internet.

Packaging by legislation should be made from recyclable materials that are easily sorted by colour coding, type, embossing, difficult to recycle sort should be dis-encouraged/banned. Reuse should always come first. Plastic shopping bags to be banned immediately.

My main thoughts are that energy should be thought of as a finite resource and that action is required soon, this in turn will help climate change and carbon reduction. It is an issue that people are looking for leadership in.

It is good that at last the likes of Tesco, BT, Shell and BA are doing something but it is not just about business preservation and profit, this is corporate social responsibility.

BACKGROUND

We live in Suffolk, I work as a farm manager, at home we have a small wind and solar grid connected power system and a solar water heating panel, low energy light bulbs throughout the house and use power with respect. We are members of Greenpeace and Friends of the Earth, involved with our Parish Council and Parish Plan.

Jeannie works as a community development officer in Suffolk, I am a school governor for the local primary.

The farm bears in mind conservation in its work I am currently attempting to create a carbon account for the business, at the moment I think the ratio of carbon created in product and sequestration is around 6,500 tons for a carbon input of around 1,500 tons but it is difficult to get accurate figures for everything and few places are able to help.

Glenn Buckingham

January 2007

Memorandum submitted by Belinda James (CRED 36)

1. My name is Belinda James, I am 41 years old and live in a rural village in Norfolk. We have no children. My husband and I run our design business from our home.

2. I have been interested in the environment for a number of years and we "try and do our bit". My knowledge about environmental issues, in particular Climate Change has increased significantly over the last four years since becoming the graphic designers for CRed. I am by no means an expert but would like to think that I try to encourage friends, family, businesses we work with, to think about the environment and advise them of simple things that they could do themselves, in their homes and workplaces. Our home is not an exemplar of low carbon living but we have done what we can, finances allowing, but know there is still much we need to do and would like to do.

3. The reason I would like to be given the opportunity to talk to the committee is that I feel constantly frustrated by what I see and hear from the people around me and what we have experienced ourselves. Many of the issues could be addressed by better communication.

4. I have heard of my friends and families views on climate change, their frustrations, and despondency which mirror many of mine. I would like to express these to you. For example, low energy light bulbs, many find these to expensive to install, lack of knowledge about energy consumption of domestic household products, lack of information and support on making improvements to ones home, costs of installing alternative power supplies, transport, lack of information in shops on carbon emissions/energy consumption for particular products, even food, which would enable people to make informed decisions when comparing and choosing products. And on and on . . .

Belinda James

January 2007

Witnesses: **Ms Helen Deavin, Reverend David Hares, Mr Glenn Buckingham and Ms Belinda James** gave evidence.

Q685 Chairman: Just to be awkward, I will start from the other end of the table. We are going to go to Belinda James first, who describes herself as a householder in a rural village. She runs her own design and marketing business with her partner, and CRed is one of her customers. Belinda James, the floor is yours.

Ms James: I was hoping that I was going to be last, so that I could say, "Everybody has said everything already"! First, thank you for giving me the opportunity today to come and speak. I do appreciate it. The reason I wanted to come and talk to you is from the householder's perspective, and to talk about the frustrations and problems I encounter on a daily basis in trying to be a greener person and to try and do my bit. What I read and hear about climate change in the press, the media and everywhere does terrify me. I know that people say we must not be alarmist about it, but I think it is alarming. At the end of the day, it is incredibly alarming. I am probably going to say things that people here are all well aware of, but there are the predictions of loss of life, where we are not talking about hundreds of thousands but potentially millions of people dying because of the effects of drought, flooding and severe weather conditions. There are predictions of our losing possibly a third of our animals and plant life by the year 2050. In my lifetime alone, all of 40 years, the Arctic ice cap has melted by 40%. I cannot understand how people do not find that terrifying or alarming, because the thought of my children and everyone's children not being able to see some of the things that I have been so lucky to see makes me wonder whether life would be worth living. It sounds very dramatic, I know, but what if you cannot go and see polar bears or glaciers or snow-capped mountains, because they will not be there—and we are talking about potentially an incredibly short timeline? That sounds as if I am standing on my high horse here, but I believe that we all have a moral obligation to protect the world for future generations and I believe that this is a view held by most people in the world. I acknowledge that I am part of the problem. I am responsible, I am told, for producing approximately nine tonnes of CO₂ a year, which is pretty horrendous. I know what I should be doing. I know that I can do things like offset my carbon emissions by planting a few trees, which we do. However, I also know that is not the answer; it just allays my feelings of guilt if I fly somewhere wonderful, to Mauritius or somewhere, and I know that I can just plant three trees and that gets rid of the CO₂ emissions I have created. Thinking about what I was going to say today has made me realise that I am not doing as much as I should be doing or could be doing. It has made me realise that I am frustrated by my own lack of commitment and action. I thought that I was going to come here and tell you how frustrated I was with your, or the Government's, lack of action; but it is also mine. I do some things, and that is why friends and family consider me to be a green-lifestyle person. The electricity we have in our home comes from a renewable tariff. We drive a relatively

efficient car; a house which we have had insulated, roof and floors, to the highest standards we can. We obviously have things like low-energy light bulbs and we choose low-energy appliances in the home. From a work perspective, we encourage our clients to do their bit by choosing—and it may sound small—printers and people who have good green credentials, who use environmentally friendly paper and also try to reduce the amount of wastage, namely by not printing more things than you need to. I need you to go back and tell the Government what they can do to help us. As I said, I think that the panels have already said many of the things that I am going to say. Many people do know what to do and are already doing things but I think—and I cannot believe that I am saying this—it will come down to legislation. I do not really like to be told what to do; I like to have the choice and be given the information so that I can make decisions for myself. However, if I am—as I have now discovered—this person who is keen on protecting the environment and I am not doing my bit, then there will be a lot of other people who are not either, and I do think that the only way will be through legislation. Some of the members of the Committee have voiced their concerns that people will not tolerate this but, speaking to people I know, including many young people—we held a group meeting here for some 16 to 18-year-olds, talking to them about their views on climate change—they all know what to do, but when we say, "Do you do it?" they say, "No". We said, "What can we do to make you do these things?" and I was really surprised to hear them say that they felt legislation would be the only way. These are things that have already been said here this morning, but I think that you have to encourage people to look at changing their lifestyles, their habitats, their expectations, and to manage their expectations. Another member of the panel this morning talked about everyone watching Al Gore's *An Inconvenient Truth*, but it is a brilliant DVD and everyone I have spoken to who has seen it—and unfortunately there are not that many—have felt the same. What can the Government do? There are so many good examples, and we have heard of many of them this morning, such as the Ashton Hayes project. There are other projects. For instance, in Woking—and I am sure members have already heard about this—they have been incredibly successful in reducing their energy consumption, by decentralising house supplies. It seems to me that we have all these wonderful things happening; it is just a great shame not to learn, to use these as exemplars, to follow their experiences and what they have learnt. Many people do know how to save energy. Earlier, Patrick Hall spoke of making people aware. There are many good organisations like the Energy Saving Trust, but so many people do not know about their existence. CRed themselves have websites to tell people what they can do—and they are not enormous things. We are not all going to have to stop driving or go to live, as people have said, in mud huts. There are small but efficient changes that we can make which will make a difference. The biggest thing is to make being green

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affordable. Things like energy-efficient light bulbs are more expensive and, even though you know that they will save you money in the long term, it is the initial outlay that people find expensive. For example, it is £7.95 to buy an LED spotlight; on the other hand, you can buy a pack of three for £3.99. So the choice is not that difficult for people on a limited budget. What will they spend: £3.99 for three or £7.95 for the one bulb? I know that it will work down to an economy of scale eventually but, at the moment it is still an expensive option to be green. The same applies to being green within your home. Condensing boilers and ground source heat pumps are at least two to three times more expensive than conventional boilers. It is exactly the same thing with solar panels and PV cells. I would love to install all these things but I know that to put in, say, a ground source heat pump will cost me anything between £9,000 and £15,000, as opposed to £2,000 or £3,000 for a normal boiler. Marks & Spencer and Stuart Rose are to be very much applauded for their declaration last week about becoming carbon neutral and going into sustainable sourcing. I just feel that it has been a long time coming. We have all known that these things needed to be done; it is only now being done, and they are aiming to do it by 2010, I believe. All the supermarkets should now be encouraged by government to follow this pattern set by M&S.

Q686 Chairman: Can I be very rude and interrupt you.

Ms James: I talk too much.

Q687 Chairman: I would never say that to a lady who is in full flow. It could be very dangerous! The one thing that we are limited on, however, is time; but I think that we have a clear message regarding your practical suggestions, and some of the issues may come up in questioning. Forgive me for having to cut you off in your prime, but can we move on to Glen Buckingham who is a farm manager, whose own home life encourages him to use energy-efficient power and who is involved with the parish council and a parish plan covering this particular subject. He is a member of Greenpeace and Friends of the Earth.

Mr Buckingham: We have talked about this legislation issue. I believe the message should be that we do not actually know how much carbon we are consuming. One of the pieces I included in my statement was that perhaps we could know from our electricity bill or our petrol receipt that, "By the time you have consumed this energy you have emitted x kilos of carbon". We have the technology to deliver Club Card points, loyalty points, Nectar points, and all these other things, but it is very important for us to know how many kilos of carbon we are consuming as individuals, and we could therefore move on individually to make more sense of it when we use a carbon calculator to work out our allowance, if you like. People can then work towards cutting their emissions, because they will easily know how much they have created. Regarding my work as a farm manager, we have moved to a low till-type system on the farm, where we no longer plough the

land; we do not invert the soil; we try to reduce the carbon emission from soil breakdown and protect the soil as a resource. It also means that, for the last two years, we have got down to allowing 58 litres of fuel used per hectare to run the whole arable enterprise; that is five gallons an acre in "old money". It is 105 tonnes of carbon emissions for the farm, just in fuel. As I have put in my statement, we produce around 6,500 tonnes of carbon-rich product, but it costs us 1,500 tonnes of carbon to do that. If everyone could look at what they do and assess their carbon account, people would start to look at how to be efficient; they would see how it is possible to improve their performance. I have been a member, as you have said, of both Greenpeace and Friends of the Earth for a very long time and have followed the issues—which they raised a long time ago, as you are aware. I will leave it at that.

Q688 Chairman: Thank you very much indeed. We move now to Reverend David Hares, who has the shortest description of all—a domestic householder.

Reverend Hares: When we married 35 years ago, we found a lovely rose growing in a wild garden in North Creak. My wife, who is a keen gardener, plucked it up. Every year, we have stood in front of this rose on our wedding anniversary. Initially, in the pictures you can see a rose in glorious full bloom. As we have lugged this rose round the country, we now find that when we get to our wedding anniversary the bloom has passed a month hence. That is a small example of how evident it is that there is a significant change occurring, and that sort of illustration may be helpful. We retired two years ago to Norwich and live in the city centre. It has been our experience in two years that we have been able, as it were, to haul round a Victorian terraced house, so that ecological living has clearly chimed in with definite economic benefits to us. Selling global warming as an issue, we need very much to focus not only on people's goodwill but also very definitely, alas, on our self-interest. The further point I would want to make regarding how we live is that I think town and city life, where so many of us live in high concentrations—and someone spoke about how do we tackle the cities as against affluent villages—offers a better ecological prospect than the sprawling suburbs, which require people continually to use their cars. If we are to sell city life as being an advantageous and attractive option for people, then we need to do more quite specifically to make our city centres safe areas which have good public transport, which are plainly clean and free from litter. If the city is grubby, then it puts everybody off; they flee to the suburbs as soon as they can. Norwich, we are told, is "A Fine City". We are seeking to do more, but there is more to be done. Thirdly, regarding low carbon alternatives to traditional domestic energy sources, in our home we were very pleased to install roof insulation with the help of a grant. The payback for that, we are told—and we believe it to be true—is something like four years. However, other really valuable installations like a solar exchange unit for our domestic hot water, costing £3,500, has had to go right off the

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entire project, even though the carbon saving equivalent would be around half that of running a small car for 10,000 miles a year. That is an immense carbon saving, but the cost is still there. If we wish to see this go forward, I believe that we need substantial and consistently applied government grants to make this possible and also to kick-start economies of scale. My penultimate point is that, as a domestic user of water, a huge obstacle to domestic goodwill—not only for me but for a lot of people—is that our being encouraged to use water meters is not something we are particularly drawn to, when such a large percentage is allowed to be wasted through leakages before it ever reaches our home. It is a catastrophic public relations thing for this to be still true, and we need to deal with it soon. Finally—and I realise that one is dealing with people who have a keen ear for the possible, quite properly—what we also need to do is to face up to our domestic use of the car. To help my pocket and to reduce our collective carbon footprint, I quite often—even though I am a keen motorist—drive below the present speed limits. The Committee will know that in Norway they drive at 50 mph on the open road and 55 mph on motorways, which is of course the best efficient speed for a car. Until we have a clean fuel, to adopt this approach as a national enterprise would bring immediate environmental benefits. I really do understand the psychological baggage that driving brings with it for us, and therefore it would not be an easy thing to do; but I sense that a lower national speed limit—a small actual sacrifice which would bring benefits of safety, environment, and all the rest of it—would be a litmus test of how serious we are, as a nation of domestic householders, about global warming.

Q689 Chairman: Thank you very much indeed. That was very succinctly put. Finally, Helen Deavin, who is a project manager with the Royal Society for the Protection of Birds, based at their Eastern England regional office. You have worked on aspects of the impact of climate change on sea levels, the impact on wildlife, particularly in the east of England. The RSPB is an old friend of the Committee and has often given us good advice; so we look forward to your contribution.

Ms Deavin: One thing I should mention is that I am here very much as an individual and what I am saying today represents my views. As you have said, I work for the Royal Society for the Protection of Birds. I have a longstanding interest in wildlife and the environment, and my job involves me in work where the impacts of climate change on our environment are becoming all too obvious; particularly through rising sea levels and increased storminess around the coast. Because of this, I am keen to do as much as possible as an individual to reduce my carbon footprint and have been taking action at home to make this happen. Like many people with an interest in climate issues, I have done the obvious things, like replacing light bulbs with low-energy light bulbs and getting improved insulation for my home. I buy energy from a green electricity supplier and I am saving up to install

double glazing. I am careful about how I travel, cycling or walking to work; although I have to confess that in the winter I too, for reasons of safety, tend to walk rather than cycle. I am trying to minimise flying and car use where I can. I feel that I would like to go further to reduce my own carbon footprint, to something that it will need to be for all of us if we are to avoid dangerous climate change. I understand that the average emissions of an individual are something like 10 tonnes per year, as Belinda was saying earlier, and they need to be closer to two tonnes. That sounds like a very big jump and one which will take more than the obvious actions to achieve. One way in which I would like to contribute to this, therefore, would be through generating some of my own power through renewable sources, at or close to my home. However, like many others, I have found that this is no easy task. The grant systems available for installing micro-renewable technologies like solar voltaic panels, mini wind turbines and ground source heat pumps, are difficult to understand and often do not cover enough of the cost of the technology for them to be readily accessible to ordinary people. Last year saw a cut in grants for solar energy and, because of my job, I know that this resulted in the RSPB scrapping its own solar scheme because it was no longer considered viable by the partner company. Alongside this, it is very hard for ordinary householders to get sensible, trustworthy advice about which technologies will work for them, how long the payback time is, and where to go for the installation. It is good that micro-renewable energies are now starting to enter the mainstream but, without more help from government to allow individuals to make the most of the technologies, it is unlikely that they will ever play their full part in tackling climate change. I know that I would like to do as much as possible, and I am one of the willing ones. So if I am finding it hard to navigate through the current system, what hope is there for people who are not already climate-aware? The Government's aspirations for zero-carbon housing are great, and may even be achieved in new houses with the right political will. However, for the vast majority of us who continue to live in houses built before this initiative, more action is needed to help us help the country go green.

Chairman: Thank you very much indeed. Daniel?

Q690 Daniel Kawczynski: First of all, a very quick observation to Reverend Hares. You and I are in the great minority because we drive at the national speed limit on motorways, or below. I never drive at over 70 mph on a motorway, but the trouble is that everybody overtakes us. We are in the slow lane and even large lorries overtake us. Nobody adheres to the national speed limit, regrettably. You say that we should lower it but, if we lower it, under current legislation even fewer people will follow it. My question is to Ms James. You made a very powerful case for dealing with climate change and the impact on generations to come. That contrasts very much with comments made by Jeremy Clarkson, who said that climate change is great because it will mean that

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in England we will have a climate like the Mediterranean and we will be able to grow olives in our back gardens—which I think is very irresponsible. What I would put to you is this. As you will know, the United Kingdom produces only two% of global emissions. The real perpetrators are China and the United States. The standard reply to this question is, “Well, of course, if we don’t take a lead they won’t follow”. Is there anything else on that? Do you really think that China will only take action if we show that we are doing it ourselves?

Ms James: I think it has already been shown that China is taking the matter seriously, although they have sufficient coal reserves, as I understand it, to last them well into the next century. This is related to CRed, because CRed designed a biomass power station which would have supplied enough power for the whole of the inner city of Norwich. Unfortunately, the local government, or whoever, decided not to take this up; but Shanghai has taken it up and CRed are now actively working with the local government in Shanghai, to get this biomass power station up and running. Okay, they know that it will only provide a tiny amount, but the fact is that they have seized upon this new technology and are embracing it, and hopefully it will be just one of many. Also, I believe that the cars they have in China already run far more efficiently than ours do here, or indeed in America. They have legislated that the emissions have to be much lower. So they are already doing their bit—though I may be wrong on that.

Q691 David Lepper: Reverend Hares, I am in an even smaller minority than you and Daniel. I have got this far having never learnt to drive, partly because of having always lived in a city. I think that what you have said about the positives of city life is very important. All four of you are before us, in part at least, as householders. Under the Energy Efficiency Commitment, the utility companies have a responsibility to encourage householders to be more energy-efficient. Some of you have talked about the frustrations you have found in getting advice and information. Is there any one of you—and you can all join in if you want to—who has any particular views about how well your own energy suppliers in gas and electricity are carrying out that role of encouraging you to be energy-efficient?

Mr Buckingham: Certainly we have had offers of light bulbs—that sort of thing—and leaflets through the post about insulation, et cetera. No one goes as far as microgeneration, because I guess that would be against the company principle probably. However, they do buy it back, et cetera.

Ms James: I buy my power initially through Greenpeace. They have got NPower to produce a renewable energy source called ‘Juice’. At the time we said, “How much more are we prepared to pay for this renewable energy source?” and, interestingly, it is currently cheaper than the other rates. They produce things like the booklet I have here, which is a guide to running costs. Although it may be obvious to some people, I was really quite shocked reading it and thinking, “Gosh! Is that really how much energy my tumble-dryer uses?”. It

is this whole thing of making people aware of how much the appliances within their homes actually use. If they were aware and costed it out, I think that would encourage people to save a bit more money.

Q692 Chairman: Are there any other contributions to that question before I move on?

Reverend Hares: I was wondering if I might be able to reply to Daniel.

Q693 Chairman: Very briefly.

Reverend Hares: If we are not messing about on this and are truly serious about the impact of carbon emissions, then to reduce carbon emissions would be relatively easily, providing there is the will to do so, through people driving at the present speed limits—and I would advocate the Norwegian standard—we would indeed press for it.

Mr Drew: It is good to have some real citizens with us.

Chairman: Of course Mr Drew is an unreal citizen!

Q694 Mr Drew: I think that you have probably all read the recent story that the Number 10 website has had over a million hits from people opposing road pricing. It may well be that road pricing is not a very good way to persuade people to get out of their cars, but we have four very worthy people in front of us, against a million people who signed up to the statement that this was something they were not prepared to do. How do we engage with citizenship, in the sense that people have to change their mindset? It is very easy to find the reasons not to do something but incredibly difficult to persuade people that this is the issue of our times. Suggestions, please.

Ms Deavin: One of the things I would say is to make it easy in terms of time. When I was looking into different options for renewable energies, it took a great amount of time to try to work out what would or would not be possible—all that kind of thing. Perhaps to have somewhere where all of the information is presented in one place, where it is clear, simple and straightforward. Especially if people are not particularly committed in the first place, if they have to spend a huge amount of time filling in forms and all of that kind of thing, it is one of the things that can be a big turn-off for people in terms of getting involved.

Mr Buckingham: With regard to road pricing, I think that congestion charging is the beginnings of that. The issue there is that a traffic queue is nought miles per gallon and maximum carbon emissions. It is therefore a way of moving away from high carbon emission problems. I would imagine that, in time, we could see variable charging in the rural areas, where you may perceive that it needs to be cheaper because greater distances have to be travelled to get to a service or whatever; whereas in town or on motorways there may be a higher charge. What we have to do first of all, however, is say, “Is that journey carbon-necessary?”—which is probably where you start to look at it. Hence, people need to be aware of their carbon emissions from every fuel tank full of petrol, or diesel, or unit of electricity used—whatever it might be—so that they can put it

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in perspective, towards the nine billion tonnes of carbon that is emitted around the world and in terms of how many billion tonnes there are in this country, et cetera. Then you apply it to your aircraft flight and decide, if figures are stated as so many tonnes per person, are you within them or are you not? As you discussed earlier, the legislation could be difficult to engage with in the near future. If the issue becomes very serious, however, one would expect government to take the leadership in time to deal with it in a proper way.

Ms James: If one million people have hit your website in opposition, hopefully there are 59 million people out there who are not opposed to road pricing.

Q695 Chairman: There speaks a businesswoman! Turn the statistics round and it is a win.

Reverend Hares: Regarding road pricing, it seems to me that if you drive people away from what is actually the most efficient way of moving around London, namely the M25, you will raise your carbon emissions. Someone was talking earlier about the importance of simplicity. The simplest way to deal with it is that, if you followed an enforced speed limit around the M25, as you have for example around the Heathrow area of it—and if you are really serious about enforcing it, it can be done—you do indeed have the ecological and emissions gains, as well as people getting to their destinations quickly because you process more cars.

Q696 Patrick Hall: I was interested in Belinda James's observation that, in her view, carbon offsetting—planting trees, I think she said, although not necessarily being against planting trees—was not the answer, in that it did not address behaviour. In fact, the behaviour can carry on in the same way and you think that you have bought your way out of it. I am therefore beginning to indicate that I am sympathetic with you. Defra is signed up to such a scheme and I think that this Committee, when it travels around, is also part of this Defra offsetting. I would like to ask everyone on the panel to comment briefly on whether or not they think that carbon offsetting has a role to play.

Mr Buckingham: Yes, I think that if we look at high levels of carbon consumption, then there ought to be some charge which goes with that—to curb excess emissions. In my statement, for instance, I suggest that air passenger traffic should carry a compulsory carbon offset charge; but that funding should be used properly. I am not sure that it is necessarily trees, which take several years to consume the carbon. That money should be directed at systems and spent by councils or authorities to improve energy efficiency in schools or hospitals. It might only be in the form of an energy conservation officer, not necessarily equipment, because there are a lot of things to be pointed out and lessons to be learnt.

Ms Deavin: I looked into it for my own use, for a holiday flight—which was very disgraceful of me! I looked into it to see whether it was something that I could do. When I looked at some of the companies out there and the schemes they presented, I was not

very convinced by what was shown. I was quite pleased to hear recently that there will be more regulation, in terms of what the carbon offsetting companies are providing and what the links are back to the individual householder or the person wanting to make a difference. When I looked at it, there was a scheme for some sort of hydro power in Poland, but it gave literally one or two lines of information about the scheme. From my point of view, I wanted to be convinced that it would really make a difference if I were to pay extra.

Q697 Chairman: A lot of the schemes are outwith the United Kingdom, and yet we have had some pretty convincing evidence this morning about the value of concerted community action. From a personal standpoint, would you prefer to see some of that money going to an initiative locally, where you could see how it was spent?

Ms Deavin: I think that there would be more of an incentive to do so, yes.

Q698 Chairman: Reverend Hares, do you want to come in on this one?

Reverend Hares: I find myself very drawn to this. Rather than “offsetting”, I would call it “trading”. I think that introduces a slightly different feel to it all.

Q699 Lynne Jones: On this idea of having labels of the carbon consumption, what would make people look at it? If you went to fill up, you would just look at the price; you would not actually look at the carbon figure. Perhaps one idea might be to have carbon warnings, much as you have with tobacco health warnings, which would be really prominent and would draw people's attention to it. Is that an idea that you would support?

Mr Buckingham: Yes. When the parish plan in our village, or the group of people who did that, looked at the environment and transport questions, there appeared to be an awareness of climate change but not an awareness of how everybody is implicated in it. Everyone talks about carbon and it is all in the newspapers about “carbon this” and “carbon that”. Yes, there are some calculators around; but it is getting direct information about your carbon consumption, so that when you buy 50 litres of fuel, you multiply it by 2.3 for petrol and get 100-plus kilos of carbon. Then education starts to make people aware of, “Crikey! We've used 200 kilos this month. I am supposed to have only five tonnes a year. My car consumes this”. Perhaps at the annual MOT for a car that is more than three years old, when the mileage is taken nowadays the statistics could be compared with the average consumption for that vehicle, and then people are told, “Actually, that car has done 10,000 miles and that means it is x kilos. Do you realise that?”. It is about education. I think that education and empowerment to the people come first; legislation comes later. Legislation may have to apply to the very heavy consumers, or a tax may have to apply to the very heavy consumers, and that money used wisely to offset the carbon.

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Q700 Chairman: I have some sympathy. I asked my electricity provider how much I had used year on year. That information was readily available; but when I asked, “What does it represent in carbon emissions?” I was told, “I can’t tell you. Ring another number”. I want to move on to a question which two of you mentioned—Reverend Hares and Helen Deavin—which was the question of assistance and some form of further help, through subsidy, to enable more advanced ways, at the domestic level, of systems to be installed that would help to reduce your carbon footprint. How do you think the burden should be shared? At the end of the day, everybody says, “The Government should use the money” but, in actual fact, the Government are the custodian of the people’s money. It is the money of us all. What we are saying effectively is that a lot of people out there will be asked, technically speaking, to subsidise your personal contribution to reducing your personal carbon footprint. If we took it to its logical extreme and everybody did it, by definition there probably would not be enough money to go round and subsidise. We would have to find another way of making it more affordable. At the moment, we are looking for examples. Our first set of witnesses illustrated that by example you can lead. Give us your feelings about what you think, at this stage when we are trying to encourage people, should be the burden share between Government (the rest of the taxpaying community) and those who want to make a personal commitment and investment into attacking their carbon emissions.

Ms Deavin: Looking at the actual costs involved, one solar roof panel works out at not far off £2,000, and mini turbines are working out at about £1,500 at the moment. I guess if we want to see these being used more often, one of the things that needs to happen is that their cost needs to come down, and they need to be at a much lower price so that people can use them. In these fairly early stages perhaps that is where government assistance is most needed, because it will mean that there is more demand for these products and then the costs will start to come down.

Mr Buckingham: Could I comment on that. We installed our photo voltaic and wind turbine six years ago. The prices have not come down in six years. The demand is still very great, as I understand it; there is obviously a margin there to be had for a lot of suppliers, and it is the thing to do. Personally, on the matter of microgeneration, I think a more positive first step to take is solar hot water heating. I do not see why that is not on all new houses, on housing estates, et cetera, and why it is not incorporated in the building plan straightaway. There are also these Electrisave devices which show you the by-the-minute cost for running your house—in electricity, gas, or whatever it might be—and can apparently also show you your carbon

consumption at the time. Why are they not in new houses as a standard fitment? They are about £70 each, which is nothing very much in the cost of a new house.

Q701 Mr Drew: This is not really a question; it is a comment. When we went to Leicester and talked to some of the people there, one of the individuals had had the opportunity of Clear Skies. He was very critical of the fact that the government subsidy had effectively gone straight into the premium payment to the supplier. You could buy the same kit much cheaper on the Continent and put it in yourself. It is slightly different, but it shows the problem of a subsidy.

Mr Buckingham: I think that grants and so on can distort what happens. It is a very difficult one. We did ours without any grant. We felt that it was something we would like to do. Rather than put money into a PEP or any other investment, or invest in a new car which would have cost a lot more, we spent the money where it is a long-term investment and is more sustainable than a new car or other things.

Reverend Hares: One of the obvious things is that you can buy these things vastly more cheaply in places like the United States, but tariffs and all the rest of it lock them out. Regarding the business of how to make grants, this is something where wiser heads than mine—economists, and so forth—are needed, in order to try to prevent undue profits going in inappropriate directions and where certain people will only be allowed to work with a profit margin of, say, 30% or whatever it is, in a more or less guaranteed market. Depending on what is available in the way of grants and where there is the political will and acceptance to make those grants, then you pick the targets that will give the greatest yield in terms of carbon efficiency.

Chairman: We come now to the end of our formal evidence session. I would like to thank all three panels for some very incisive, interesting, thought-provoking, and indeed genuinely challenging contributions. We have the job, when we carry out these inquiries, of synthesising all of the views and trying to take the best of the ideas—and, as some have suggested, to use our political judgment about the things that are achievable—and to write a report. When our report is produced, it is obviously in the public domain and the Government have 40 days to provide an answer. The Committee’s next port of call is to go to Germany to find out why they are able to do far more in the field of renewables than we are in the United Kingdom. To be true to our low-carbon footprint agenda, we are travelling by train. When we come back, we will have a session with Ian Pearson, the Environment Minister. I will therefore draw the formal evidence session to a conclusion, with my thanks again both for the verbal and the written contributions.

Supplementary memorandum submitted by Glenn Buckingham (CRED 35a)

Discussion which took place in the afternoon with CRed witnesses:

At one point Lynne Jones MP asked how we could achieve results on carbon footprint awareness raising and reducing CO₂ domestic emissions or achieving carbon neutral projects in communities, such as has been achieved with the Cheshire projects at Ashton Hayes.

This project has been funded by DEFRA, who are also funding the toolkit for this to be rolled out to other communities.

It is important to note here that DEFRA also funds the Parish Plan process through Rural Community Councils. Therefore **the toolkit should link into the Parish Plans and Market Town Initiatives** as both these community consultations would be ideal for the toolkit to be attached to, or incorporated within.

Suffolk Coastal District has committed to achieving 65% of up to date Parish Plans over the next two years and could be an ideal area to push the toolkit within the community consultation and would provide quick results across a district.

We have already discussed this issue with Dr Simon Gerrard and we are contacting the CRed representative in Suffolk Coastal.

DEFRA should be alerted to the potential of linking these two initiatives.

Glenn Buckingham

February 2007

Wednesday 31 January 2007

Members present:

Mr Michael Jack, in the Chair

Mr David Drew
Patrick Hall
Lynne Jones

Daniel Kawczynski
David Lepper

Memorandum submitted by the Community Carbon Reduction Programme (Cred) (Cit 41)

CRed is the Community Carbon Reduction Programme at the University of East Anglia, funded by the East of England Development Agency. CRed is a network of partnerships with individuals, businesses, schools, and communities, as well as with local authorities, working to show how a 60% reduction in carbon emissions can be achieved by 2025.

EXECUTIVE SUMMARY

With households responsible for around a third of all the UK emissions it is vital that communities become involved in carbon reduction. Indeed, the Government recognised this in the Energy White Paper of 2003 when it called for “unprecedented action by local partnerships” to deliver its aspiration for a 60% reduction in carbon emissions by 2050.

Whilst one could argue about how big a dent behavioural change can make to the 60% aspiration, there is no doubt that a more energy aware public is crucial to the success of the Government’s carbon reduction aspiration.

At the time of writing CRed has engaged with over 6,500 householders who have pledged to carry out around 21,000 carbon reduction measures, largely in the East of England. These measures range from simple pledges such as turning off standby or fitting three low energy light bulbs, to more costly and complex pledge actions, such as installing solar panels or switching to a renewable energy tariff.

Encouragingly, there has been a big increase in the engagement from the domestic sector this year with the number of households participating rising from 1,653 (2004–05) to 6,684 (2005–06). Participating households have committed to nearly 21,000 carbon reduction actions, a rise of nearly 500% on 2004–05. Assuming that all these commitments have been successful, this five-fold increase in actions will have resulted in a saving of 8,270 tonnes of CO₂ this year compared to 989 tonnes in 2004–05. The level of CO₂ saving per participant has doubled from 0.6 tonnes (2004–05) to 1.24 tonnes (2005–06) indicating that participants are doing more and more to reduce their individual carbon emissions.

Obviously it is not just in the home where the way we use energy can make a major difference, and CRed has successfully engaged with over 100 businesses and schools to put together initiatives which have led to carbon reduction in the business and educational environments. Importantly, we have endeavoured to make the link between people’s use of energy in the workplace and in the home. This logic also applies to commuting between the workplace and home and the products people buy.

Importantly, those who become more energy aware and seek to reduce their carbon footprint also develop more interest in how energy is generated. This is why CRed has developed a set of “pathways” to a 60% reduction in carbon dioxide emissions, which might start with fitting a few low energy light bulbs (CFLs) but ultimately leads to the use of renewable energy sources in the home, workplace and the fuel tank.

Amory Lovins of the Rocky Mountain Institute has made clear the compound benefits of resource efficiency, especially when electrical energy is involved. A CFL uses a fifth of the electricity of an incandescent bulb. But because of the inefficiency of electricity generation from large generators, greenhouse gas and fuel saving may be three times greater again when efficient micro systems, such as micro CHP, are factored in. Even bigger savings are possible in more complex systems (“More Profit with Less Carbon”, Amory B Lovins, *Scientific American*, September 2005, pp 74–82).

Therefore, if we follow the pathway logic then individual and community engagement is capable of making deep cuts in the UK’s carbon footprint. But the “citizen’s agenda” must not cease once the citizen walks through their front door. At the end of our submission we have included a list of measures which CRed believes will help engaged citizens in carbon reduction and which the committee may wish to consider.

(a) Energy Efficiency and Energy Efficiency Commitment (EEC)

To make progress in energy efficiency and to stimulate citizen participation in carbon reduction we need transform the energy supply industry to a resource efficiency industry. The EEC is a rather ineffectual

halfway house. If supply companies gained financial benefit from helping customers continually reduce energy use and enhance resource efficiency, huge change would become possible.

CRed staff report great public scepticism regarding the EEC scheme. People simply don't believe energy companies are interested in reducing their bills, as the logic runs counter to the basic profit motive. This is why we believe that energy efficiency should replace energy supply as the "core business" of the power companies. There are parallels here with the way that "traditional" waste management companies are now focusing more on resource efficiency including waste reduction and recycling.

Moreover, it is important to create mechanisms to ensure that responsibility for the reduction of wasted energy and attention to resource efficiency are clear; at present in many situations this is not the case; for example landlord and tenant in rented accommodation. The tenants may often pay the energy bills so there is no real incentive for the landlord to invest in energy efficiency measures. However, as tenants may move house quite frequently there is also little incentive for them to invest in the properties, particularly when the pay-back period may well outlive their residency. CRed has found this to be a particular problem for students.

(b) Reducing energy consumption

CRed has demonstrated that electricity use in a typical block of offices can be easily reduced by least 25%, with no impact on activity, simply by turning off unnecessary lights and unattended computers. A school in the CRed schools energy club with a particularly active switch off campaign saved over 40% of electricity and nearly 20% of gas consumption with no negative impact on lessons or learning.

Such savings are almost certainly reproducible across the country, not just in commercial and educational settings but in homes and businesses as well. Perhaps a quarter of all electricity generated—more than the output of all Britain's nuclear power stations—is simply wasted. Saving this energy is often free and certainly low cost. Building the generating capacity to produce this waste costs billions.

As well as the simple switch it off when you are not using it logic there are many other things the citizen can do to reduce energy use. Many of these require broader community and government involvement, such as improved public transport, community combined heat and power (CHP) schemes, or indeed community renewables, such as an area wind turbine. However, there is evidence that collective pressure and public support can encourage agencies to respond by introducing incentives and efficient technologies. Woking Council in Surrey is a classic example of where public support has enabled the Council to introduce CHP schemes, extensive energy saving measures as well as wind and solar power initiatives.

(c) The provision of low carbon alternatives

The goods we purchase can make a massive difference to our carbon footprint, and we have included ideas in this area in the list of measures for consideration at the end of our submission.

(d) Microgeneration

CRed considers small scale domestic renewables to be the final step on the pathway to a 60% carbon dioxide reduction in the home. Currently the only renewable with a payback period short enough to attract large scale public support is solar hot water. Other applications which generate heat or electrical energy are far less cost effective, even when set against current energy prices. However, the case for heat pumps, heat exchangers, and to a lesser extent photovoltaic applications, becomes much more financial attractive in new developments.

Another barrier the CRed Team has identified is the lack of skilled fitters for many of these applications. There is also a paucity of expertise in the sales and marketing of renewable energy.

There is more the government can do. In the 2006 budget, just £50 million was added to Low Carbon Buildings programme to help kick-start microgeneration. Defra is the department with primary responsibility for tackling climate change. This sum is far smaller even than the amount Defra spends annually on compensating farmers for bovine TB (£90.5 million in 2004), a non-fatal disease of cattle. Booth these figures are insignificant compared to subsidies handed out to the fossil fuel and nuclear industries over decades and to the airline industry in the form of tax and VAT exemption on fuel (a £9 billion subsidy for carbon emissions).

(e) Potential for smart metering

Public, and more surprisingly, business, awareness of energy use is generally very low. Few people are prepared to take the time to peer through the cobwebs to read their meters. However, if citizens are to gauge how best to save on energy bills and cut carbon, then highly visible and clearly understood metering must be an important part of the citizen's carbon reduction armoury.

A new wave of meters, which flag up data on energy use, carbon emissions and importantly cost, is becoming available. Certainly there is evidence to suggest that such meters make people more aware of the energy used by various appliances, thus encouraging people to switch things off.

(f) *Awareness of climate change and how citizens can tackle the problem*

In the three years of the CRed Programme we have witnessed a sea change in the level of public understanding of the link between carbon dioxide emissions and climate change. CRed staff have attended well over one hundred meet the public events in the last year, and there have been no reports of people being unaware of the link. There are many misunderstandings about the finer points of energy generation and climate impacts and a few people remain sceptical, (there is work to be done here) but there are few people totally unaware of man's impact on climate.

As outlined in the summary CRed operates a pledge system for citizens, which informs those who pledge what savings are achieved by the measures they pledge to undertake and how they can progress along a pathway to meet the 60% reduction challenge. However, we are aware of large numbers of pledge-based carbon reduction schemes run by government bodies and NGOs. CRed strongly believes that it is absolutely crucial that a mechanism is put in place to ensure that the data from ALL pledge schemes is collated and properly stored and used. Further that a national strategy is put in place to oversee and advise those operating pledge-based schemes. There is a real danger that data will be lost and that vital information on public attitudes toward energy use will not be fully exploited by government and the agencies empowered to shape citizen's attitude to energy efficiency.

Points 2, 3, 4 and 5 in the call for evidence document are covered in the list of measures we have put forward for consideration by the Committee.

CRed recommends the following measures for consideration by the Committee:

- Development of a national strategy for enhancing the myriad carbon reduction and energy saving initiatives, to ensure the sharing of best practice and the avoidance of inefficiency, territoriality and replication.
- Government agencies receive millions of pounds of public money to work with the public and it is not always clear what the remit and powers of these organisations are, or how they link in with other initiatives. CRed urges the Government to revisit how it spends its money in the important area of energy efficiency and carbon reduction.
- Measuring and monitoring achievement is critical to successful citizen participation; the CRed accounting and pathway system (see www.cred-uk.org) is set up to achieve this and is being used by an increasing number of local authorities and other organisations).
- The sale of non energy efficient appliances (other than category A) should be phased out, and only goods which meet the highest standards of energy efficiency should be developed for the domestic and commercial markets.
- There is a strong case for labelling the country of origin of foods more clearly, which will enable the citizen to make an informed choice. Also a carbon rating scheme (similar to the energy efficiency categorisation of white goods) on foods from overseas (aircraft versus ships) is worth consideration.
- Make schools a focus for this whole campaign; CRed has helped enthusiastic schools make very large cuts in energy use; climate change and resource efficiency should be a central plank not just in the curriculum but a central plank of how schools go about their business. Schools are the nexus of their communities; the message would spread not only among young people who will suffer if we do not tackle climate change, but out to parents and the rest of the community.
- Pester power is proving a useful weapon in the carbon reduction arsenal. Therefore schools must be involved in the Government's drive to engage citizens in energy efficiency.
- More needs to be done to encourage "walking clubs" where parents take it in turn to walk a group of children to school or "walking" buses, where children join on to the line of people as it passes their house.
- Targets to reduce carbon emissions become key targets for Government in its own behaviour—document achievement and leadership at all levels, national, regional, local will gain respect and set an example. These can exceed the Government's climate change targets and could map CRed's ambition for a 60% cut by 2025.
- Inform and engage every citizen and household about climate change and the Government's energy policy to tackle it and to create a sustainable and resource efficient UK. This will only be effective if everyone sees that Government is committed in deed as well as action. If everyone understands the importance of the issues and sees fairness in getting engaged tremendous change is possible.
- Educate everyone about energy waste and encourage and reward change by pricing and incentives. Stimulate interest via personal and household monitoring via the CRed pathway and audit system that is now used by increasing numbers of organisations.

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- Reverse pricing policies that encourage waste of energy, for example by making a limited use of energy very cheap, and steeply ramping prices above certain levels; this is the model that is starting to be applied to car taxation although ineffectually so far.
 - Demand metering that enables users to know easily and in real-time energy use and cost; CRed has found that a principal barrier to reducing waste—in business as well as in the home—is lack of knowledge of energy use driven primarily by a lack of adequate metering information.
 - Aim to link real-time metering and pricing to supply capacity; once people, organisations or businesses can make informed choices not to consume in real time, peak loads can drop sharply.
 - The 2012 Olympic site could, and should, be a high profile example of Britain's low carbon leadership. Such ambition would raise the public profile of low carbon technology and demonstrate the opportunities for innovative business.
 - Publish figures for beneficial use of “free” energy. At present DUKES (Digest of United Kingdom Energy Statistics) explicitly ignores passive solar energy. Yet it is such “free” energy that enables sustainable construction and renewables technologies such as solar water heating. The focus primarily on fossil fuels is a historic attitude but creates a public mindset resistant to change. These data will be a vital complement to other figures showing energy saving and carbon reduction across the country.
 - Act to bring about the 40% house ambition by up-grading poorly performing properties and making resource efficient appliances much more financially attractive by taxation; it is absurd that filament lights are cheaper to purchase than compact fluorescent lights and to find A-rated appliances that consume more power than C-rated ones because they perform functions such as rapid ice-making.
 - Create mechanisms to ensure that responsibility for reduction of wasted energy and attention to resource efficiency are clear; at present in many situations this is not the case; for example landlord and tenant in rented accommodation, social housing construction and occupation; commercial property construction, management and occupation.
 - Make community ownership (or financial return to local communities) a condition of on-shore wind energy; except in a very few situations local communities gain no benefit from turbines in their locality; if this changed NIMBY would change to PIIMBY (Put It In My Back Yard); by 2010 on-shore wind will already be 6GW installed capacity but this figure should greatly increase. Encourage community-owned schemes which are already over-subscribed but difficult to set up.
 - Aim to ensure every house and building has local energy generation installed by 2050. Presently the figure is way under 1% and already cost effective technologies such as solar hot water are often sold in aggressive ways at inflated prices. There is a virtuous circle created as consumers gain from reducing waste and enhanced resource efficiency; there is natural transition to wanting to generate power locally—“citizen power”. An initial target could be one million homes by 2010; technologies should include heat pumps as well as solar PV, solar thermal and micro wind
 - Fund and support such programmes by financial transfers from inefficient users or by slowing work on the massively expensive nuclear legacy; this work is important but not urgent and brings little benefit save long-term safety; it can be conducted more slowly and resources diverted to ramping up micro-renewables. Alternatively, match every £ of subsidy to the nuclear industry with equal support for renewables; it is recently reported that the Government has given £5 billion to British Nuclear Group to help manage Sellafield.
 - Create an appropriate renewable heat obligation that would encourage biomass use and efficient community and business based CHP systems based on natural gas as well as biomass.
 - Create, over time, an intelligent grid that rewards domestic small-scale supply from micro-renewables and makes possible an electricity network with a multitude of small delocalised generators; if and when fuel-cell motive power for transport becomes viable within a hydrogen economy, then there will be millions of power plants parked by people's houses with a generating capacity greater than currently installed grid capacity; problems of capacity and storage become simpler.
 - There will be a massive requirement for new skills in construction, retro-fitting and micro-renewable installations. This can benefit the whole population. CRed has found great interest and application in DIY solar thermal installation in courses led by Norfolk local authorities.

Marcus Armes and Bruce Tofield
 The Community Carbon Reduction Programme (CRed)
 School of Environmental Sciences
 University of East Anglia

September 2006

Supplementary memorandum submitted by the Community Carbon Reduction Programme (CRed) (Cit 41a)

BACKGROUND

In August 2006 the Carbon Reduction (CRed) Programme submitted evidence to the Environment, Food and Rural Affairs Select Committee (EFRA) enquiry into carbon reduction under the title of the Citizens' Agenda. The submission led to CRed being asked to host a day session of the enquiry at the University of East Anglia.

This second written submission is designed to distil, into bullet point form, the most salient issues from our initial written evidence, and to factor in recent developments in this fast moving field. Emphasis has been placed on public the best means for engagement and progressing engagement into long-term action on carbon reduction. Finally, we believe that the bullet-points below should form the basic items for discussion during the CRed Team's verbal evidence to the enquiry.

MAJOR ISSUES TO BE RESOLVED BY GOVERNMENT IN THE FIELD OF CARBON REDUCTION

- The joining-up of the plethora of, largely pledge based, carbon reduction initiatives which produce useful data on carbon savings should be a priority. CRed believes that currently data is not always recorded intelligently, and in many instances data is lost altogether. Moreover, there is scant evidence to suggest that many organisations securing carbon reduction commitments from the public are conducting any meaningful analysis of whether these promises are being acted on, as little or no evaluation work is carried out.
- CRed believes that whilst national and international agencies can inform people about climate change and the need for carbon reduction, it is engagement at the local community level that convinces most of the public to undertake carbon reduction actions. In an era when public trust in large organisations is tending to decrease, activities such as the DEFRA Climate Challenge Fund that focus on supporting local projects are to be particularly welcomed.
- From our experience of securing carbon reduction pledges from the public we are aware that many people feel that they are a small cog in a very big wheel and their actions will make little difference. This is exacerbated by the perceived lack of action from the United States and China, which is often cited by members of the public we speak to as reasons for inaction. With the above points in mind we strongly suggest that the Government seeks to internationalise the carbon reduction pledge activities going on in the UK. This could be done by creating a database, which would share carbon reduction data with other nations enabling governments to hold information on global carbon reduction. This could be fed back to the various groups and on to the public, thus inducing a belief by doing their bit people are contributing to a much bigger global effort. A truly global effort for a global problem.
- The idea outlined at the end of the above bullet point could also be used to induce a degree of healthy competition between the people of participating nations.
- With the International element in mind CRed ran a big switch of campaign at the University of East Anglia (UEA) during the Spring of 2005 in collaboration with the University of North Carolina (UNC). The campaign involved staff being extra vigilant in switching off unnecessary devices, such as computers, photocopiers and lights. The campaign was extremely successful, and in some areas of the University energy use was down by as much as 30%. However, the fact that events at UEA were being mirrored by events at UNC gave the occasion a massive boost and induced a real feeling of international collaboration. The Government could look at using this type collaboration between universities as a model for internationalising carbon reduction. Indeed, universities with their reputation as hubs of knowledge, and increasingly *knowledge transfer*, would appear to be ideal catalysts for action on climate change in their host communities both at home and overseas.
- Enabling individuals and communities across the globe to join together to combat climate change reinforces the "act local, think global" message underpinning responses to climate change. Seeing other communities also embarking on carbon reduction can be a powerful incentive and helps overcome the perceived sense of insignificance of small actions. CRed is showing that small things really do add up. The use of the internet and new forms of communication, such as video conferencing, should be employed to enable communities in different parts of the world to share carbon reduction experiences.
- Once engaged in efforts to reduce their carbon footprint, it is vital the public become hooked into long-term action, which leads to substantial and lasting behavioural change. One off actions are of little value, and to make the meaningful cuts in carbon emissions required a series of measures are needed. To achieve this it is vital that the public have a road map to follow, and are made aware of all the carbon reducing options available to them in every aspect of their energy use. This has led to CRed creating an on-line tool, the CRed System, which outlines a clear pathway of measure,

designed to deliver, on an incremental basis, ever increasing levels of carbon savings. These pathways cover all aspects of our energy use (eg heating, lighting transport). We recommend the adoption of this approach on a broader scale in order to ensure the sustained involvement of the public.

The Community Carbon Reduction Programme (CRed)
University of East Anglia

January 2007

Witnesses: **Dr Simon Gerrard**, CRed Project Manager, **Dr Bruce Tofield**, Innovation and Change, and **Mr Marcus Armes**, Communications and Policy Officer, gave evidence.

Q702 Chairman: I would like to welcome Dr Simon Gerrard, the CRed Project Manager, Dr Bruce Tofield, in charge of innovation and change—that sounds an awfully big responsibility—and Mr Marcus Armes, the Communications and Policy Officer of CRed. May I thank you for being here and also for the written evidence that you have put in. The Energy White Paper in 2003 called for “unprecedented action by local partnerships” so that the Government’s targets for CO₂ reduction could be achieved. Do you think in that respect the Government has done enough thereafter to support that objective?

Dr Gerrard: Probably not. We welcome the fact that community-led organisations are blossoming round the country. I think that CRed is doing its bit to encourage that and it was very pleasing to hear the evidence from this morning that there are even more of those things going on. However, I think that there is a tremendous amount more that government could do, primarily for the reason that the science of climate change is now showing that we need to act faster than we probably thought that we would have to, even when the Energy White Paper was produced. I suspect that when the IPC report is released later this week, we will hear a lot more about the pressing need for urgent action in this area.

Q703 Chairman: You were a little tentative when you said, “probably not”. That half-suggested that they had done a bit but not enough. Can you be a little more specific about what you would like to see them do, and where perhaps they have failed to date?

Dr Gerrard: At the moment, the situation is that most of the activities happening at ground level rely very heavily on the voluntary enthusiasm of local participants. I do not want to decry that at all, because I think it is extremely important. However, the support around that—essentially from local authorities as well—is lacking at the moment. There are some local authorities who have really understood this and are leading on it; there is a whole range of others who are sitting, waiting in the wings, watching to see what is going on and then deciding whether or not to take action in these kinds of areas. The more I understand the climate science, I think the less we can afford to have people waiting in the wings.

Q704 Chairman: Do you think there is a lack of support for whole-community activity? We saw from the evidence this morning that one parish council, as an exemplar, had received over £26,000

for 370 people; we heard about Woking, who have done a remarkable job with their local authority buildings and the estate that they have; but there is not much out there to say that the Government are supporting whole communities, whole boroughs, whole counties, to go out and do some bottom-up stuff.

Dr Gerrard: That is right. I applaud the energy and enthusiasm of the people who have managed to find their way through the Defra process to get the money, and it is great that the money is around for those people to make those changes. However, it is not easy, and certainly the CRed programme, which has now been running for three and a half years, has a very complex mosaic of funding, which becomes increasingly difficult to keep track of, manage and continue. So it is not straightforward by any means.

Q705 Chairman: I think I am right in saying that in your own evidence you said, and advocated, “the development of a national strategy for enhancing the myriad carbon reduction and energy-saving initiatives, to ensure the sharing of best practice and the avoidance of inefficiency, territoriality and replication”.¹ So who should do this job of co-ordinating it?

Dr Gerrard: That is a very good question too. There is a role for central government to lead in that area, for sure. I suppose the danger with too much central government involvement in that sort of area is that it appears to be a very top-down initiative rather than the bottom-up initiative, which I think CRed has shown is necessary to get the action at ground level. However, in terms of co-ordinating the information that is being generated by all these different campaigns, the real danger is that we are not learning from them. There is a lot of activity going on out there and, from the evidence we heard this morning, a frustration that it is not simpler and easier to understand in terms of what works and what does not work. There obviously has to be some kind of learning process, and that will take a bit of time; but if there were national co-ordination to support local community activities, to offer advice and support, and to help people understand the priority—

Q706 Chairman: Let us unbundle this a little, because we have the Carbon Trust and the Energy Saving Trust. They are both sponsored by government. The Energy Saving Trust, unusually, at a time when demand on them is going up, has had

¹ Ev 302.

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its funding reduced from public sources—from what we can see. Should it be the case that the Government say to those two bodies, “You do the analysis; you pull the message together”, or should there be some other body? I am trying to get a clear idea as to what agency, body, or whatever, should take this responsibility which you advocate.

Dr Gerrard: The Carbon Trust is obviously working with larger businesses and it has decided to focus on those businesses, for reasons of efficacy in the way it wants to operate. There is then a gap in that market for the smaller companies. We work very closely with the Energy Saving Trust in our region, and that works particularly well at ground level. What I perceive as a bit of a lack at national level, however, is that it is all fragmented, in that they are working very much with the individual householder. What we have heard this morning is that we need to join some of these householders up in a more community-oriented activity, which we believe will have a bigger impact than individuals working alone and feeling a little as if they are working in isolation.

Q707 Chairman: You also made another interesting comment, where you argued that citizen engagement in tackling climate change “will only be effective if everyone sees that government is committed in deed as well as action”. Where is government failing, to make you say that?

Dr Gerrard: We hear all these warm words and there are a lot of people talking about the importance of climate change, but I do not think that is being translated into sufficient action.

Q708 Chairman: No doubt Mr Miliband, hearing that criticism—because he has been well-armed, as every secretary of state will be, or Mr Pearson, the Environment Minister—would trot out a list of initiatives right across government and say, “How can you accuse us of not taking it seriously?”. What would your riposte to that be?

Dr Gerrard: There just are not enough initiatives, I think, for the scale of the problem that we face. That is what we see and what people see.

Q709 Chairman: So you want more initiatives—but you were saying in your earlier answer that we were not learning enough from the ones that we already have.

Dr Gerrard: And we need to learn from the ones we have. In fact, it is important to learn from the ones we have, to inform where the new initiatives ought to be.

Q710 Chairman: Where should they be?

Dr Gerrard: We are learning that at the moment. More community-oriented, bottom-up activity, particularly focusing on making it easier for people to understand the situation they are in; so making it easier for people to get to grips with their carbon emissions and their understanding of their carbon emissions to begin with—which I think is the precursor for taking sensible action thereafter.

Q711 Chairman: Dr Tofield, do you want to contribute?

Dr Tofield: I was going to add to Simon’s comment, in terms of whether the Government are doing enough. They manifestly are not, because our carbon emissions are going up. In 2005, emissions were a provisional 153 million tonnes of carbon; in 2004, 152 million tonnes of carbon; in 1997, 10 years ago, 150 million tonnes of carbon. So, by an objective yardstick of our carbon or CO₂ emissions, clearly not enough is being done.

Q712 Chairman: The Government have this 60% reduction by 2050; you have the same by 2025. Tell me what we have to do to hit the fast-forward button—which responds to our witnesses earlier who were saying, “Can we get on with it, please?”?

Dr Tofield: It is a combination of things. We have heard this morning from some remarkable individuals and some remarkable communities. There is absolutely no doubt about that. We are very supportive and are working with some of them. The ambition of villages like Ashton Hayes to become carbon neutral is mirrored in some communities more locally here, and we are hoping to translate and to share expertise. However, the domestic component of CO₂ emissions in the UK is around 29% in people’s houses—that is excluding transport—which is actually less than CO₂ emissions from electricity generation. Okay, some of that 29% is some of the 30% that electricity generation is responsible for; but it is bizarre that, in this day and age, two-thirds of the energy which we consume to provide electricity goes up as hot air, and it is generally produced hundreds of miles away from where it is used. In our submission to you a few months ago, therefore, one of the key points we made was that we will only be able to get significant change, enabling people to make the changes that they want to make rather than forcing them to do them—by legislation saying, “You can’t do this or you can’t do the other”—by transforming energy supply to become energy service companies. There have been a few examples around the world. This was done in Sacramento, California, in the late 1980s, early 1990s. Obviously it is a huge step beyond the current EEC, Energy Efficiency Commitment, which is essentially asking poachers to be gamekeepers at the same time and is a rather unsatisfactory halfway house. There are many other things by which we can transform the way people think about carbon and energy; for example, through charging for their energy. At the moment, costs go down the more you consume, which seems bizarre if you want to limit cost. You can sort out fuel poverty to a degree by having low costs, which then start to ramp up. Smart metering has been mentioned. If people can visibly see what they are using, then that could be helpful. Smart taxes, in places like Richmond, tax the polluters and give that money back to the people who are not polluting. There is, in particular, legislation. A couple of weeks ago, I was at a forum with the CBI, talking to the Foreign Press Association, and the CBI representative pointed out how clean our air and

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water are these days. The reason for that is because government passed legislation, demanding that that should happen. In 1970, when the Clean Air Act was about to be passed in the United States—which drove the reduction of emissions from automobiles—Iacocca, then the senior executive at Ford, said, “If you pass this legislation, the vehicle industry in the United States will essentially go bankrupt or cease to exist, because it cannot be done”. The vehicle industry in the United States is almost going bankrupt, but not for those reasons. In other words, car manufacturers have managed to do that. Sadly, we are seeing today that the EU is proposing 120 grams per kilometre by 2012 for cars, which is far below the voluntary target of 140 grams per kilometre by 2008—which will be missed by a huge amount. Already we see that that is being opposed by representatives from the Society of Motor Manufacturers and Traders in the UK and by luxury car-makers across the EU who say, “It’s going to drive us out of business”. It is exactly the same response that Iacocca, Ford and others were making in 1970. The Government, hopefully with the EU—which is actually trying to do good things—have to drive forward the legislative framework which will drive innovation and innovative businesses, such as my ex-employer Johnson Matthey, which has now become a member of the FTSE 100 in response to environmental legislation, and is the world’s dominant manufacturer of car exhausts. So a government has to change the ground rules, in a sense: not to tell people what they are not to do, but to make stringent environmental limits for CO₂; almost taking it as a health issue, as with water, waste and clean air. Then business can respond; the options for individuals become much clearer and they will be able to respond; and if you do have individual carbon accounts, or any of the alternatives, people will be able to take steps to reduce their carbon emissions. The question was asked, what happens if somebody is poor and fuel poor? How on earth do they cope once you have this mechanism? I think that government has to stand up and deliver and, post-Stern, it has no excuse not to.

Q713 Chairman: Before I pass the questioning on to Lynne Jones, let me ask one question about CRed. You have an impressive product, if I can put it that way, and your annual report attests to good progress; but you seem to make rather better progress outside the United Kingdom with what you are doing. We heard in evidence this morning that China has even bought your system of generating power, but in Norwich you have run into resistance. Why do you do better business with the programme and your solutions outside the UK than inside?

Dr Tofield: Do we? I think that we do both.

Dr Gerrard: Progress has been made on a number of fronts. The pace of progress is driven in part by the decision-making processes that you face in those different cultures. I think it is fair to say that in a very democratic process the decision-making process for planning takes some time. That is the main reason why things may be speedier in China.

Dr Tofield: Remember, CRed exists because of an initiative by the East of England Development Agency. It was therefore a response by regional government. To go back to your first question regarding communities, it is difficult for national government to kick all communities to do something. £26,000 does not go very far, when you put it across 60 million people in the whole of the UK; but, at a regional level, it is where regional authorities could begin to have a significant input, because they can help to link up communities. It is something that is happening here in the east of England. There is an initiative called Regional Cities East. Seven, not megacities, but Norwich, Ipswich, Peterborough and four others, are linking together and are talking to CRed about how to deal with their low carbon initiatives, which we think is very promising and indeed very helpful.

Q714 Lynne Jones: We heard this morning from Ashton Hayes about the work they are doing and how they have developed their carbon footprint. Is this an essential part of your pledge scheme? You may have heard me ask questions about the consistency and replicability of carbon pledge, carbon footprint-type schemes. Would you care to comment? If this is an essential component of raising awareness, then getting us to develop the baseline and then monitor our performance in reducing our emissions, we need to have some consistency; we need to collect data. How do you think we should go forward in taking that work beyond the small local initiatives that we heard about this morning?

Dr Gerrard: I think that there is a parallel with what is going on with the offsetting at the moment and the guidelines that the Government have produced, because of the range of different offsetting schemes that there are. I can imagine that it would be very sensible to have similar sorts of guidelines to help the carbon footprinting tools as well. The two key points I would make about it are that, whichever tool you use, there ought to be some transparency in there, so that people can assess the kinds of assumptions that have been made. It is not necessarily the case that there will be a single answer to this. I think that there will be choices that people can have about the kinds of assumptions they would like to make, or have made on their behalf, in terms of the footprint tool they use. Transparency is therefore very important. The sort of standardisation idea that you propose would also be very welcome; and perhaps even some sort of accreditation scheme that says, “These are the particular tools that government feels are worthy of some kind of kitemark”—to try to guide people to be using the appropriate tools.

Mr Armes: It is really important that this information is fed back into some sort of central data source. Mention has been made of Manchester is Our Planet. Lots of different pledge systems are out there at the moment, and they are doing some very good things. What worries us is that a lot of the data is being lost. That is why it is really important that some agency has some kind of handle on all the different schemes and systems that are out there and that that agency is user-friendly, so that Ashton

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Hayes, ourselves and others, can feed back data to some central storage system. It will enable government to make more intelligent decisions on, for example, how they will work with the public in order to help them reduce their carbon emissions. If you like, a glorified version of what you are trying to do today: some kind of repository for all this data. There are so many schemes out there, and what concerns me is that valuable data is being lost.

Q715 Lynne Jones: Who should do this?

Mr Armes: Maybe it is a combination of the Energy Saving Trust and the Carbon Trust—I do not know—if they could get together; but some kind of organisation, perhaps within Defra, would be very welcome.

Q716 Lynne Jones: What do you envisage? At Ashton Hayes they were talking about producing a toolkit, which has been funded by Defra. Presumably, at some point, that might be a kitemarked toolkit. How many pledge schemes are there that you are aware of?

Mr Armes: I certainly know of five or six different schemes, and I am sure that there are more out there.

Q717 Lynne Jones: Are they all going about it in the same way? Is there a need to get some consistency of approach?

Mr Armes: Yes, very much so.

Q718 Lynne Jones: You are saying that you think the Government should appoint somebody to take on this role, but how would you require people to submit their data?

Mr Armes: I think that it would have to be done on some kind of voluntary basis to begin with, but there is no such organisation out there at the moment and so it is very difficult to tell whether people would respond. Really important to this is to continue with a light touch. The Energy Saving Trust and the Carbon Trust do a great job, but they are not responsible for Ashton Hayes; they are not responsible for us. There are other organisations and other groups that are doing good things. It is really important that initiatives are coming up from the grass roots and that they are encouraged. Going back to the Government's original statement, namely meeting their 60% target by 2050, they did not set out a roadmap to do that; so, if you like, CRed and Ashton Hayes are trying to find the roadmap—we are trying to find our own way along that path. I think that we are finding that there are perhaps different paths.

Q719 Chairman: Should the Government create a roadmap?

Dr Gerrard: I think that is the direction this agglomeration of experiences would create, and the way to incentivise it is—for all of your communities in your constituencies, for example, who may be saying, “We really want to do something here”—would it not be great if there was an organisation centrally that was able to provide advice on how to do this? The deal for providing advice would be that,

once you did something, you fed back the information to that central repository. So you get something from government—some support and some guidance, maybe contact with some of the other organisations in your area that are already doing things, some other communities—and, as part of that kind of deal, you would promise to pay back by giving the information about how well you had done, or not, as the case may be.

Q720 Lynne Jones: Would you not need some kind of accreditation scheme? They may get the advice, but they may cut corners, fiddle the figures, or whatever.

Dr Gerrard: Possibly, yes. Certainly what we have found, in the way that CRed has evolved with its satellites, is that we do not perceive anybody to be fiddling the figures; they just want to use the tools. We have not reached the point yet where we have found people who are trying to cut corners—and we do check.

Q721 Lynne Jones: I was very interested that you had a bit of a competition between your university and, I think it was, the University of—

Dr Gerrard: North Carolina.

Q722 Lynne Jones:—North Carolina. Competitions perhaps between communities, between countries, even between parliaments maybe, as to how we could reduce our emissions—but you would need some common means of collecting data and some accreditation. Are you aware whether there are these kinds of initiatives in any other countries? Perhaps they are further developed than we are, or could we lead the world in something like this?

Mr Armes: I think that we could lead the world. It is interesting that North Carolina is buying our system, basically. They have some funding from Duke Energy, which is a very big energy supplier in the States, to purchase our system. There is talk at the moment of their spinning that out right across North Carolina. Maybe in terms of public engagement we are ahead of the game. There are great things going on in certain areas in the United States but I think that, generally in terms of public engagement, we are ahead of the States.

Dr Tofield: You have commented on the internationalisation of CRed and why that is going faster than is happening in the UK. I am not sure that it is, but it is very exciting. Our colleagues in North Carolina, China, and elsewhere will make their own input to the system and that system will become developed and improved, not just for them but for us as well, and for all our partners in the UK. Whether or not the Government appoint some agency—and, indeed, would people trust it if it was the Government?—I think that the CRed system will develop and will, by default, assume a position where it could do the job you want it to do, always assuming that we keep getting funded to make that happen.

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Q723 Lynne Jones: Do you do any monitoring of schemes yourself? Could you tell us a little about that? Moving on from this discussion perhaps, how would all this fit in with the idea of Contraction and Convergence?

Dr Gerrard: Most of the other schemes we have seen so far have spun out of the awareness-raising and trying to capitalise on information campaigns to encourage people to act. Some of them simply register an individual's commitment to act, without specifying exactly what it is that person would do. Another is to have maybe a few simple steps that people could take if they wanted to. Not many of those that we have seen, if any, spend any time evaluating, by following up to see whether people really do what they say they will do. There is therefore a kind of a measure in terms of engagement, but not necessarily in terms of action. When we set up CRed, we were very clear that we wanted to try and track exactly what it was that people were doing. We do spend more time than others, therefore, going back to people and saying, "Tell us a bit more about what you have done, and also have you thought about doing some more?". What has happened is that we began with six individual, very simple steps. That has now evolved into many, reasonably complicated pathways which would be a series of steps, and each individual's pathway might begin with something very simple but eventually lead to something much, much more complicated, involving an investment and more technology. Our strategy is to extend those pathways as the science, technology and innovation develop, such that we can add new steps into the existing pathways. For lighting, for example, you could say, "Let's begin with a few low-energy light bulbs. They are readily available and you can even get them free from your supplier". Then maybe you make the commitment to put the energy-efficient light bulbs in the whole of your house; so you then have to go out and buy some. Then maybe, in time, we will be switching people to things like LED lighting, as that becomes more commercially available in the domestic setting. You can begin to see how these pathways start to evolve. We track people as they move along those pathways. We are therefore very keen on the evaluation element of what we do. It is consistent with being based at a university, I think. We want to know how people are doing. Where they do very well, we are able to shout from the rooftops and get others to join in. Where there are barriers, we are able to talk to people like yourselves, to highlight the fact that maybe things are not quite so easy; that people would be willing to do more, but they have come across these kinds of barriers that are frustrating them or stopping them from acting.

Q724 Lynne Jones: Is this useful preparatory work towards implementing Contraction and Convergence?

Dr Gerrard: Potentially, yes. If you could tie it to the carbon footprint at the outset—and we do provide carbon footprints and tools for people to use, although we do not insist that you have to do that

before you start—you could begin to see where people started, the actions they took, and where they are finishing up. If you could tie that, even better, to real measurements of their energy use—which, as smart metering and things come forward, may be possible—then I think you have a position of a much more accurate audit of exactly where individual householders, businesses or schools are, and the steps that they have taken along that way. The answer is that it is possible, but I do not think that it will be easy to do very quickly, because the uptake of the technology around metering, for example, is still very rudimentary.

Q725 Lynne Jones: One of the things that you have pointed out is the big increase in engagement from the domestic sector. What do you think has triggered this surge of interest in these kinds of schemes?

Dr Gerrard: From the evidence you have heard this morning, I think that people are ready for this. They have moved away from a "Could I be bothered? Should I act?" to "What can I do? How can I do it?". I think it is that simple. It is the amount of information that is generally out there about the implications of climate change—both the threat and the opportunities associated with it—which is driving people towards the idea of saying, "I now know more about this. Now it is time to do something". That would be my guess.

Q726 Lynne Jones: Do you think that initial enthusiasm will be maintained, or might it just tail off? How can we ensure it is maintained?

Dr Gerrard: I have been working here in the School of Environmental Sciences for nearly 20 years and I have seen lots of blips along that way. I do not think that this will die off. I had a conversation with a very well-known environmental correspondent for one of the broadsheets recently and I asked him the same question, provoking him almost, saying, "When is this all going to die off?"; he said, "No, it won't". There are too many hooks now for stories to be placed round: both the signs of climate change and the profound implications it holds for societies and economies; for us as individuals here in the UK but also around the world.

Q727 Chairman: To be specific about CRed, which is what I think underlies the question, for the people who sign up to your approach, how do you keep them up to the mark?

Dr Gerrard: Behind the CRed system is effectively a customer relationship management tool, which allows us to keep in touch with people. We can do that either on an individual basis, within groups, or within the whole CRed community. We send messages and contact people. We alert them to various opportunities, maybe tease them a little bit, cajole them, and try to be as enthusiastic and optimistic as we can. Ideally, it would be really good if we could put them in touch with each other more readily. We are looking at the possibility of new communication technologies that would allow people to share their experiences, more real experiences, so that they felt that they really were

part of an organisation and a community of like-minded individuals, all facing the same kinds of frustrations but all managing to make some kind of progress.

Q728 Chairman: A sort of “CRed-blog”?

Dr Gerrard: In essence, yes.

Q729 Lynne Jones: Do you think that we need people appointed to chivvy people, to make sure that they are doing what they have said they will do? There were suggestions from the panels earlier about needing people to do this work. It is all very well in terms of people who are signed up to you, but you will not be able to do that for the whole country. How do we ensure that we have a network of such schemes? Then could you tell us how, as CRed, you have a target that is double the Government’s target? How are you progressing personally?

Dr Gerrard: The key is, yes, we certainly do need people, but we need the right kind of people. There is a danger that if you get the wrong kind of people or the wrong kind of organisations, this can seem like bullying and it can turn people off, I think. All the evidence I have seen—and earlier the Chairman mentioned levels of esteem, for example—suggests that the information sources that people really trust tend to be more locally based, namely friends and family, people they know down the pub, or whatever, rather than big business, big government and big organisations telling them what to do. It is why we set up CRed in that kind of bottom-up way. That is why the community networking aspect is important, to chivvy people along and to drive them forward. What kind of progress are we making? When we first submitted our evidence to you about four or five months ago, we quoted a figure of 21,000 carbon reduction commitments that had been made across the CRed community. Last week, that went to over 40,000. In the last six months, therefore, the activity level has doubled. In the last year, the average participant has gone from saving half a tonne per year CO₂ to over one tonne per year of CO₂. It reflects the fact that people are moving along these pathways, doing more and more and wanting to do more and more. How close are we to our target? We are probably just pushing the 10% level. There is still a long way to go, but the pace of change is rapid enough that I think we will get there. Within our CRed community, our ambition is that all the people who are joining will have achieved the 60% reduction by 2025.

Q730 Chairman: Within the range of knowledge of how to move down the pathways that have been identified, the technologies are known. In other words, we have renewables, microgeneration, better insulation and so on—all the things we know about. When do they run out in terms of effectiveness? If you have to move at the rate you want to go, at what point do we need something different?

Dr Gerrard: “Soon”, I think is the answer. The pathways generally get harder as you go along, so at the moment we expect people to find it more difficult to get towards the end; but it is no coincidence that

this university has just won £5 million to set up a fund, essentially to promote and support the development of low carbon innovations. That is funded by the Higher Education Funding Council for England, in conjunction with the Office of Science and Technology. It is a small investment really, in a nugget of an area, though, which I think is of huge potential for the economy of this country. If we can show that we understand both the behavioural ways of doing this and also have a lead on the technological aspects—and most of the carbon-reduction activities we are dealing with are a combination of technology and behaviour—that is something which can underpin the economy of this country for a very long time, I think.

Dr Tofield: You do not have to know the answer to that question to make progress. If you reduce your carbon emissions by 20% a decade from now, you will have achieved the 60% reduction by 2050. If you do 25% a decade, then there is a little bit to spare. We know from work we have done in this university that, in schools, in homes and in businesses, roughly 25% of the energy—which approximates to 25% of the carbon emissions that people use either in their homes or in their businesses—is wasted. In other words, there are pound notes on the floor waiting to be picked up that people do not pick up. Either it is too cheap or people do not know or they do not measure, and if you do not measure these things you never know—which goes back to these conversations about metering. We do not manage energy; therefore we do not manage carbon. One of the reasons why we believe that the Government need to set these more stringent targets and we need to change the way energy is supplied as, if you like, a service—so that there is a stimulus upon the supplier to reduce your energy use rather than increase it—is because you can start to pick up this 25% which is free, and then go beyond that. A low-carbon economy is ultimately a low-waste economy. If we go back to a business analogy, Toyota—which was almost bankrupt in the 1960s and a very tiny car company—realised that if it was to succeed against the huge behemoths of General Motors, Ford and, in those days, Chrysler, it had to invent a totally different way of making cars. It did not have huge volumes; it did not have huge space to make them in. When it started to do that, it did not know exactly how it was going to do it but it knew what it had to do, and it started along that path. Bit by bit, what is now known as “lean manufacturing”—the Toyota production system—came on board. Now its capital worth is bigger than that of General Motors, Ford, Chrysler and Volkswagen combined, and it is about to overtake General Motors as the world’s biggest carmaker. Not everyone should aspire to make more cars than anybody else; that is obviously not right. The point is that, once you start thinking carbon, once you start managing energy, once you start innovating, you are looking at the whole range of your activities. You innovate, and then you find more things you can do, which you did not know you could do before. You did not even think about these things when you first started. It is why, when Ashton Hayes, and hopefully some communities

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more locally, are talking about wanting to become carbon neutral, the outside observer would say, "That's impossible. You can't possibly do that. You can only save so much by this; you can only save so much by the other". Yes, it is impossible today. We cannot see how to do it. However, I also believe, from the history of innovation, that they will make it happen if they really want to. It may be through planting trees. It may be through setting up more sustainable agriculture, which can sequester quite large amounts of carbon in the soil, rather than engaging in intensive agriculture. It may be through setting up global energy supply companies, where they have a few wind turbines and other things, which are generating energy which ends up being cheaper than that from the larger energy companies. There is a whole range of things. We just cannot see how it can possibly be done at the moment. We have to change that whole way of approaching it, and then it will be done. However, before that point, do not ask exactly how it is going to be done because we do not know at the moment—but we will get there.

Q731 David Lepper: It is all about changing people's behaviour. A significant aspect of behaviour is persuading them to spend more of their disposable income on energy saving policies, and we have thought about financial incentives to do that. Should the Government also be banning things, or setting more stringent standards in relation to some products than they do at the moment? If so, could you give us some examples of whether you would either want to see the Government banning or setting more taxing standards somehow?

Dr Tofield: You have heard some already. You heard from Jason Borthwick this morning, asking why tungsten filament light bulbs are still available, and why do televisions and other devices come without even a switch-off switch. If you do not know how to do it, you do not do it; you have to go to the wall to switch it off. Why is there not legislation mandating that standby power, if you have to have it, is 10 times less than it is today—which could be possible? Why do you not mandate changes in the billing of energy, so that it starts off low and goes up high? Why do not the Government come out and say loudly and clearly, "Yes, we support the EU going for 120 grams per kilometre for cars by 2012"—except that we want them to get down to 100? We are having conversations with our colleagues at Lotus Engineering, who say that technically this would be possible; it is just not happening at the moment. There is a whole range of things that we believe the EU, together with our Government, could do to drive forward the framework whereby choices become easier for people, because they are not presented with all these other options on the supermarket shelves. Local food—Defra has just indicated in a study that maybe 25% of carbon emissions are to do with food growth and supply. The whole local agenda is another area where we could make a significant impact. You obviously do not save energy in not turning your thermostat

down, but if you are buying local food—if done in the right way—it can have a significant impact. So, yes, there is a whole load of stuff there.

Q732 David Lepper: What about the argument that we heard put in the earlier session this morning about the fact that Members of Parliament have to be re-elected, and a huge menu, such as that you have just given us, is something that many would be timid about seeing the Government enact?

Dr Tofield: Many may be, but we are not telling people, "You must not fly". We are not proposing that you should tell people, "You must not go by car except between the hours of two and four in the morning". What we are doing is setting standards, just as standards are already set for clean air, clean water, and the waste industry. Then industry will innovate; or, at least, innovative industry will innovate and non-innovative industry will go bankrupt. That is creative destruction. Schumpeter wrote about that 100 years ago. There will still be as many choices for us as individuals as there always have been. Maybe a few things will be slightly more expensive: possibly flying. We must not start to ban people's mobility; what we need to do is to give people low-energy, low-carbon options. To do that, we have to drive forward the agenda for innovation. That is where hopefully the Government, together with the EU—the EU is potentially very powerful—can do that. People have talked about the examples of other countries. The Prime Minister of India recently gave a talk, saying, "This is exactly what we want to see the West do. We see there is a problem, but we want you, the West, to demonstrate that you are going to tackle it and we will follow you". If there are problems with oil—you have heard about the "Peak Oil" situation—and if there are problems with security of supply, then all of the things we do to combat climate change will stand us in extremely good stead if these other things happen. So it is potentially a win-win situation. Our business will also prosper—innovative business. It is what California is trying to do at the moment. We are sad, in a sense, that the Government are not pursuing this agenda perhaps as strongly as they could do.

Q733 Mr Drew: How much work have you done on socio-economic factors? It is good to speak the language of idealism but, if you are living in poverty, the last thing you are concerned about is the planet in 10 years' time. You are worried about how you can eke out an existence at the moment. What is your profile of the people you are involved with?

Dr Gerrard: When we started out, we assumed that we would be touching the people who were already green and reasonably well-off. We did our first evaluation after we had our first, something like, 5,000 commitments made. We were surprised that, when we used the profile for greenness, which is a standard environmental psychology profile in the questionnaires we use, it was almost exactly a normal distribution, representative of the UK. That gave us some confidence that we were not just preaching to the people who were already motivated and wanting to do this; there were others in there

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too. I accept entirely that there are challenges; there are lots of different people out there, we know, and there are lots of different motivations. I think that the trick is to find ways to incentivise them to do things. We heard a bit this morning about how you might do that with fuel poverty, and try to make it a win-win situation. It is not beyond us to be able to do that, I am sure.

Q734 Mr Drew: If we look at those who are living with lower incomes, the majority, almost certainly, will be in some form of tenanted accommodation. Last week we had Andrew Warren from ACE, who will be well known to you, talking about the lack of drive in the tenanted sector. On the one hand, you have government with the Decent Homes standard, which is doing some work but which will be really wary about double-funding, saying, "We do now have a Decent Homes standard. The last thing we want is some great new low carbon initiative". In the private sector there is always the issue that many landlords do not seem to want to invest long-term. Sometimes I cannot get them, even with grants, to improve the basic quality of their property, so that not only will their tenants have a better standard of living but also they will gain long-term because they have an improvement to their capital asset. What is your answer to the tenanted issue?

Dr Gerrard: We have looked at that with the many tenants we have who are students at the university here. There is a Students Union accreditation scheme for Norwich landlords in the private sector, which covers all of the things you would imagine that it would cover, in terms of statutory compliance with safety for gas fires, and that kind of thing. They do not have anything in there at the moment about energy efficiency. We are therefore proposing with them—and they are very keen to do this—to put into the checklists that the students take out with them when they go to look at houses questions about energy efficiency and the cost of running the building. We think that at least sensitises the landlords to the idea that these sorts of questions are now going to become more relevant. At the same time, what we are trying to do with some of the power companies is provide the landlords with access to the grants that you have described. There is a kind of carrot and stick at the same time. The idea that, if you really want students to rent your properties, you expect that they will ask these questions and, at the same time, provide a solution to them, saying, "If you want to be able to answer those questions very effectively, you will need to get in bed with one of the power companies, get the grants if you can get them, and do something with your house". From our perspective, in a very local case study, we think that is the best chance we have of trying to tackle what is quite a difficult sector.

Q735 Mr Drew: Is the Landlord's Energy Saving Allowance of any real value?

Dr Gerrard: I am not too familiar with exactly how that works. I would not want to comment directly on that, but I can imagine that there are other schemes around to try and help landlords and incentivise

them to do things. I suppose that, the more incentives they have and the more pressure that they feel, the more chance there is that they will eventually change.

Q736 Patrick Hall: A rather clever policy of the Government has been to get energy suppliers to subsidise household energy efficiency measures, through the Energy Efficiency Commitment. I have to declare an interest. I am one of those who have taken up a scheme to have cavity wall insulation installed. My wife found a leaflet delivered through the front door that described this. Indeed, our nearest neighbour has done the same thing. For people on low incomes there are 100% subsidies. It therefore seems to be a very good idea. However, I think you have argued that this is not a very effective scheme, this Energy Efficiency Commitment. I think you have called it "a rather ineffectual halfway house". Why do you say that?

Dr Gerrard: Our thinking was that there is a tremendous amount of extra activity that could be put into that scheme. It is not necessarily the case that what is actually happening at the moment is particularly ineffectual; it is quite low-scale. I do not think that there are too many people like you who are taking advantage of it, and more could be done to encourage people to take advantage of it. Also, what we are beginning to notice in our connections with the power companies is that they are starting to see the need to create other kinds of activities, other than things like cavity wall insulation and loft insulation, which have been around for quite a while, and to look at the other kinds of new technologies, including some quite sophisticated combined heat and power generating systems for the domestic sector. There is the smart metering kind of idea as well. Our feeling is that there is more that can be done with that scheme, and that could be one of the factors that generate the kind of sea change that we might see, or might need to see, as time goes on.

Mr Armes: The public are also quite sceptical, because they cannot understand why an energy company could possibly want to sell less energy and make their home more efficient. I think that there is also a communications message there. Maybe this culture shift in energy companies becoming more about energy efficiency than energy generation and supply is an important element in this. Certainly a lot of people we speak to when we are in Norwich centre, or wherever we are talking about CRed and trying to get people to sign up, do not understand the scheme, and there is a big communications message to be had there.

Q737 Patrick Hall: You get a leaflet through the door and it says, "You can have your house cavity wall-insulated for £175". I do not think that is difficult to understand. You have to ring a number to check out whether this is true or not. I do not know why there is this great resistance that you say you have measured.

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Mr Armes: It is easy to understand for us, because I understand that the energy companies have to meet this commitment, but the public do not. They think, “Why does my energy company want to reduce my energy bill?”

Dr Tofield: We have done audits in a number of communities, as have Ashton Hayes and one or two of the other communities, and we find consistently that the number of households, for example with the recommended level of roof insulation, is about 10%, and half of them have less than half. Similar things apply to cavity walls. You are absolutely right: it is incredibly good value. Nevertheless, it is not being taken up in the way that it might be. Mention was made earlier of Woking, and that what Woking had done was hopefully being replicated in London on a much bigger scale. There is a tremendous drive now to set up a local energy supply company in London. When you get that much more local, more efficient energy supply company, there will be the drive and the incentive not just to generate that energy but also to save the energy, and to build things like energy saving and reducing energy use into the whole infrastructure of energy supply. They will become part and parcel of the same thing.

Q738 Patrick Hall: I think you mean energy service, do you not?

Dr Tofield: Energy supply and service.

Q739 Patrick Hall: Because they supply it already.

Dr Tofield: When you have an ESCo providing heat, and hopefully heat and power, locally—generated locally by CHP or whatever sort of system you have—then that supplier may also become a service company.

Q740 Patrick Hall: Yes, and that links in neatly with what the Energy Review says, which is to propose a new obligation, coming after 2011, that energy suppliers should become energy service companies and to be seen also to be servicing and supplying energy efficiency measures. At first glance, that does not seem to make commercial sense, does it? How do you see such a market developing?

Dr Tofield: In the United States, people have analysed that it costs six times more to build a new unit of energy supply than it does to save a unit of energy. As I said, there is a huge amount of energy wasted at the moment, and yet no one seems to have the incentive to pick up those pound notes. Actually, for a long time it will be cheaper to save energy than it will be to build and install new units.

Q741 Patrick Hall: If it makes commercial sense already, why do we need an obligation?

Dr Tofield: Because the whole infrastructure of the way the market is set up does not allow people easily to go in and find it. Energy supply companies are that: they have big power stations or little power stations and their job is to supply energy. That is how they make their money, whether it is gas, power, or electricity. The Energy Efficiency Commitment, in a sense, is a bit like asking a poacher to do a bit of gamekeeping on the side. They are forced to do that

by government and they have to do it. That is why you get your leaflets; but they make their money through supplying energy, not by saving your energy. So, in a sense, a restructuring of the industry—which hopefully will happen sooner rather than later—is what is really required. That will be key to many of the questions which the Committee is asking, because suddenly everyone will be focused on this whole business.

Chairman: Let us move on in our last couple of minutes to Daniel, and a quick question on schools.

Q742 Daniel Kawczynski: How well do you think that the Department for Education has done in terms of introducing energy education programmes, and what else could they do?

Dr Gerrard: We certainly have a schools programme that we have evolved ourselves. What we have tried to do is link the energy management within the school, using caretakers and facility managers, to the educational programme. The Department for Education has picked up on that and run with the same kinds of ideas. There is a lot of potential in schools to learn from the very buildings that people are being taught in, and that is good. From our perspective, standing outside the mainstream activity in schools—because ours is funded completely separately from the Department for Education—there is a plethora of different things out there. While not one size will fit all, and it is very good that there are choices for schools to choose different kinds of programmes and activities, we are probably in the same kind of boat that we were in when talking about the community-level activity. There needs to be some level of consistency about that, and checking that the evidence coming back from whether or not these programmes are working is being collated in the round, so that there is a sense that you can even answer the question that you pose. At the moment, it is a very mixed bag out there. We work with HSBC. They have an educational trust that funds schools to do different things, and they have also found it quite challenging. Even though they provide financial support for schools to install renewable energy and suchlike, they have found it quite difficult to find schools that have the capacity to be able to deliver that, because there is nobody in the school who is able to take that on as a project in their own right. I do not know if that quite answers your question, but it is a mixed bag.

Chairman: We could have gone on with even more questions, but unfortunately time is the one commodity of which we do not have a limitless supply. Thank you very much indeed. Not only have you given us some perceptive overviews about the whole field that we are investigating; you have given us an insight as to the way that CRed operates as a programme. I look forward, from a constituency point of view, to working with you in the future. As I said at the beginning, you cannot undo anything you have said but, if there is anything further you would like to say, we would always be delighted to hear from you in writing. This brings the formal part of our evidence session this afternoon to a conclusion. May I thank our witnesses and also our ever-patient

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members of the public, who have come to witness for themselves how a different style of inquisition is conducted by the Committee. I hope that you have enjoyed it, and I hope that you have a better idea of how we go about doing the work that we do. Thank you all very much for coming.

**Further supplementary memorandum submitted by the Community Carbon Reduction Programme (CRed)
(Cit 41b)**

FINAL RECOMMENDATIONS

CRed is the Community Carbon Reduction Programme at the University of East Anglia, funded in part by the East of England Development Agency. CRed is a network of partnerships with individuals, businesses, schools, and communities, as well as local authorities, working to show how a 60% reduction in carbon emissions can be achieved by 2025.

BACKGROUND

In August 2006 the Carbon Reduction (CRed) Programme submitted evidence to the Environment and Food and Rural Affairs Select Committee (EFRA) enquiry into carbon reduction under the title of “Climate Change—the Citizens’ Agenda”. The submission led to CRed being asked to host a day session of the enquiry at the University of East Anglia.

On 31 January 2007 12 members of the public who have pledged to CRed and four members of the CRed HQ Team gave evidence in support of further action from government on the issue of citizen involvement in carbon reduction.

This final written submission is designed to distil, into bullet point form, the points which CRed believes EFRA should be recommending to the UK Government.

THE CITIZEN’S AGENDA

Specific recommendations to the Department for Environment, Food and Rural Affairs and the UK Government:

- That the Government seek to internationalise and rationalise the plethora of carbon reduction pledge activities going on in the UK by creating a carbon reduction data brokerage, which would share carbon reduction data with other nations, enabling governments across the world to hold information on global carbon reduction. That this collective carbon reduction data be fed back to the various groups and on to the public, thus inducing a belief that by doing their bit people are contributing to a much bigger global effort. That the data base uses the CRed System as a model for engaging the public and capturing carbon savings over the longer term, and the initiative be managed by an independent organisation which is arms-length from government but answerable to the public through government. *From CRed’s experience of securing carbon reduction pledges from the public we are aware that many people feel that they are a small cog in a very big wheel and their actions will make little difference. This is exacerbated by the perceived lack of action from the United States and China, which is often cited by members of the public we speak to as reasons for inaction.*
- The development of a national strategy recognising the value of community-based carbon reduction activity for enhancing the myriad carbon reduction and energy saving initiatives, to ensure the sharing of best practice and the avoidance of inefficiency, territoriality and replication.
- The sale of non energy efficient appliances (other than category A) should be phased out, and only goods which meet the highest standards of energy efficiency should be developed for the domestic and commercial markets. Action on this recommendation should start at the earliest possible date.
- Phase out the sale of inefficient high energy use lighting and ensure that by January 2008 only low energy lighting is available to domestic and business consumer. *This measure is already being proposed for California and Australia.*
- In order to inform the choices citizens make when buying goods clear labelling of the country of origin should appear on foods and other products. Also a carbon rating scheme (similar to the traffic light scheme proposed by the Food Standards Agency for salt content) on foods should be considered.

Targets to reduce carbon emissions become key targets for government in its own behaviour—documenting achievement and leadership at all levels, national, regional, local will gain respect and set an example. In order to signpost the way for the broader community reductions should exceed the Government's climate change targets and should map the Carbon Reduction Programme (CRed) ambition for a 60% cut by 2025 within the communities that sign up.

Demand the installation of clear and visible metering in all new buildings which will enable users to know easily and in real-time energy use and cost; *CRed has found that a principal barrier to reducing waste—in business as well as in the home—is lack of knowledge of energy use stemming from inadequate metering.*

Make community ownership (or financial return to local communities) a condition of renewable energy developments such as on-shore wind energy or anaerobic digestion plants; except in a very few situations local communities gain no benefit from turbines in their locality; if this changed NIMBY would change to PIIMBY (Put It In My Back Yard); by 2010 on-shore wind is already predicted to be 6GW installed capacity but this figure should greatly increase.

Ensure that building regulations are properly enforced such that the present energy efficiency and insulation requirements are actually being delivered. Tighten the local authority planning and building control system to deliver this.

Aim to ensure every house and building has local energy generation installed by 2050. *Presently the figure is way under 1% and already cost effective technologies such as solar hot water are often sold in aggressive ways at inflated prices. There is a virtuous circle created as consumers gain from reducing waste and enhanced resource efficiency; there is natural transition to wanting to generate power locally. An initial target could be one million homes by 2010; technologies should include heat pumps as well as solar PV, solar thermal and micro wind.*

Universities should be encouraged by Government to become leaders in low carbon achievement and education. As such universities should become beacons of renewable energy on a community scale. *Such an initiative would bring the science of energy generation and carbon reduction closer to surrounding communities, adding to public understanding of the issues surrounding climate change and the link to energy production and use. For example, as result of CRed activity, the University of East Anglia is joining with financial services company HSBC in an ambition to work towards carbon neutrality.*

Make schools a focus for a government campaign on carbon reduction; *CRed has helped enthusiastic schools make very large cuts in energy use; climate change and resource efficiency should be a central plank not just in the curriculum but a central plank of how schools go about their business. Schools are the nexus of their communities; the message would spread not only among young people who will suffer if we do not tackle climate change, but out to parents and the rest of the community.*

The Community Carbon Reduction Programme (CRed)
University of East Anglia

February 2007

Wednesday 7 March 2007

Members present:

Mr Michael Jack, in the Chair

Mr Geoffrey Cox
Mr David Drew
Mr James Gray
Patrick Hall
Lynne Jones

Daniel Kawczynski
Mrs Madeleine Moon
Sir Peter Soulsby
David Taylor
Mr Roger Williams

Memorandum submitted by the Environment Agency (Cit 12)

SUMMARY

- The Environment Agency believes that there is substantial scope for individual and community action to contribute to emissions reductions. There is also strong public backing for such action. What is required is the right mix of support and encouragement.
- The barriers to the uptake of climate change mitigation strategies at the individual level are well known and are already being tackled successfully by some policies. These need to be expanded and supported with new measures.
- Government should frame its policy package using the four point approach of the UK Sustainable Development Strategy, as follows:
 - Engage with people on climate change and their part in the solution;
 - Enable individual action by making it easier to make the right choices;
 - Encourage people by giving the right signals, especially market signals; and
 - Exemplify—the Government must take the lead to demonstrate best practice.
- There needs to be greater clarity between communicating messages about preventing dangerous climate change (mitigation) and adapting to the unavoidable impacts of climate change (adaptation). We believe this distinction is not currently being made sufficiently well.
- Adaptation messages, especially around flooding, may well be perceived as negative. However, there is a critical need to make the public aware of such impacts. By avoiding apocalyptic language and showing how an individual's actions can help them positively prepare for these impacts, we believe changes in both attitudes and behaviour can be engendered.

1. INTRODUCTION

The 2003 Energy White Paper called for a step change in the UK's policy stance towards climate change mitigation. Measures are in place which aim to reduce emissions from heavy industry such as the EU ETS. However, emissions from other sectors, notably the domestic and transport sectors, are increasing and there are no suitable measures in place to reduce them.

Engaging and empowering individuals and communities to address climate change is vital if a genuine step change is to occur. The Environment Agency, as a champion of the environment in the context of sustainable development, and through our network of regional and local offices, is committed to help achieve this.

2. THE SCOPE FOR INDIVIDUAL AND COMMUNITY ACTION TO TACKLE CLIMATE CHANGE

The potential scope for individual and community action to contribute to emissions reductions is substantial. What is required is the right mix of policy support to unlock it. For example, the total size of the energy efficiency "reserve" for the domestic, business and public sector is at least equivalent to 20MtC by 2020 (or about 17% of UK 1990 emissions for these sectors).¹ The Energy Review puts the figure even higher at 25MtC for the domestic and business sectors.

2.1 *The Environment Agency's work to communicate climate change*

There are a number of ways in which the Environment Agency seeks to influence individuals and organisations:

¹ HM Treasury, DEFRA, Energy Saving Trust, Carbon Trust. Energy Efficiency Innovation Review. December 2005.

- Internet: The climate change section of the Environment Agency’s website receives 7,000 hits per month. It consists of 40 pages of illustrated climate change information directed at the general public, including a “what can you do?” advice list. The website also features a number of indicators of climate change such as average winter rainfall.
- External publications: *Your Environment*, which goes to around 30,000 stakeholders quarterly, regularly features articles on energy use and climate change. A recent edition focused entirely on climate change, whilst our last issue contained a detailed supplement on energy. In Spring 2005, we launched our first national report on climate change—*The Climate is Changing: Time to Get Ready*. We believe this has played an important role in raising awareness among organisations and individuals of the current and future impacts of climate change and the urgent need to adapt to them.
- Annual Flood Awareness Campaign: This focuses on the immediate priorities of making those living and working in areas prone to flooding aware of the danger and giving instructions as to what to do in the event of a flood, including signing up to our Floodline Warning system. Climate change is not currently a part of the campaign.
- Opportunistic use of environmental events to highlight climate issues: However, our current communications around the drought in south east England have avoided linking a single event to climate change, in line with scientific advice.
- High level influencing and communications: Our Chief Executive, Chairman and senior staff make regular mention in the national media of the impact that climate change will have on events such as floods and droughts in the future and the need to adapt.
- Our network of regional and local area offices: These provide information and advice on climate change issues at a wide range of events. For example, we have been working with black and ethnic minority communities in Birmingham to involve and empower these communities on climate change issues.
- Working with the Climate Change Communications Initiative: Our “Sowing the Seeds” project has been funded by Defra’s Climate Challenge Fund to provide training to teachers on how to incorporate climate change into their lessons. Other projects were rejected partly because the emphasis on adapting to increased flooding caused by climate change was seen as too negative. We believe that careful messaging can draw out the positive actions that individuals can take to prepare for these types of events.

Although only one of the Environment Agency’s national campaigns explicitly encourages individuals to reduce their contribution to emissions of greenhouse gases, its effects are significant. The campaign is “World Environment Day” and this year it resulted in 208,838 pledges to protect the environment in some way. The translation of these pledges into carbon emission reductions is only indicative and a number of caveats apply, mainly the use of assumptions with regards to factors such as distance travelled to work, amount of washing done and so on. In particular, the assumption is that all those who made their pledges stick to them. If these assumptions hold then a total of 15,305 tonnes of carbon dioxide per year (4,174 tonnes of carbon) will be saved thanks to this campaign.

3. WHAT ARE THE BARRIERS TO UPTAKE OF CLIMATE CHANGE MITIGATION STRATEGIES AT THE LEVEL OF THE INDIVIDUAL?

We believe there are a number of reasons why apparently attractive mitigation opportunities have not been realised:

- Confusing messages—work by Futerra and the Institute for Public Policy Research, amongst others, has identified a number of problems with current climate change communications work. These include the use of “doom and gloom” rhetoric, which is more likely to lead to apathy than action and the need for clearer and more consistent messaging before we can begin to move towards behaviour change.
- Lack of interest—outside the fuel poor sector there is an apathy regarding fuel costs, although recent price rises are starting to reverse this trend. Even where there is an interest in reducing energy costs or generating one’s own energy, a lack of useful, relevant and accessible information can act as a significant barrier.
- Up front costs—many people either lack the up front resources to invest in these technologies, even where they have identified cost savings, or feel that their money would be better spent elsewhere.
- Hidden costs—such costs are additional to the up front cost of energy efficiency and generation devices and technologies. For example, there may be search costs as a result of time spent gathering information and identifying opportunities.
- Attitudes to change—many people do not want the inconvenience and disruption that comes with the installation of energy saving or generation measures.

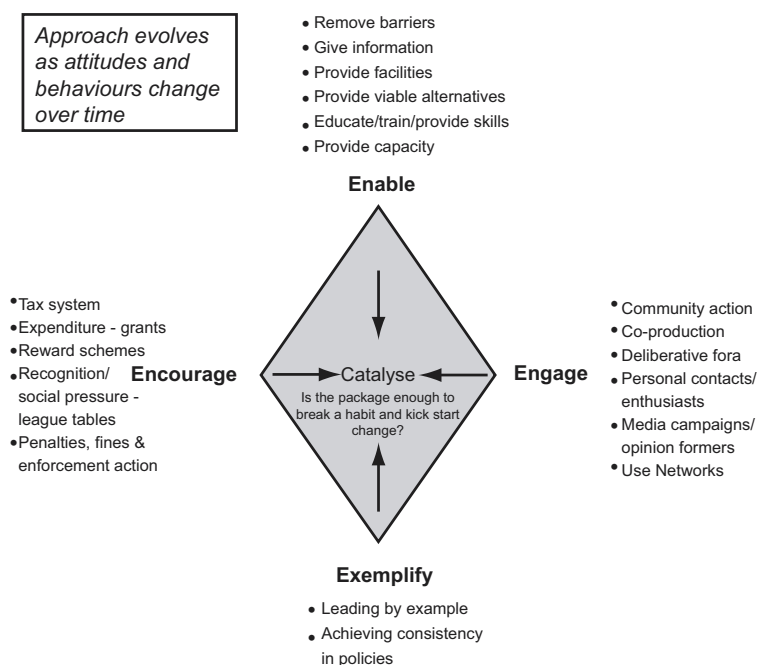
- Split incentives—there is often a split between the tenant (who pays energy bills) and the owner of a property (who has the power to make alterations). This results in there being no clear incentive on any one party.

4. HOW CAN GOVERNMENT AND OTHER AGENCIES ENCOURAGE THE UPTAKE OF DOMESTIC EMISSION REDUCTION MEASURES?

4.1 Behaviour change

We believe that the Government should frame its policy package using the four point approach of the UK Sustainable Development Strategy shown below, which is intended collectively to catalyse changed behaviour. No mention was made of this approach in the Energy Review.

- Engage—communicate attractive propositions and insights.
- Enable—make it easy to participate by having clear product standards and making energy saving and microgeneration a business opportunity for energy suppliers.
- Encourage—establish an incentive structure using taxation, extensions to trading systems to cover commercial and public sectors and market signals or other economic instruments.
- Exemplify—do more on the government estate and establish good demonstration sites.



Source: Securing the Future—UK Government Strategy for sustainable Development (2005)

This approach fits well with the recently floated concept of an “environmental contract”, an implicit understanding of respective roles and responsibilities of the general population, government and other sectors of society on the basis for action.

Engage—involving people

Recent opinion polls suggest that information and awareness campaigns are having a significant impact on the public’s understanding and concern for environmental issues including climate change. A recent survey by the Tyndall Centre showed that 62% of people believe climate change to be so serious that every possible action should be taken to tackle it. A further 32% want some kind of action taken. The available evidence also suggests that the public appetite for fiscal incentives has grown. Below are some examples of the types of policies that are currently engaging the public and could do so in the future.

Comprehensive Performance Assessment

The Climate Change Programme Review committed the Government to “consider how to ensure that the local government performance framework will include an appropriate focus on action on climate change, sufficient to incentivise more authorities to reach the levels of the best”. We believe this presents a significant opportunity to push climate change up the local government agenda. However, this increased profile needs to be supported adequately.

We believe local authorities should have a key role in drawing down action on climate change from the global to the local level, as they once did through the Local Agenda 21 actions that came out of the 1992 Earth Summit. We would like to see DCLG providing guidance to local authorities that shows clearly how they can engage, inspire and involve their local communities and local partnerships in the climate change agenda.

The Climate Change Communications Initiative

There are a number of ways that we can build on this awareness and engage with individuals and businesses. It is important that the various campaigns sending messages to consumers are as joined up as possible, and it appears that Defra's Climate Change Communications Toolkit and Climate Challenge Fund are performing well in this regard. The combination of centralised messaging and branding with local delivery organisations is a vital part of this initiative and should be used as a model for further communications work.

Micro-generation

Micro-generation has a clear role to play in reducing carbon emissions. However, the potential impact of micro-generation could be even greater. A recent study by the Sustainable Consumption Roundtable² showed that micro-generation can have other advantages. By increasing consumers' awareness and understanding of energy generation, they become more likely to use energy sparingly and sustainably. As the report states, household and community on-site generation can "significantly shift awareness, attitudes and behaviour". These signals are encouraging and suggest the advantages of micro-generation could extend far beyond savings from "kilowatts substitution" to behaviour change and demand management. Further research in this area will be needed to ascertain the nature and full extent of these linkages.

Metering

The installation of "smart meters", which clearly display real-time consumption of electricity or gas, can have significant impacts on energy consumption. By making consumption information accessible and available, people's awareness is raised and they are more likely to limit their energy consumption. It has been estimated that such devices can reduce energy demand in the home by 5–15%.³

Enable—making it easier to make the right choices

Individuals need to have the right infrastructure in place to allow them to make the right choices when it comes to energy use. We are pleased to see that a number of actions to enable this to happen have been promised by the Energy Review, including tighter Building Regulations and Sustainable Homes Code, energy efficiency ratings of homes through the Energy Performance in Buildings Directive and improved products standards and labelling.

Encourage—giving the right signals

We believe government needs to put in place the framework to send the right financial signals to individuals so that they take the actions that Government believes are appropriate. A number of examples we believe have merit are included below.

Putting a long-term price on carbon, initially through the EU Emissions Trading Scheme (EU ETS). Also, given the limited potential to expand the EU ETS to cover additional sources of greenhouse gas emissions in the short-term, the Government should investigate the potential for domestic offset schemes for those sectors that are not yet covered by climate change policies, for example agriculture and land use. Such schemes, correctly designed and administered, have the potential to bring carbon trading out of the large business sector and promote carbon as a currency in the wider business community.

The Energy Efficiency Commitment has been one of the most effective policy measures put in place under the Climate Change Programme and is one of the main mechanisms for realising energy efficiency savings. Energy companies have responded well to the scheme and have consistently met targets set. We are therefore pleased to see that the Government is looking to strengthen this scheme in the future.

Fiscal instruments should be used to penalise behaviour that is environmentally damaging and reward that which is environmentally beneficial. By introducing inefficiency charges for products that are least energy efficient, the price will more accurately reflect the true environmental cost of that product. Such a

² SCR (2005) Seeing the light: the impact of micro-generation on the way we use energy Qualitative research findings: SCR 2005 <http://www.sd-commission.org.uk/publications/downloads/Micro-generationreport.pdf>

³ EST (2005) Smart Meters http://www.est.org.uk/partnership/energy/lead/index.cfm?mode=view&news_id=496

measure would have the added benefit of an awareness raising effect as it would be visible, attracting media attention and generating discussion. The products identified by the Energy Review are certainly those that require attention and we look forward to firm proposals for action from the Government.

The use of the planning system to encourage low carbon behaviour is crucial. The proposal for a General Permitted Development Order for micro-generation technologies is a good step, as is the creation of a Climate Change Planning Policy Statement. However, we are concerned that this may not focus enough on the need for communities to adapt to the unavoidable impacts of climate change.

We welcome the recent reform to the Vehicle Excise Duty as a good first step, although we recognise this is unlikely to influence strongly consumer behaviour. We support a more steeply graduated Vehicle Excise Duty system with wider gaps between the bands to encourage the purchase of lower carbon vehicles. DfT research shows that if there was a £300 differential between each VED band 72% of people would swap bands.⁴

Exemplify—the Government must take the lead to demonstrate best practice

The approach to sustainable public procurement across the Government estate is patchy, as demonstrated by the recent Environment Audit Committee review and National Audit Office reports. The Government's Sustainable Procurement Task Force and the Government's Sustainable Operations Board have created opportunities to address the shortcomings identified. It is clear from evidence gathered by the Task Force that there is a great deal of scope for improvement in energy efficiency. For example, current "Quick Win" standards that predominantly relate to energy efficiency issues are often ignored and only 17% of new public sector buildings meet BREEAM excellent standards.⁵ Government policy requires all new building projects to achieve this standard.

The Government is aiming for a carbon neutral Government office estate by 2012. We believe Government should also deliver as minimum the target of 15% of electricity being from good quality CHP by 2010. Any offsetting investment that is made should be in good quality energy efficiency and sustainable energy schemes.

The Environment Agency recognises that it too has a role to play in exemplifying good practice. By 2005–06 we had reduced our transport emissions by 43% compared to 2001–02 levels but recognise that more needs to be done in reducing our mileage. This year we won funding for a two year trial of biodiesel in 100 of our vehicles, aimed at reducing carbon emissions from each vehicle by 20%. We carry out risk assessments for sustainability on all our procurement contracts worth over £25,000 and have reduced energy use by 15% per person, water use by over 11% per person and office waste going to landfill by nearly 40 percent per person from our 2001–02 baseline.

Environment Agency

August 2006

Supplementary memorandum submitted by the Environment Agency (Cit 12a)

To what extent is "green taxation" an effective driver of behavioural change?

1. The Environment Agency for England and Wales offers the following additional evidence in response to the committee's extension of the terms of reference for the inquiry into *Climate Change: The "Citizen's Agenda"*.

SUMMARY

2. Green taxation in principle serves several related purposes: securing "efficient" prices and preventing over-consumption; contributing to changing behaviour to achieve policy objectives; implementing the polluter pays or beneficiary pays principles by targeting particular groups; and providing revenue by taxing environmentally damaging activities rather than productive ones such as employment or investment. It is not our intention here to declare support for or against different taxes, but to discuss what can make green taxation effective.

We argue that well-designed green taxation and pricing policies, with appropriate additional measures embedded in a behaviour change strategy, are effective drivers of behavioural change. Specifically:

- Green taxes should be seen as one part of a wider strategy to secure environmentally efficient cost-reflective prices (for example through water metering);
- Green taxes should be embedded in a wider behaviour change framework that encourages, enables, and engages the citizen or business, and in which the government leads by example;

⁴ DfT (2003b) *Assessing the impact of graduated Vehicle Excise Duty: qualitative report*

⁵ Sustainable Procurement Task Force (2006) *Procuring the Future*.

- Green taxes may not be the most appropriate instrument to secure an effective price in every situation—cap and trade systems and modern regulation may be instruments of choice to internalise external costs in some circumstances;
- In order to secure long-term positive benefits for the environment, green taxation policies should be credible and consistent over a long period of time, the exact period varying from policy to policy;
- Green taxes should be large enough to reflect external costs or change behaviour;
- Addressing regressive effects is an important aspect of policy design, but can also be achieved by compensating changes in the benefits and tax credit system;
- Programmes funded from recycled revenues may be more effective in some cases than the price effect of the tax;
- Green tax policy needs to consider wider changes in the economy, especially the growth in incomes and the relative prices of greener alternatives to the product or practice being taxed;
- Further communication effort is necessary to make the public case for switching taxation to environmentally damaging activities rather than productive ones such as employment or investment.

3. These points are discussed in turn in the remainder of this submission.

GETTING UNDERLYING PRICES RIGHT IS AS IMPORTANT AS GREEN TAXATION

4. An important purpose of green taxation is to secure efficient prices that properly reflect market costs and externalities. It follows therefore that there is a case for looking at determinants of *pre-tax* prices for goods and services that have environmental impacts. For example:

- The majority of households do not have water meters and so face a zero marginal cost for water and inefficiently over-consume water as a result. The National Water Metering Trial showed that installing water meters reduces household water consumption by 11%, and up to 30% at times of peak demand.⁶
- Energy tariffs could be made more strongly cost-reflective through the use of smart meters and pricing that could allow the price of electricity to vary, potentially minute by minute, according to the load on the system and generation mix. One US study suggested that variable pricing could shift 5 to 8% of consumption to off-peak hours and cutting another 4 to 7% of peak demand could save utilities, businesses, and customers as much as \$15 billion a year.⁷ That would also reduce the use of the most marginal, and most polluting, plant.
- Householders do not pay according to the volume of waste they create and tariffs for industrial and commercial wastes are only approximately volume related. Longstanding US experience of “variable charging” for household waste collection shows significant reductions in waste disposal at landfills in the year following adoption of variable charging, with an average reduction of 40%, a high of 74% and a low of 17%.⁸
- Property insurance policies do not fully reflect flood risk at the property or post-code level and effectively attenuate the price signal not to develop in the floodplain.
- Airport take-off and landing slots are scarce and valuable, but given away. They could be auctioned on a principle similar to the auctions for the electromagnetic spectrum.

5. It would be surprising if changes in price did not create behaviour changes with increases in price reducing consumption—all other things being equal. The relationship between price and demand is usually characterised by the price elasticity of demand.⁹ This also gives one measure of how effective a green tax would be at changing behaviour. Where demand for goods is “inelastic”, an increase in price will cause a smaller percentage decrease in demand. Where demand is “elastic”, the increase in price will cause a larger decrease in demand.

EMBED GREEN TAXES IN A BEHAVIOUR CHANGE FRAMEWORK

6. The main idea we wish to emphasise is that the price elasticity of demand can itself be influenced by the design of the green tax and by the provision of additional measures that support behaviour change.

This idea is well captured in the government’s sustainable development strategy, which suggests there are four dimensions to behaviour change (see graphic below):

- *Encourage*: policy incentives such as green taxes to provide a price signal;

⁶ *The Effects of Metered Charging on Customer Demand for Water from 1 April 1989 to 31 March 1993*, WRc, January 1994.

⁷ Justin A. Colledge, *et al.*, “Power by the Minute,” McKinsey Quarterly 2002 #1, 74–75.

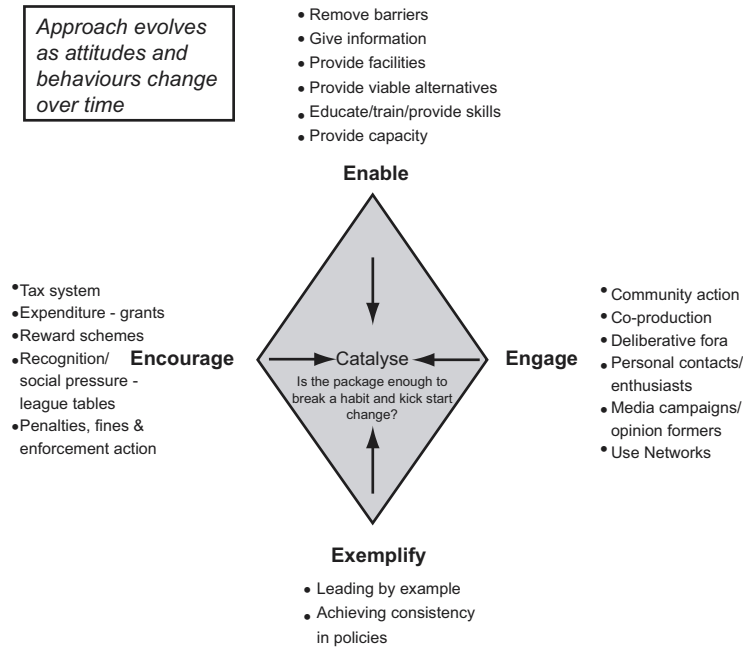
⁸ Defra. Waste Strategy 2000.

⁹ Price elasticity (E_d) measures the responsiveness of demand to changes in price. If a 10% increase in price caused a 20% reduction in demand, the price elasticity would be -2.0 and the demand considered elastic. If on the other hand, it caused only a 3% reduction, the price elasticity would be -0.3 and the demand considered inelastic.

$$E_d = \frac{\% \text{ change in quantity demanded of product X}}{\% \text{ change in price of product X}} = \frac{\Delta Q_d / Q_d}{\Delta P_d / P_d}$$

- *Enable*: creating the means to respond easily to the price signal;
- *Engage*: communications and social marketing to create attractive and purposeful propositions that are motivating and widely shared
- *Exemplify*: the government leads by example, for example through procurement

FIGURE 1
UK SUSTAINABLE DEVELOPMENT STRATEGY—BEHAVIOUR CHANGE DIAMOND

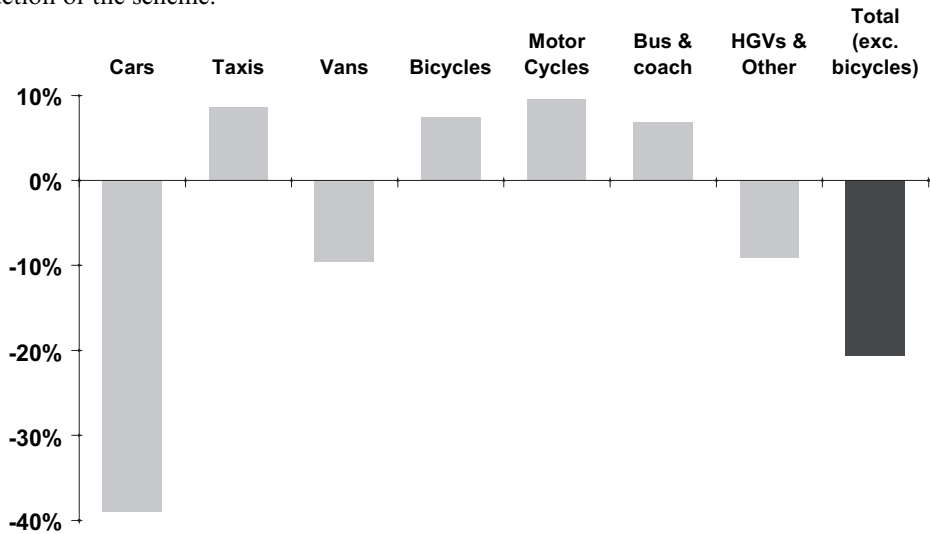


Source: UK sustainable development strategy¹⁰

7. The London congestion charge has several of these elements: the charge was a clear incentive to travel only if justifiable; there was an expansion of the bus system and cycle provision to enable people to switch; two-wheelers were exempted prompting a rise in scooter use; and the mayor communicated an attractive vision for London with reduced but more free-flowing traffic combined with better public transport as a city ready for the 21st century. Furthermore, the policy is dynamic—the charge was increased in 2005 to £8 and it is likely that the area covered will increase.

FIGURE 2
IMPACT OF LONDON CONGESTION CHARGE

Percentage change in vehicles entering the congestion charge zone between 7 am and 6.30 pm after the introduction of the scheme.



Source: Transport for London¹¹

¹⁰ UK government, Securing the future (chapter 2: Helping people make better choices), March 2005. [\[link\]](#)

¹¹ Transport for London, Central London Congestion Charging: Impacts Monitoring Report 2006 (Table 2.1). [\[link\]](#)

CHOOSE THE RIGHT INSTRUMENT

8. Green taxes are one way to influence behaviour, but other approaches may be more effective in particular circumstances. Cap and trade systems offer the benefits of a predictable and efficient outcome, but may create volatile prices and present thorny problems with initial allocation of property rights and redistribution of auctioning revenues. Regulation using modern risk-based approaches has much to commend it—potentially reduced information and transaction costs, clear outcomes, and improved public confidence, but may be cumbersome. The CBI have expressed this as:¹²

Responsible businesses readily recognise that regulation (applied properly) can create a level playing field, stimulate innovation and deliver the environmental benefits valued by society as a whole at reasonable cost. They also recognise that other forms of intervention—such as market based instruments or taxes—may be both economically and environmentally preferable to classic forms of regulation.

9. There may be a case for rewarding “good” behaviour with tax breaks, if the imperative is to secure a behaviour change outcome. A recent report published by the Energy Saving Trust shows that tax exemption can offer an effective incentive for people to take action. A small scale trial project involving around 500 households by Braintree District Council in conjunction with British Gas has shown that this approach can be very successful at engaging and motivating people. If such a scheme was implemented nationally the benefits could be very significant.¹³

LONG TERM BEHAVIOURAL RESPONSES AND THE IMPORTANCE OF CREDIBILITY

10. The effectiveness of green taxes in changing behaviour also depends on the timescale over which changed consumption patterns are considered. For example, a change in fuel prices may change driving habits, prompt modal shifts, increase sales of fuel-efficient vehicles, increase home working, cause manufacturers to design more fuel efficient vehicles to place on the market etc. Each change will have its effect over a different time horizon and it might be some years before the change in demand works through. Table 1 summarises empirical research showing how fuel price changes affect different aspects of travel demand over different timescales. For example, a 10% fuel price increase would reduce fuel consumption by 2.5% in the short term, but by 6.4% in the longer term. Changes in vehicle stock and fuel efficiency are substantial components of the eventual response, but take longer to work through.

TABLE 1
SHORT AND LONG TERM FUEL PRICE ELASTICITIES OF TRAVEL DEMAND

<i>Travel Demand measure</i>	<i>Short term elasticity</i>	<i>Long term elasticity</i>
Fuel consumption (total)	−0.25	−0.64
Fuel consumption (per vehicle)	−0.08	−1.1
Vehicle kilometres (total)	−0.10	−0.29
Vehicle kilometres (per vehicle)	−0.10	−0.30
Vehicle stock	−0.08	−0.25

Source: Goodwin, Dargay & Hanly (2003)¹⁴

11. The observation above that the response may unfold over a long timescale suggests that policy design that improves credibility and consistency may improve the long-run effectiveness of green taxes. Long-run responses will require consumers and businesses to make long term decisions—like the choice of vehicle to buy next or where a business should invest its R&D and what sort of new models to bring to market. For these decisions to be made, people will need to believe that the price signal will persist and not easily be reversed or that it is part of a long-run upward trend. Though it is difficult to commit to future tax levels, there are approaches that can increase confidence about the direction of prices:

- Setting outcome targets such as reductions in carbon dioxide from road transport;
- Having a compelling and transparent rationale for the green tax policy (ie. to reduce waste to landfill to comply with an EU directive);
- Having an explicit “escalator” which signals a large change to be introduced over a longer period than a single budget;
- Earmarking some or all of the tax revenue for measures that will improve the response (increase the elasticity)—for example, the use of landfill levy receipts to fund the BREW programme;¹⁵

¹² Michael Roberts (CBI’s Director of Business Environment) Wrestling Regulation Environment Business, Issue 103, pp 16–17, February 2005.

¹³ Energy saving Trust, Changing climate, changing behaviour; delivering household energy saving through fiscal incentives, 2005. [\[link\]](#)

¹⁴ Goodwin P, Dargay J, and Hanly M, Elasticities Of Road Traffic And Fuel Consumption With Respect To Price And Income: A Review, ESRC Transport Studies Unit, University College London for DETR 2003.

¹⁵ Defra, Business Resource Efficiency & Waste Programme (BREW). [\[link\]](#)

- Clearly identifying the green tax component of the price to the consumer, so that they can see how changed behaviour would change prices, and to demonstrate deliberate policy in applying the tax;
- Having other policies that support the same objectives as the green tax and leading by example—for example in procurement of vehicles or energy contracts.

12. Many businesses also support an approach that bolsters the consistency and credibility of any environmental policy package, including fiscal measures. Their clarion call is for policies that are “*long, loud and legal*”.¹⁶ In other words, they are seeking reliable investment signals that will persist over the long term and create a driver of innovation for them, ultimately enabling their future customers to respond. Current policy on climate change is open to criticism for poor credibility over the medium to long term.¹⁷ The effective price of future carbon emissions is currently very unclear and will depend in part on the future design of the emissions trading system and energy markets. At present, the price signals in the electricity market are incentivising construction of new coal fired power stations, such as the E.ON UK planning application for new coal-fired power stations at Kingsworth in Kent.¹⁸

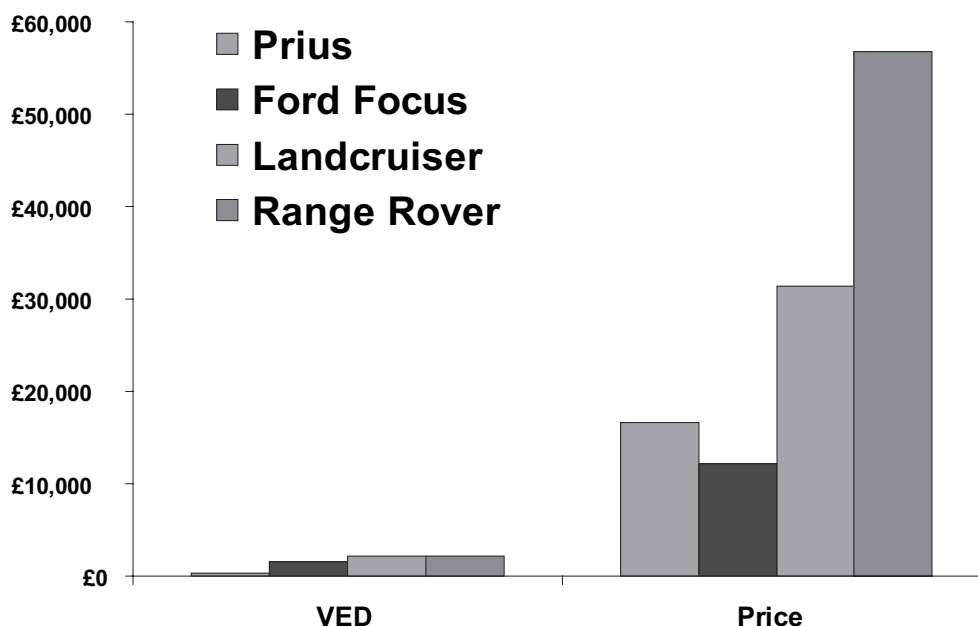
GREEN TAXES NEED TO BE SUFFICIENTLY LARGE IF THEY ARE GOING TO INFLUENCE BEHAVIOUR

13. It may be stating the obvious, but taxes must have sufficient magnitude to be a material factor in behavioural decisions. An example of where the tax is likely to be insufficient to influence behaviour very much is vehicle excise duty (VED), which is graduated according to the carbon emissions per kilometre of the vehicle. In his March 2006 Budget speech, the Chancellor argued this system of taxation is intended to influence behaviour.

“I want to do more to encourage cleaner fuels and cars. I propose to radically reform vehicle excise duty.”¹⁹

14. However, relative to purchase price of a high polluting vehicle, VED rates are very small indeed (figure 3), even if accumulated over the entire life of the vehicle. Nor are they proportional to emissions, with a declining marginal tax rate with respect to emissions.

FIGURE 3
COMPARISON OF 10 YEARS OF VEHICLE EXCISE DUTY TO
PURCHASE PRICE OF VEHICLE



Source: Environment Agency analysis, Vehicle Certification Agency, motor trade press.

¹⁶ World Business Council for Sustainable Development, Energy & Climate Change: Sharpening the focus for action—a business perspective. November 2005. [\[link\]](#)

¹⁷ D. Helm, C. Hepburn, and R. Mash, Credible Carbon Policy in D Helm (ed), Climate-change Policy, published May 2005 by Oxford University Press, pp 305–321. [\[link\]](#)

¹⁸ E.ON UK press release: E.ON UK submits planning application for UK’s first new coal-fired units for over 20 years, 11 December 2006. [\[link\]](#)

¹⁹ Chancellor of the Exchequer, Budget 2006 speech, 22 March 2006. [\[link\]](#)

15. We support a more steeply graduated Vehicle Excise Duty system with wider gaps between the bands to encourage the purchase of lower carbon vehicles. Research for the Department for Transport shows that if there was a £300 differential between each VED band, 72% of people would switch to more fuel-efficient vehicles.²⁰ There is a strong case to place more emphasis on taxation of the initial purchase. Once a vehicle is purchased, the effect of high VED will be reflected in a lower secondhand value. Though faster depreciation should affect the initial purchase decision, that impact is unlikely to be particularly clear at the outset.

16. It is not always obvious which activities are over- and under-taxed from a green point of view. For flying, Defra gives an emissions factor of 0.15 Kg/Km for short-haul flying.²¹ This would suggest 0.2 tonnes of CO₂ for a 1,400 Km one-way short haul flight from Luton to Ibiza. The Stern Review gave a baseline social cost of carbon dioxide of \$85/tonne (£54/tonne at PPP exchange rates), suggesting a carbon tax of around £10 would be applicable to that flight—close to the level of air passenger duty following the 2006 pre-budget report. It is unlikely that this would have much impact on demand. On the other hand, the EU ETS produces prices for carbon of around €10/tonne of CO₂, but the Stern social cost of carbon would be eight times that, adding 2.3 p/kWh to electricity prices, approximately doubling generation costs and adding more than 20% to retail prices. It is important to be clear that establishing a “correct” price may be at odds with meeting a chosen target, which may have been framed with several objectives in mind. It is also important to consider all the externalities that arise from an activity.

17. It might be objected that fuel duty is an extremely large carbon tax (if it was all counted as carbon tax it would be around £200/tonne of CO₂), but fuel duty can also reflect other externalities, including congestion, air quality, noise, waste, accidents, impact on mobility of non road users; opportunity cost of land take etc. Fuel duty may also reflect the cost of maintaining and developing the infrastructure where direct user tolling isn’t possible. If the taxation of aviation is compared to road transport, the exemptions that aviation receives from taxes on fuel, VAT, and duty free imply a net tax subsidy to aviation of £9.2 billion annually.²²

REGRESSIVE EFFECTS OF GREEN TAXES

18. An objection to green taxes is that they can be regressive. This would be especially so when the tax was applied to products or services that meet a basic need and where demand is income inelastic—basic foodstuffs, energy and water would be the most obvious examples. Taxes on motoring or aviation would be less obviously regressive as the poorest are less likely to own cars or fly.

19. However, there are strong efficiency arguments for getting prices “right” (ie properly cost reflective, including externalities), and there should be searching investigation of alternatives or compensating changes that would reduce regressive effects. For example, adjustments to the benefits and tax credit system may be more effective ways of addressing regressive impacts of energy taxation than holding energy prices at a wastefully low level by under-applying a green tax. Under-taxing energy for social reasons has two negative effects: first, more energy is used than otherwise would be; second, there is a large deadweight loss associated with providing a tax-break to those that are not poor.

RECYCLED REVENUE INTO BEHAVIOUR CHANGE PROGRAMMES MAY BE THE DOMINANT EFFECT FOR SOME TAXES

20. Where demand is very inelastic, the price impact of a green tax on behaviour will be small, but recycling revenue into programmes for changing behaviour may still be effective. It is likely that “input taxes” for fertilisers and pesticides would be in this category. Analysis for the World Bank highlighted experience with such taxes in several OECD countries and concluded:²³

The experience of those countries that have introduced these taxes is that they appear to have played some role in reducing pesticide and fertiliser use. However, their price elasticity estimates are low and this suggests comparatively little effect in terms of quantity reductions, unless they are set at very high rates (relative to price). There is some suggestion that revenue recycling may have been more effective, with revenues redirected to research and information.

²⁰ MORI, Assessing the impact of graduated Vehicle Excise Duty: qualitative report for Department for Transport, 2003 (fig 17). [\[link\]](#)

²¹ Defra, Guidelines for Company Reporting on Greenhouse Gas Emissions Annexes updated July 2005. [\[link\]](#)

²² Hidden Cost of Flying, Brendon Sewill, Aviation Environment Federation, February 2003.

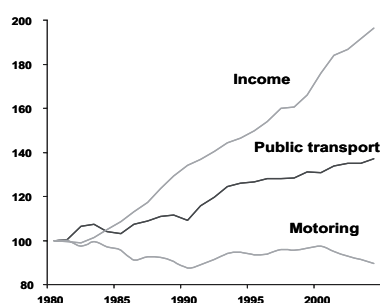
²³ Pearce D, Koundouri P. Fertilizer and Pesticide Taxes for Controlling Non-point Agricultural Pollution. World Bank 2003. [\[link\]](#)

21. The same review also suggested that pesticide taxes if graduated according to toxicity would be more effective at changing the choice of pesticides than in reducing overall pesticide use. However, that could produce a useful environmental outcome and illustrates the importance of careful design of any tax.

GREEN TAXES ARE NOT THE ONLY INFLUENCE ON DEMAND—POLICY MUST BE RESPONSIVE

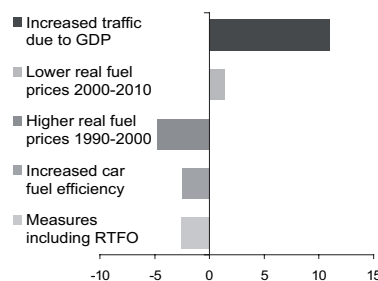
22. The demand for goods and services also depends on a variety of other factors, notably income and the prices of substitutes. Although taxes on road fuels represent a high proportion of final cost, the price of motoring has fallen relative to other modes of transport while incomes have increased, thereby making motoring much more affordable.

FIGURE 4
TRANSPORT COSTS AND DISPOSABLE
INCOME SINCE 1980 (= 100)



Source: Department for Transport²⁴

FIGURE 5
CONTRIBUTION OF DIFFERENT FACTORS
TO THE EXPECTED CHANGE IN
TRANSPORT CARBON EMISSIONS
1990–2010 MtC



Source: Defra²⁵

23. Where green taxes are intended to achieve a policy outcome, such as reaching an emissions target, it will be necessary to ensure that the green tax is not “drowned out” by other effects, such as income growth or the change in prices of alternatives. So design of policy must not only take account of the price elasticity of demand for the product or activity that the green tax is to be applied to, but also to the *income elasticity* of demand and *cross elasticities* with alternative products or activities²⁶ and with changing prices and incomes. For climate change and energy policy objectives, this is likely to mean regular review and adjustment of the policy, within a framework that specifies a long-term policy goal. Where green taxes are intended to deliver an outcome, it will usually be necessary to adjust rates to reflect changes in prices and probably incomes too. The outline aims of the Climate Change Bill are to provide a more responsive approach to climate change policy and are welcome.

24. The climate change levy was announced in 1999 and introduced in 2001 but its rate will have been frozen until 2007, after which it will rise with inflation. This means the levy will have lost about 20% of its value in real terms since the 1999 announcement before revalorisation is restored. The Treasury estimates that a 10% increase in the levy saves about 0.1 million tonnes of carbon excluding announcement effects²⁷ and the announcement effect of *not* raising the levy in line with inflation will have further weakened the impact of the tax.

THE PUBLIC IS SUSPICIOUS AND CAUTIOUS

25. The government has yet to sell the public on a strategy of switching the tax-base from beneficial activity like employment and investment to green taxes. There is a willingness to pay more for environmentally sound goods and services (figure 6).

²⁴ Department for Transport, Transport Trends, 2.6: Changes in the real cost of transport and in income: 1980 to 2004, January 2006. [\[link\]](#)

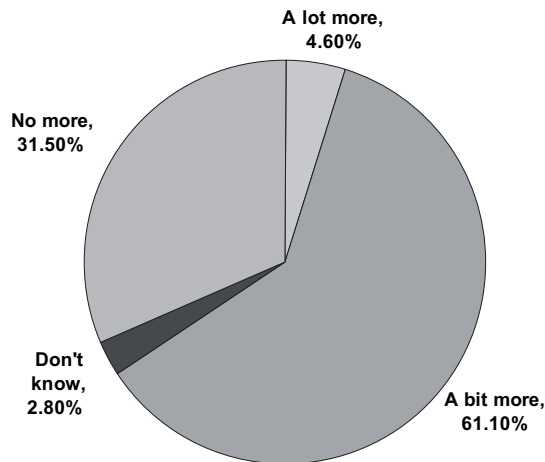
²⁵ Defra, Climate change: the UK programme 2006, 28 March 2006, p 63. [\[link\]](#)

²⁶ Income elasticity: change in demand in response to change in income. Cross elasticity: change in demand for product A in response to change of price of product B.

²⁷ See Parliamentary answer—John Healey *Hansard* 8 Feb 2006: Column 1248W.

FIGURE 6
TWO-THIRDS WILLING TO PAY MORE FOR ENVIRONMENTALLY FRIENDLY
GOODS AND SERVICES

All in all would you be willing to pay a lot more for goods and services that were more environmentally-friendly, would you pay a little more or would you not be prepared to pay any more than you do now for more environmentally-friendly goods and services?



Source: ICM²⁸

26. However, there is distrust that new taxes will be additional and not replacements for existing taxes, backed by media scepticism (below):

Pay up . . . or the planet gets it. Hard-working families face crippling new bills as the Government fights global warming with a raft of stinging taxes. (Article covering the Stern Review)

Source: The Sun newspaper online, 31 October 2006.

27. As part of a behaviour change process, the UK Sustainable Development Strategy stress “engagement”, and the government has yet to establish that a switch in the balance of taxation towards green taxes is desirable. It is also the case that the burden of taxation has not shifted towards green taxes,²⁹ despite government statements in 1997 and 2002.³⁰

28. The UK Round Table on Sustainable Development³¹ has noted that, based on past experience of green taxation, certain actions are more likely to improve public support for new policies. These include: early announcements of policy changes that allow individuals and businesses to plan their responses in advance, and “clear identification of real and perceived “losers”, with positive action to mitigate real barriers and clarify the nature of perceived barriers”. These are good recommendations and should be supplemented by the need to also publicly identify clear “winners”.

Environment Agency

January 2007

²⁸ ICM poll for *Retail Week*. 28–30 July 2006 Coverage Great Britain. [[link](#)]

²⁹ Andrew Leicester, Institute of Fiscal Studies, Pre Budget Report 2006 Briefing Presentation [[link](#)]

³⁰ HM Treasury: Statement of intent on environmental taxation (1997) and the follow-up Tax and the environment: using economic instruments (2002).

³¹ UK Round Table on Sustainable Development: Not too Difficult! Economic instruments to promote Sustainable Development within a modernised economy (2000).

Witnesses: **Mr Clive Bates**, Head of Environmental Policy, and **Mr Adrian Long**, Head of Corporate Communications, Environment Agency, gave evidence.

Q743 Chairman: Good afternoon, ladies and gentlemen, welcome to this further evidence session on the Citizen's Agenda Inquiry into Climate Change issues. Can I welcome our first set of witnesses this afternoon from the Environment Agency, Mr Clive Bates, who is their Head of Environmental Policy, and Mr Adrian Long, the Head of Corporate Communications. Gentlemen, you are both very welcome. Can I say at the outset how grateful I am to the Agency for the support it has been giving my local borough energy saving initiative, Fylde Low Energy. We are grateful to Kate Cox especially for her input into that. It does bear out some of the points raised in your evidence about localised activity; but I was struck by a sentence in the introduction of your evidence to the Committee where you say, "However, emissions from other sectors, notably the domestic and transport sectors, are increasing and there are no suitable measures in place to reduce them."³² That is pretty strong stuff. It suggests you are not very happy with the approach that the Government is taking to climate change. Perhaps you could explain why you wrote that?

Mr Bates: Chairman, I think probably the Government itself is not very happy with the approach it is taking, and that is why it wants to do a lot more. It is introducing the Climate Change Bill, it has got ideas about reform for the commercial sector, it has got a project in the Office of Climate Change working on the domestic sector, it is considering whether there should be an obligation on energy supplies in the domestic sector to cap the amount of energy they expend. So, there is a lot of restless activity looking at how to crack what are actually very difficult and challenging problems. It is the same in the transport sector. There is the forthcoming introduction of the Renewable Transport Fuel Obligation, there are efforts at European level to get more vehicle efficiency and there is a great national debate going on about the use of economic instruments in transport, such as road pricing, which has attracted a lot of controversy. I think our demeanour and the Government's demeanour is that we must do more. The problem is very, very difficult and very challenging.

Q744 Chairman: It must do more, but you said in your evidence, "There are no suitable measures in place to reduce them." What you have done in your evidence now is to tell us what is happening. What do you, the Environment Agency, think should happen? What are the key priorities that we ought to reflect in our report from your advice?

Mr Bates: I think some of the things I have just mentioned will be very helpful, but there is, I think, a general approach that the Government should adopt here to try to change the behaviour of households, individuals, firms, the public sector, bodies that produce emissions, and there is a four-part strategy in place for thinking about this: set up

an incentives structure, encourage people to change what they are doing; put measures in place to enable them to respond to the incentives that are in place; engage more, communicate with people and businesses, create attractive propositions about why they should change. That is something that has gone wrong, perhaps, on the road pricing debate. I do not think we have had a really forthright conversation with the public about road pricing, but it is a very important measure. Then, finally, walk-the-talk, lead by example and do more in the public sector.

Q745 Chairman: Is that why Defra is number nine on the ranking of the Sustainable Development Commission, because of its poor performance?

Mr Bates: I cannot really speak for Defra in this case, but across the Government the Sustainable Development Commission is trying to raise everybody's game and that setting up of league tables is quite an effective way of applying pressure. I am sure any of the departments that are in the lower parts of that league table will want to respond and do more.

Q746 Chairman: You said in the Sustainable Development Strategy, and you have just enunciated your four-point strategy, that that was not mentioned. As a piece of methodological guidance you think that this should be developed into something that has got some real-world action attached to it by Defra, do you?

Mr Bates: Yes, and it is gradually creeping into the Government's thinking. It is part of the Sustainable Development Strategy, it is essentially signed up to by all the government departments—it is not a Defra policy, this is a government policy to have this—and it is a very effective framework for thinking about these issues applied to lots of different areas, whether it is transport, the domestic sector, commercial emissions, industrial emissions, and so on. The four components of that strategy are quite a powerful way of developing policy. Obviously you have to develop the appropriate instruments under each of those four headings for the particular circumstances. Whether it is a cap-and-trade type system, a tax, or some sort of funded programme, or something like that, those are design choices that have to be made in each specific case, but I think, if you neglect any of those four pillars of that strategy, we will find ourselves in trouble and the good intentions will not be realised.

Q747 Daniel Kawczynski: I wanted to ask question three in the context of flood management, which is something of great importance to me as my constituency perpetually floods. The Government's UK Climate Change Programme 2006 only mentions the Environment Agency briefly in the context of flood management. Should the Agency take on a higher profile role in engaging with individuals and communities on climate change issues like this in the context of flood management?

³² Ev 316, para1.

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Mr Bates: Yes, I think we should. We, the Environment Agency, think we should. In a sense the impacts and what we need to do to adapt to build resilience to climate change is under politicised, because there is a lot of debate and discussion about reducing emissions, and that is quite right, there is nothing wrong with that, but for the foreseeable future we will be living in a warming world and actually most of what we do on mitigation to reduce emissions will not start to change the rate of warming until the second half of the century. So, in a sense, we are now, for the next 30 or 40 years, facing warming that we can do very little about over that period. One of the things that we want to do is to take on a stronger role on public engagement in adaptation to climate change and building resilience, looking at how much and how we invest in flood risk management, a sensible strategy for realignment of the coast in the face of sea level rise that we can do nothing at all about, for now, more on water security and perhaps more on biodiversity and some of the delicate habitats that are at risk from climate change, plus a whole lot of other things that we think should become much more embedded in the politics and thinking of our response to climate change.

Q748 Daniel Kawczynski: As a follow up to that, councils sometimes, obviously, ignore the Environment Agency's recommendations on building, ie planning applications on areas that flood. Do you feel that the Environment Agency should have more powers to force councils to take your advice?

Mr Bates: Actually that position has been changing quite markedly over recent years. We now find ourselves differing with councils less and less. It is down to a relatively small number of cases. We are now a statutory consultee, the Government has just given us more powers in this area, and there is also the power for a call-in for planning applications where there is a conflict and a difference of opinion over these planning decisions; but our advice relates to flood risk management and flood risk, whereas councils are making a broader sustainable development decision. We would obviously try to minimise the amount of development that there is in the flood plain, but councils have other things that they have to square as well and in some ways it is right that they balance the different objectives that they are trying to meet and are held democratically accountable for them.

Q749 Sir Peter Soulsby: I would now take you on to the Agency's role beyond the mitigation and adaptation that you have referred to there, because it is the case that in the Climate Change Programme that is the bit that gets some emphasis at least. In your evidence to us you said that there is substantial scope for individual community action to contribute to emissions reduction. You also said there is strong public backing for such action. Is there any evidence to support this? Is there any evidence that people are

prepared to make even comparatively small shifts in behaviour, never mind the lifestyle changes that might be necessary to have a real impact?

Mr Bates: The statement that is in our evidence that says that draws on polling that was done for the Tyndall Centre by Ipsos MORI that did show that people said they were prepared to respond individually and expected a collective response to climate change, and there is a fair bit of polling that shows that around two-thirds of people are prepared to do something, a much smaller percentage just say they are prepared to do a lot—that is the evidence on which that statement was based—but there is a question of whether people will say one thing and then do another, and, for that reason, we think that a purely voluntary system that relies essentially on goodwill is actually a very weak response to this. I use the example, and it is not a climate change example, of recycling. For years we have been urging people to recycle more and take their bottles to the bottle bank, and so on, but we have just had a massive uplift in the amount of recycling, and it is driven at its origin by quite an obscure EU directive which has been implemented in the UK by some quite strong economic instruments which have put local government in the driving seat, which have caused them to send out these green boxes and have a proper collection system, and now people are able to respond to this. They always wanted to anyway but it was too difficult for them. What I see here is a role for government—this is an example of that four-way Sustainable Development Strategy in action—actually creating the incentives to do it and enabling people to respond easily.

Sir Peter Soulsby: As I understood what the Tyndall Centre found in their research, indeed, almost two-thirds of people believed that every possible action should be taken to tackle these issues, but then, when they went on and they were pressed, they felt that the responsibility lay at global and national level and not at individual level. I think that is the correct meaning of it, and that does come really to the point that you raised about the need for incentives and enabling. What do you believe is the right mix of support and encouragement to get individuals engaged particularly with emissions reduction?

Q750 Chairman: What is the climate change equivalent to recycling that you have just enunciated?

Mr Bates: I think there is a whole variety of things, because, obviously, climate change covers lots of different areas. Let us take transport. I think there are probably four different responses on transport here. The greater availability of low-carbon fuels, such as bio-fuels, incentives that increase the likelihood that people will choose efficient vehicles. You could do more with vehicle excise duty, much higher levels of vehicle excise duty and much more steeply graduated. You could apply technical standards, like the EU proposal. That would, again, promote vehicle efficiency. There are things that you could do that promote car-sharing. That is another form of efficiency. Then I think the third area that you have got is modal shift. We sometimes overstate

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how much that is capable of achieving, simply because the volume of road traffic is so high it is very hard to move all that mobility on to public transport or other forms, but, again, it was done in London quite well. The Mayor, when he introduced the Congestion Charge, took a proposition to Londoners that he would use the funds to strengthen the bus service, and that was part of his engagement strategy, but he also gave people a modal shift alternative. Then the fourth strategy, more fundamental even than those, is to reduce the transport intensity of the economy and life, essentially to try to have more sustainable communities where people shop, go to school, work closer to where they live, so that we do not spend so much time driving around. That is quite difficult in the long-term to pull off, but if you adjust prices, fuel prices, if you make transport less affordable over time and if you have enlightened planning policies that will help. I could go on. In the domestic sector I think there is a lot that could be done with energy suppliers that would change the business model in the domestic energy supply industry from one of providing power and gas to one that is much closer to the energy services model, and that is what a supplier obligation would do. People would still have to invite people into their homes from the firms to sign those contracts, but that would change the game completely in energy supply. We have done a lot with Building Regulations. It has been fantastically cost-effective. People are making money because of the Building Regulations. We can always go further with those. It costs much less to improve the energy efficiency of a building than the energy savings gained from it, and I think Defra's research shows that the strengthening of the Building Regulations is worth a positive £30 billion NPV over the lifetime of the building, and so that is very, very attractive. There may be things that we can do to encourage people to upgrade the energy efficiency of the home at particular points of ownership. For instance, where they buy a house, sell a house or extend or modify a house there might be scope for tax breaks, because that is a good moment to get the builders in. One of the big barriers to domestic energy efficient is that you have to get the builders in and people, understandably, do not like doing that.

Q751 Sir Peter Soulsby: What you have described to us there is no doubt very worthy but it is really quite general. No doubt we will come to some of the specifics later on, but I wonder whether the Agency has a series of specific proposals, your top 10 things, for example, that would make a difference?

Mr Bates: We have not. We could do, and I am happy to write to you with that.³³ We have not framed it in a sort of top 10 format. To be honest, it is slightly off our main territory, domestic energy efficiency. We are the regulator for industrial plant and we do flood-risk management and water resources and everything. We tend to see that as territory for the Energy Saving Trust, for whom it is

much more of a bread and butter business, but we have a mission to be the champion for the environment and we do have ideas in this area.

Mr Long: One the key pieces of work that we do in that area is based around something called World Environment Day, part of the UN environmental programme, in June each year, and I think your Chairman actually took part in this event last year and made a couple of promises. So, we do know that there were 400,000 promises made last year to do some of the very small-scale individualised action that we think is important, and people were basically offered 10 suggestions as to what could be done. As Clive says, there is still the point about ensuring that those things happen, but it is clear that there is an appetite out there for change. Clive is quite right that our locus is around regulation and flood-risk management, but I think we would share some of the views from other bits of the Defra family that one of the biggest obstacles is making things easily do-able by people. Information does not do very much in and of itself. It is making things easy to do that can have practical results, and it is those sorts of barriers that I think need to be removed.

Chairman: When you write to us perhaps you might also comment on how well you think the Building Regulations, if you are able to, are actually being enforced. When we went to Woking there was some evidence that this was not being done with the rigour that it deserved.

Q752 Mr Cox: What scope is there, do you think, as managers of the rivers, for small-scale hydro-electric schemes? I have one or two in my constituency.

Mr Bates: That is a very interesting question because it brings different environmental objectives into conflict. One of the problems with run-of-river hydro—there is plenty of infrastructure out there already that can be reconditioned and brought back into use, and so on—is that it does impede the movement of fish and it can have some impact on aquatic ecology. To be quite honest, and I was talking about this to colleagues earlier today, we are concerned that we have not actually got the clearest possible guidance on resolving those conflicts at the moment. It is an area we need to be clear on, but clearly there is a lot of potential, there is a lot of infrastructure already down there.

Chairman: Perhaps you can write about the potential to us,³⁴ but I want to move on to Madeleine.

Q753 Mrs Moon: You talked about engagement. I have written to all of my primary schools asking the children, over the Lent period, to give up a number of things, including leaving lights on, things on stand-by, a whole range of basic things that children can engage in. I noticed on the "Fun and Games" section of your website that you have an ecological footprinting. When we went to the Centre for Alternative Technology (CAT) they had a carbon gym where you could calculate your personal emissions. Have you thought of having a similar

³³ Ev 335³⁴ Ev 337

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web-based tool, but also, what evidence do you have that actually web-based tools are the way to actually engage citizens in reducing their emissions?

Mr Long: I think the answer to the second point is that they can have some. I think there is a broader point here. People do not loiter on websites any more because the pace of life is changing—and what people come to websites to do. Online libraries do not do it any more. So most people, including most of our customers and members of the public, come to our website in order to carry out some kind of transaction, whether they want to get their rod licence, whether they want to receive their permit—that is what they want to do when they are online. With children that may be a wee bit better. I do not think we are ideally placed, or should be ideally placed, to carry out much of that educative work; it is not our role. You are right that we do footprinting. My understanding is that Defra is developing a carbon calculator which will be web-based, and we would expect to support that and have that available through our website. That will be, as I understand it, a way of trying to bring some of the same methodology and the same awareness to the calculation of people's carbon footprint.

Mrs Moon: Perhaps we can ask the Minister when he expects to have that.

Q754 Lynne Jones: Is that the same as the toolkit that is being developed by Ashton Hayes, the village? They are doing lots of work in this area.

Mr Long: I am aware of it; I do not believe it is the same thing. I am not sure. You will probably need to ask Defra about it.

Chairman: One thing you might like to think on in terms of writing is: is any effort being made to follow up an inquiry to find out if any action takes place? You might like to reflect on that.

Q755 Mr Drew: In terms of your communication strategy with regard to climate change, I note in today's Hansard there is a parliamentary question from Martin Horwood about monies spent on departmental areas, and you come up under flooding. You have previously mentioned World Environment Day. Are you spending any money in terms of a communication strategy or a campaign to deal with climate change?

Mr Long: We have just done an exercise within the Defra family, as part of a request from Defra, which I think was an attempt to understand how much was being spent and what was happening across the family. Within that benchmarking exercise it looks like we spend something like 1.6 to 1.8% of our income on what I would call communications. We are barely scratching at business to business communications. There are others who are much better placed to carry out public-facing campaigning. World Environment Day is our relatively modest contribution.

Q756 Mr Drew: Can you say who you think is better suited to carry this out?

Mr Long: I think the contribution comes from all around the shop, frankly. I do not think this should solely be a government initiative. I think the NGO community and many community groups have a very significant, important and valid role to play here. There is sometimes a suspicion of government-led communications, and that may well be one that the NGOs have put forward. So I think we have a role, because we are respected, but I do not believe that we can venture too far off into that. World Environment Day, as I say, is fairly modest, about 160,000K last year in terms of resource, about 80 to 90,000 in staff time. There are others within the family, whether it is the Carbon Trust or the Energy Saving Trust, who are better placed to carry out targeted campaigning and communications. I think we need to be aware of where we fit best and do the work that we have to do. Having said that, at the moment we are developing a communications programme specifically around climate change. It is likely to be a major theme for our public-facing conference, which takes place in November every year; it is likely that we will continue to produce bits of publishing like this document that was launched in 2005. So there are roles for us to play where I think we are beginning to develop a clearer idea of what we need to do to communicate and lead to behaviour change.

Q757 Mr Drew: Specifically with regard to the advice that you offer to areas subject to flooding, how much do you try and link what is happening with flood risk to climate change?

Mr Long: We do not.

Q758 Mr Drew: Why not?

Mr Long: Because the campaign that we are funded to carry out is largely one about awareness of your risk of flooding, and it is also about the focus that we need to put upon helping people to do the things they need to do once they have reached that level of awareness of flooding that is the primary purpose of our campaign.

Q759 Mr Drew: Should you not be drawing these linkages, in as much as you have got an obvious captive audience of people who say, "Hang on a minute, climate change is not something out there, something that will affect us in 50 years' time. It is affecting me here and now. I cannot get insurance on this property because of the flood risk"?

Mr Long: I think it is genuinely difficult to say that an individual event, such as, for instance, Boscastle in 2004, was the result of climate change. I think it is overwhelmingly likely that it was, but I think it would be difficult to claim that. The flood awareness campaign has to do a number of very targeted things. That is not to say that we do not draw some of the links as the campaign develops and we do a fair amount of what I would call relatively opportunistic work around individual events, but I think we do need to be quite careful. We did not last summer, for instance, when talking about drought in the South East, specifically say, "This is as a result of climate change", because there were certain very

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important day-to-day messages that we needed to get through. I think we would lose some of the impact of our flood awareness campaign if we broadened it too much, to be honest.

Chairman: Thank you very much.

Q760 Mr Williams: The Environment Agency has a range of regional and local offices that give advice on climate change. In your evidence you reflect upon the work that you have done with the black and ethnic minority communities in Birmingham, but can you tell us to what extent your regional and local offices work in conjunction with the Energy Saving Trust, the efficiency advice centres and community groups and local government to co-ordinate the provision of advice about climate change mitigation and adaptation?

Mr Long: I guess the important thing for us in that is, again, to work out who is best placed to do what. The Energy Savings Trust are the ideal organisation to provide that sort of advice, and I think another organisation such as ourselves getting in the way of that or complicating it makes it more difficult for clear messages to be sent to the people that they are aimed at.

Q761 Chairman: Was it a good idea to reduce the Energy Saving Trust's budget this year?

Mr Bates: We probably ought not to comment.

Q762 Chairman: Oh, go on. I have asked the question nicely, and it is between friends!

Mr Long: You may have other witnesses this afternoon who may well be able to help you with that.

Mr Bates: We are all facing tight financial circumstances.

Q763 Chairman: I think you have answered the question.

Mr Bates: It is a bit like sailors complaining about rough seas, to be honest. We are getting to expect the financial position to be tight in the future.

Q764 Chairman: Very diplomatically put.

Mr Long: If I can return to Mr Williams, on a day-to-day level there are a wide range of operational links between our regions and our areas. Many of those are around regulatory duties and some of them, as we have heard earlier, will obviously be about the discussion around building within flood plains or flood risks at a local level. We are also in several areas throughout England—I know less about Wales, I am afraid—involved in a number of local strategic partnerships, the bodies that have come out of Local Agenda 21. Where we are involved there, I think we are part of that broader consortium or partnership that is able to do some significant work. So we provide data for people to make decisions at a local level; we provide a number of web-based applications for people to get more information; we provide flood warnings at a regional and local level. We do not do that much, to be honest, in terms of the provision of information with local governments. Again, for some of the reasons I

have put forward in my previous answers, I do not think it would be best value for money. I think our linkage is really an operational one.

Q765 David Taylor: A decade and a half ago, we had the Earth Summit and the massive interest and surge of enthusiasm that flowed from that, particularly in the area of Agenda 21; and, indeed, in your own evidence to us, which is linked in with this engaging and involving people, on page five, you still believe that local authorities have a key role to help draw down so-called action on climate change from national to local level.³⁶ The Committee went to Germany a week or two ago, to Freiburg in the Black Forest, close to the French border, in a state that has got an excellent track record, Baden-Württemberg, in terms of encouraging local action, a city of a quarter of a million or something like that. Why are cities of that size in the south-west of Germany able to still move fairly effectively along the Agenda 21 route and all enthusiasm, knowledge and commitment seems to have died in the vast bulk of British local authorities? Why should that be?

Mr Bates: I am not sure that is actually the case. I do not think you see things labelled "Local Agenda 21" any more—that is true—but I think a lot has been done to assimilate the environmental agenda into the way local government thinks and operates. As Adrian was saying, we have been participating increasingly in local strategic partnerships, a lot of the regeneration agenda has a strong environmental bent to it, and, of course, local authorities have many duties to do with waste management, traffic management and being the local sort of public realm, so I do not think the will has gone. Perhaps what is interesting, though, is the extent to which the Mayor of London has taken on the environmental agenda and made climate change a big issue for London. In some ways the Mayor has more power, more autonomy, more responsibility than is typical in most of local government, and that might be why he is able to make a stronger run at it.

Q766 David Taylor: In your evidence, when you use that phrase about local authorities and Agenda 21 "as they once did", implying that they are not doing it now, you are seeking for ways to give incentives for them to pick up again the Agenda 21?

Mr Bates: I think that is right. I do not think we would want to compare how it is now with how it was in the past, because circumstances have changed so much and the environment has gone up the political agenda in many ways.

Q767 David Taylor: We are talking about the local authority role, the leadership role that they have in engaging their communities, whether they be 200,000 people in Freiburg or 400 people in Mauenheim that we saw, not too far away from there?

³⁶ Ev 319

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Mr Bates: That is right. I think the will is there amongst local authorities do that, and perhaps if we had more mayors, if we had more autonomy in local government, they would be out doing more of it, which is why I drew the comparison with London.

Q768 David Taylor: Is that what you are saying to the DCLG—we need more Ken Livingstones scattered throughout the country?

Mr Bates: I do not, in all honesty, think that is a view that they would depart that much from. They want strong local government and they are champions of strong local government. Whether they want to replicate Ken Livingstone is another matter, but there is a lot of interest in government and having more mayors and more powers devolved to local government.

Q769 David Taylor: Are you putting strongly to your colleagues in DCLG the point that local authorities should be encouraged to seize the environmental agenda again, as they once did, although things have moved on in a decade and a half, you are saying?

Mr Bates: To be honest, I do not think we need to do that. The CLG has moved. It is taking this agenda quite seriously and taking it on quite strongly. It has got the zero carbon homes commitment and a bunch of other things that it has announced recently that it wants to do on the environmental climate change agenda, so I do not think there is a problem there that requires us to badger them into doing more. In many ways, many of the government departments now are focused on what they can do to actually get a better response to climate change, and that includes CLG, it includes DTI, it includes the Department for Transport and, of course, Defra.

Mr Long: Certainly the relationship between the Environment Agency and the representative bodies within local government has got stronger in the last two to three years—I think that is fairly evident—and that is a sign, I think, that things are beginning to move much more in the direction we would wish. Sandy Bruce-Lockhart, for instance, from the LGA, spoke at our conference this year, his deputy spoke the year before, and a big section of our conference was about building and strengthening regional and local relationships between us and partners and making sure that the work that was happening at a local level was as concrete and able to involve people as possible. Our Chairman, Sir John Harman, had a distinguished career in local government and is passionate about our relationship with local government. I think things like the Nottingham Agreement and other issues and initiatives are genuinely beginning to help work at a local level.

Q770 Chairman: Do you think that local authorities are sufficiently resourced in these straightened times, to which you referred a moment ago, to get things off the ground? I know from my own experience it has been a tough haul to get the resources in place to employ one person to actually turn these good intentions, with a huge list, into anything like reality.

Mr Bates: I think there is more that could be done there. I think the local area agreements could have a greener component to them, and that would start to provide that funding. Of course, that is, to some extent, under the control of local authorities themselves, and one of the things that we are trying to do through local strategic partnerships is encourage a greener dimension to local area agreement.

Q771 Chairman: Let us move on to fiscal instruments. In your evidence you say fiscal instruments should be used to penalise behaviour that is environmentally damaging and reward that which is environmentally beneficial by introducing inefficiency charges for products that are the least energy efficient. The price would more accurately reflect the true environmental cost of the product. Would you be in favour of increasing the price of incandescent light bulbs to achieve the same objective that the Australians have in moving towards, for example, the introduction of low-energy light bulbs?

Mr Bates: I think in that case there is a question about what the most appropriate intervention is. The Australians have gone, quite boldly, for a regulatory approach on the basis that it involves much less complexity, it requires much less information to be understood by the individual. There may well be a case for doing something around lighting efficiency from pure standards—what is actually allowed onto the market. It might be a more efficient way of getting to the outcome. I think our advice there probably should not be generalised to every possible circumstance and every possible product, but done where it is really appropriate, for instance for vehicles or for other large energy users.

Q772 Chairman: Have you as an agency done any evaluatory work on the effectiveness of green fiscal measures?

Mr Bates: We tend—

Q773 Chairman: It is either yes or no.

Mr Bates: I am trying to recall what we have done. We, basically, survey the literature. We are not out there looking at—. We are not basically doing what academics do. We commission work through our science programme and our economics programme that has a flavour there, but I am not absolutely certain what we have done on particular fiscal instruments.

Q774 Chairman: Perhaps you would like to go and have a look, because I am intrigued to know why in aviation emissions the five quid or the 10 quid on the air passenger duty was chosen as the fiscal instrument to achieve a reduction there?

Mr Bates: Obviously we did not make that choice. We learnt about it at the same time everyone else learnt about it.

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Q775 Chairman: It would be useful to have some commentary from about you about what works and what does not in the green fiscal environment.

Mr Bates: In fairness, Chairman, we did put in quite a heavy duty submission on those themes in response to the supplementary question that the Committee asked. We went through a lot of what is effective and what is not effective in our second submission.

Q776 Chairman: In that case, I will re-examine it and, if necessary, I will come back to you.

Mr Long: It came to you in January, Chairman.

Chairman: We are in March now, I have almost forgotten January, but I shall go back and have another look at it.

Q777 Lynne Jones: I wanted to ask you about personal carbon allowances, which the Secretary of State has flirted with, and then there was the report produced by the Centre for Sustainable Energy. The Environment Agency is the UK registry administrator for the European Emissions Trading Scheme. Based on that experience, what is your view about the practicality of going down the road of personal carbon allowances?

Mr Bates: I think the first thing to say is that the Secretary of State, in raising this idea, has done us a service, because he is having what is quite an imaginative and challenging idea widely discussed now and, as an approach to communications, it is good because it makes the point that people have a carbon footprint and that there is a basic entitlement to carbon that most of us exceed and there would be the possibility for trading. So, as a communications exercise and in engaging people, he is doing the right thing by getting people to think about it. However, there are (and he accepts this and Defra and the Government accept this) quite formidable practical difficulties to bringing in a full-scale compliance personal carbon trading system in which everybody in the country would be a participant. It would be at least as complicated as the ID card project and it would have to have virtually 100% coverage. It would be almost like introducing an entirely new currency. It is quite a subtle idea. It would be difficult to communicate to the people, and so on. There are, as I say, formidable practical difficulties to doing this, but it is worth discussing. The other question that ought to be asked about this is: is there another easier, lower cost way of getting to the same result or getting 80% of the way for 20% of the effort? I think doing more with the business model that energy suppliers have might be a more promising route to explore, at least in the medium term, so that they are operating an energy services type business rather than rushing into personal carbon trading. I would

not want a debate about personal carbon trading to distract us from doing things in the short to medium term that will actually make a difference.

Q778 Lynne Jones: Do you think it could possibly be tied in with an identity card system?

Mr Bates: I do not think anyone has reached the point of actually designing it. It is very much a "thought experiment" that the Secretary of State is challenging us with, and that is good. It is good that we think about these things. How would one do it? One would need some form of identity and accounting regime. If you think about what it takes to design a system like that, you would have to know who is on the system, you would have to have some way of allocating emissions to them and then some way of managing the trades that they have. We can at present register individuals on the Emissions Trading System Registry. If you pay £170 you can actually become a member of the Emissions Trading System and start buying and selling carbon allowances as an individual, if you are so minded. Expanding that to 60 million people would be difficult.

Q779 Lynne Jones: What are the advantages of doing that, if I wanted to do that? Is there any advantage?

Mr Bates: Judging by the number of people that have done it, there is very little advantage, I think. I think there are other interesting areas around off-setting that are easier to get into than joining the Emissions Trading System, to be honest. I think if you want to do that sort of thing, looking for good quality off-setting might be a more promising route for taking personal responsibility for carbon than joining our Emissions Trading System as an individual member.

Q780 Chairman: I think I would feel more convinced that they could manage personal carbon allowances if they could pay 121,000 farmers on time, but there we are, that is a personal point of view. Thank you very much indeed. I have just refreshed my memory about your green tax submission, and I think that is more than adequate, so there is no need to do further work on that. Can I thank you both very much indeed for coming. We have inevitably been constrained by time today. You are obviously aware, by virtue of the written evidence, for which I thank you, and the line that the Committee is taking, that we are very much focused on thoughts about what engages the citizen into action, and if as a result of hearing colleagues' inquiries there are further points and recommendations that you would like to make on how the citizen's involvement between, "I have heard there is a problem, something should be done, but what can I do?", can be strengthened, then your further thoughts would, as always, be very much appreciated. Thank you very much.

Further supplementary memorandum submitted by the Environment Agency (Cit 12b)

Following oral evidence, the Environment Agency agreed to supply three further pieces of information.

1. *Top ten policies for tackling climate change at the household level*

The request was as follows:

At Question 751 in the transcript of the session, Sir Peter Soulsby MP asked whether the Agency has a series of specific proposals, for example the “top ten things”, that would make a difference in tackling climate change at a household level. Mr Bates kindly offered to write to the Committee about this.

ENVIRONMENT AGENCY RESPONSE

In defining top ten things that would make a difference in tackling climate change at a household level, our list stresses those approaches that make responding to the climate change challenge as straightforward as possible for the citizen. We have focussed on household responses, but further suggestions would apply to transport, material consumption and waste, food etc.

ENGAGEMENT AND COMMUNICATION

1. *Programme support and engagement.* There is no shortage of sources for advice and tips for individual action (see, for example, Directgov³⁶, Energy Saving Trust³⁷, Friends of the Earth³⁸). These sources address the question of what the individual can do, but they do not address the more subtle question of what motivates and causes the individual to act. It is important to develop the motivation to take on the advice and that this be seen as a common endeavour. We anticipate that Defra and DfT will expand the “Act On CO₂” campaign, which has been recently launched by DfT. This could provide a consolidated high impact communications campaign aimed at heightening awareness of personal carbon footprints, and leading individuals to action to control their impact. Other enabling and engagement programmes include the Energy Saving Trust’s Sustainable Energy Network, which aims to engage people and communities locally with advice and support for action on energy efficiency, microgeneration and road transport eg eco-driving advice. These programmes and others should be evaluated and funded where they can demonstrate results.

2. *Promote adaptation to climate change.* It is important that people are encouraged to take steps that will reduce the impact of the climate change that is inevitable and unavoidable. In fact, even dramatic reductions in future emissions from “business as usual” will only cause the warming trend to slow from the middle of the century onwards because there is so much inertia in the system. This means the impact of climate change on the economy, welfare and the environment over the next 30–40 years will be determined by how well we adapt and build resilience. Our mitigation efforts are vital for stabilising the climate in the second half of the century. Adaptation measures include conserving water, installing a water meter, understanding and readiness for flood risk, for example by consulting the Environment Agency’s flood risk maps and subscribing to Flood Warnings Direct.

CHANGING THE BUSINESS MODEL

3. *Strengthen obligations on energy suppliers.* Develop the Energy Efficiency Commitment into a tougher “supplier obligation”—effectively a tradable cap on the energy that suppliers can sell to households. This has been signalled as a long-term option in the government’s energy review and the new draft Climate Change Bill contains enabling powers that could be used to introduce it. It could have the effect of creating a new “energy services” business model in energy supply. In the shorter term, double the size and increase the flexibility of the Energy Efficiency Commitment 2008–11 by incorporating third party participation through trading in “white certificates” (certificates confirming energy consumption reductions).

4. *Embed the Code for Sustainable Homes.* For house-builders, there is an opportunity for innovation to be driven by the new Code for Sustainable Homes, and for this ultimately to become the driver of very low or zero-carbon housing. Local authorities could require compliance with higher levels of the Code as a condition of planning permission, and other measures could make high levels of the Code a badge of quality and value. The Code could be extended to apply to refurbishment, as envisaged by the Sustainable Buildings Task Group. A key ingredient in enabling people to respond to climate change is the professional help and

³⁶ Directgov, *Environment and Greener Living* <http://www.direct.gov.uk/en/Environmentandgreenerliving/index.htm>

³⁷ EST, *Cheap and Simple Tips and Home Energy Check*. <http://www.est.org.uk/myhome/whatcan/10pointchecklist>

³⁸ FoE, *Top Tips to Save Energy*. http://www.foe.co.uk/living/poundsavers/home_front/top_tips_energy.html

business propositions they are offered, for example by architects, surveyors and builders. At present there is a shortage of trained people across the housing and energy sector able to meet the growing demand for low carbon technologies and services. Compliance and enforcement of building regulations also depends on an appropriately skilled workforce. It is important that low-carbon technologies and techniques become a focus of the skills system.

INCENTIVES

5. *Incentives for householders to upgrade household energy efficiency.* Encourage home-owners to invest in home energy efficiency through incentives, for example through reductions in property taxes such as council tax. A system of rebates on stamp duty could be used as a means of motivating energy efficiency improvements in the time just following a property sale, when major works are often undertaken. In the rental sector, the efficiency cost savings and comfort improvements are enjoyed by the tenant rather than the landlord, limiting the incentives for landlords to act. Regulation of the rented sector could provide an obligation for the landlord to improve the property to a minimum standard before a new rental contract is agreed.

IMPROVED INFORMATION FOR DECISION MAKING

6. *Clear labelling and rating system for buildings.* Since 2006, all EU member states are required to have a methodology in place for providing information on the energy performance of all buildings when they are built, sold or rented, as set out in the Energy Performance of Buildings Directive (EPBD). As a result of the EPBD, the energy rating of a dwelling, together with information about energy performance and potential for efficiency improvements will be included in the Home Information Pack (HIP). This is a good start, but it will be truly successful when the energy rating becomes part of the decision to purchase a property. There is a case for more information about what the ratings mean and what action can be taken.

7. *Meaningful comparisons of running costs and property prices.* Introduce a system for translating household energy running costs directly into the same “currency” as house prices—thus making the home energy efficiency rating a factor in the housing market. This could be done with clear home energy efficiency rating scheme that gives running cost information and an estimate of how much extra (or less) a house is worth compared to the average (or best) practice based on future expected running costs discounted at the mortgage rate. At present, the system will allow comparisons between properties, but works less well for comparisons between house purchase costs and running costs.

8. *Smart meters and energy bills to give feedback.* At a day to day level, mandatory use of smart meters (including consumer display) would give better information on energy use in the home and allow users to adjust behaviour in response to an environmentally orientated tariff. Feedback and information on energy consumption are an essential part of raising awareness. The design of utility bills, electricity disclosure labels, the tariff can be designed to favour energy efficiency and demand reduction.

USE STANDARDS TO MAKE GOOD CHOICES EFFORTLESS

9. *Drive up appliance energy efficiency.* Working through the EU, introduce tough appliance energy efficiency standards set at EU level by strengthening Directive 2005/32/EC on the design of Energy Using products. This could supersede directives on efficiency standards for boilers (92/42/EEC), general appliances (96/57/EC) and fluorescent lighting (2000/55/EC). This could include lighting (for example, by excluding incandescent lighting) and standby power, as well as strengthening provisions for refrigerators, washing machines, dish-washers, televisions and other energy-using products. Where products are permitted above a “floor standard” use variable rates of taxation to penalise products that are conspicuously wasteful in carbon—on the same model as vehicle excise duty.

10. *Strengthen building regulations.* The building regulations should be strengthened progressively as envisaged by the Sustainable Buildings Task Group, so that the higher levels of the Code for Sustainable Homes progressively become the floor standard established in the regulations. To make substantial inroads into domestic energy efficiency, there is a case for requiring upgrades to building efficiency at particular times—for example during a partial refurbishment or extension, or at the time of changing ownership, wider energy improvements could be mandated. The regulations are only meaningful if they are applied and enforced, so it will be important that awareness and motivation to enforce is increased among building inspectors.

2. Enforcement of the building regulations

The request was as follows:

Following on from this, also at Question 751, the Chairman requested a note on how well the Agency thinks the Building Regulations are being enforced.

ENVIRONMENT AGENCY RESPONSE

The Environment Agency does not have direct evidence or experience of how well the building regulations are enforced and building control is not within the scope of our activities or duties. However, we are concerned about persistent anecdotal evidence of poor enforcement and that this might be undermining a highly cost effective policy that would otherwise have “win-win” benefits for the environment, economy and society. There have been studies that point to poor enforcement:

Energy Saving Trust (2004) “*Assessment of energy efficiency impact of Building Regulations compliance*”. BRE client report 219683. The research showed that around 1/3 of properties fail to achieve the air tightness standard mandated by the Building Regulations, although the sample size of the survey is small (99 properties).

Energy Efficiency Partnership for Homes (2006). “*Compliance with Part L1 of the Building Regulations 2002 (An investigation into the reasons for poor compliance)*”. The report highlighted a perception problem towards the energy efficiency aspects of the regulations:

- There was a feeling of TRIVIALITY where officers will not refuse completion certificates or prosecute on a Part L issue . . . Compliance was poor compared to other elements of the Regulations.
- Part L was low in the priority ranking for many Building Control departments as it was seen as “not life threatening”.
- There was a feeling amongst some officers that the inspections are treated as a risk assessment rather than a Building Regulations check.

3. Micro hydroelectric schemes

The request was as follows:

In response to Question 752 by Mr Cox MP, the Chairman asked if you could send a note to the Committee on the potential for micro-hydroelectric schemes.

ENVIRONMENT AGENCY RESPONSE

- The Environment Agency strongly supports the Government target of achieving 10% of electricity generated from renewable energy by 2010 and it’s aspirational target of 20% by 2020. It recognises the cumulative contribution which hydropower schemes can make to these targets and to the reduction in the emissions of greenhouse gases.
- We recognises the potential benefits of small-scale hydropower to rural communities and in meeting local needs for power. Where a proposed scheme is inappropriate for its location it will advise a prospective developer at as early a stage as possible. However, the Agency will not unduly rely on the precautionary principle as an excuse for inaction. It will take a positive view of reasonable and well designed proposals for hydropower schemes and will work with developers and others in attempting to agree a viable, sustainable project.
- We seek to work constructively with the hydropower industry in achieving the aspirations of Government, the Agency and the Industry.
- We will regulate the impoundment and abstraction of water for Hydropower in accordance with the Water Resources Act 1991 (WRA91) and the Environment Act 1995 (EA95). These impose a range of aims and duties on the Agency. The Agency has a wide remit and specific legal obligations when dealing with applications for consents and licences. These will be determined and issued in accordance with the requirements of these Acts and other relevant UK legislation, taking account of European and other International obligations.

Objectives:

- To deal with hydropower proposals in a positive, consistent and efficient manner.
- To demonstrate to stakeholders that proposals and applications will be dealt with in a consistent way throughout England and Wales.

Environment Agency

March 2007

Memorandum submitted by the Department for Environment, Food and Rural Affairs (Cit 30)

OVERVIEW

1. Both the UK Climate Change Programme, published in March this year, and the Energy Review, published in July, emphasise the central role to be played by individuals in tackling climate change. In his speech to the Audit Commission on 19 July David Miliband, Secretary of State for Defra, said:

“So the science [of climate change] is increasingly stark. The potential to solve climate change increasingly in our hands. Public awareness and concern has never been higher. The challenge is to translate awareness into action.”

So a focus on the role of individuals and communities is central to the Government’s agenda.

2. Around 40% of national greenhouse gas emissions are the result of decisions taken directly by consumers. Home heating and hot water account for about half of this, with transport accounting for over a third. The remainder results from use of appliances and lighting in the home. Through their purchasing decisions, individuals are responsible for a further fraction of emissions incurred elsewhere in the economy—in the production and transportation of products such as food and drink, for example, although this submission does not address such indirect impacts further.

3. We can identify particular behaviours where individuals make a significant contribution to environmental impacts. These can be characterised in different classes:

- (i) avoid energy waste through simple changes to behaviour;
- (ii) use energy more efficiently by buying energy efficient products or installing home insulation measures;
- (iii) reduce carbon content of energy used by switching to green tariffs, biomass heating or microgeneration; and
- (iv) offset carbon.

4. Actions can also be split between behaviour and purchases, as illustrated in Table 1 below and detailed further in Annex 1. Many of these have immediate benefits in terms of economic pay-back so consumers have an interest in making these changes themselves, and Government need only play an enabling role—by providing information for example. Where other intervention is justified it must be tailored to the required outcome: what is needed to encourage small changes to behaviour or purchasing habits will be very different to those required to influence large and potentially investments in homes or vehicles. Government already employs a number of policies and instruments to influence public behaviour, as detailed below. There are of course ways to tackle emissions at this level other than by trying to influence the behaviour of many millions of individuals, and in many cases it may be more effective to intervene higher up the supply chain—through appliance, vehicle or building performance standards, thus removing the worst options from the marketplace—a process some refer to as “choice editing”.

5. In many cases there are other actors who may be better placed to influence the public than Government. NGOs, for example, have a unique role and comparative advantage in delivering the “citizens agenda”, including extensive reach through their memberships and credibility—individuals tend to trust information from NGOs more than that provided by Government.

Table 1
CATEGORIES OF INDIVIDUAL ACTION
BEHAVIOUR TYPE AND FREQUENCY/SCALE OF BEHAVIOURAL CHANGE

<i>Behaviour More frequent</i>	<i>Purchases Less frequent</i>
Modification	
Minor change to a common routine	Purchase the low carbon option
— Turn down the thermostat	— Efficient boiler
— Switch off the lights	— Efficient cars (in same class)
— Don't overfill the kettle	— A-rated appliances
— "Eco driv", eg don't accelerate hard	— Compact florescent lights
— Switch off not standby	
Complete Change	
Behave in completely new way	Make a new sort of purchase
— Use public transport	— Move house to reduce commuting
— Cycle or walk	— Buy a new home conforming to the Code for Sustainable Homes
— Take holidays close to home	— Micro-generation
— Video or tele-conference	— Loft or cavity wall insulation
— Buy at the local shop	— Green electricity tariff
	— Buy carbon offsets
	— Smaller, lower power or alternatively powered car

Source: Energy Saving Trust, Defra

6. While our research shows that people are concerned about the environment and there are high levels of awareness on many green issues, there is a gap between their attitudes and their actions. For example, a recent Defra survey showed that 95% of the population are now aware of climate change but still only 7% believed they have any real influence on the issue as individuals, pointing to the need to tackle awareness first before behaviour-change messages are likely to be successful.

7. Action to enable or influence individual action on climate change, whether by central government, NGOs or others, must overcome the barriers to people changing their behaviour, which include:

- Lack of knowledge about climate change;
- Disinterest and inertia;
- Scale of the problem—"I can't make a difference";
- Lack of clarity about what individuals can do, and how;
- High up-front costs;
- Hidden costs and the hassle factor for many low-carbon options;
- Market misalignment—landlord-tenant split incentives for eg; and
- A perception that Government, industry and other countries should act first.

8. The Defra-HMT Energy Efficiency Innovation Review considered barriers to action on energy efficiency in the household sector, and further information on more general barriers to behaviour change can be found in many of papers available via the website of the cross-Government Behaviour Change Forum.

9. Changing any social behaviour is complex and, in the case of climate change, success is not about people making one specific change (in contrast to the seatbelts campaign, for example), it is about lots of people making a number of changes. There is a need to provide people with information and options, to help them to adopt a range of sustainable behaviours and show them how small steps can make a real difference. We must also communicate the role that Government and business are playing in achieving change—a point stressed by David Miliband, Defra Secretary of State in his recent speech proposing a new form of environmental contract:

"If citizens, businesses and nations are to change their behaviour, they must be confident that their actions will be reciprocated. Citizens need to know their neighbours are committed and that together their actions will have critical mass. Business need to know that the bar is being raised, but it is being raised for all businesses. Nations need to know that others will follow suit."

10. A mix of policy and communications measures is required to demonstrate the wider context for why change is necessary and demonstrate how, collectively, individual action can make a real difference. Box 1 below summarises the key messages from a recent report on influencing public behaviour commissioned by Defra.

11. We also need to ensure that actions or products being offered as having a low impact, genuinely do—we need to do more to ensure this is the case with for example “green” energy tariffs and carbon neutral or carbon offset products and services. Defra intends to work with stakeholders such as the National Consumer Council and the British Standards Institute to explore options for providing more standardised and robust consumer information.

12. To support this, Government is also proposing to develop a common metric to enable the public to compare the impact of different behaviours and consumer choices. Our initial thinking is that this metric should be based on carbon—as this is the metric currently used by Government and industry, although it clearly does not capture all of the impacts on local environment, biodiversity etc so can only form part of the bigger picture; we will also be looking at ways to address these broader impacts on the back of our work on carbon. We plan to explore how the concept of carbon, and counting carbon can best help the public understand, measure and reduce the impact of their actions. We intend to establish ourselves as the definitive source of reputable and accurate information relating to carbon counting and to make this information widely available and free for use by the widest range of stakeholders. Table 2 below is work in progress, but shows the savings from a range of actions, illustrating that individuals can make savings in diverse range of ways.

Box 1. *Research findings on influencing environmental behaviour*

- *Behaviours are complex and non-linear.* Each behaviour is determined by various (often inter-related) factors, many of which need addressing simultaneously to facilitate change. Thus interventions should combine multiple types of instrument in a “package” of measures (eg infrastructure, fiscal measures, and information). It is suggested that interventions first address external factors (most notably infrastructure and pricing) and then internal factors (eg psychological or attitudinal).
- *Different audiences behave differently, and require targeted and/or tailored interventions.* To be effective, policy measures usually need to be highly context specific. Devolving responsibility for policy development and delivery to local bodies (Local Authorities, business and industry groups, the voluntary sector and community groups) can help to ensure their suitability and can also help to build their legitimacy.
- *The audience for a change intervention should not be regarded as a passive target.* Policy-makers need to view target audiences and other key stakeholders as “actors” at the heart of the change process. They should be involved at the earliest opportunity in the change process. Ideally, a total partnership working approach should be adopted in which change partners (including members of the public) are involved from the start in defining and redefining the problem through a continuous cycle of action and reflection, from which learning and innovation will result.
- *Feedback is vital to driving and sustaining change.* Instead of understanding changing behaviour as a single event, it should be viewed as an ongoing process. Policy-makers should ensure that interventions incorporate opportunities to learn from policy audiences—learning captured and fed back from the change process should influence subsequent policy.

From: “Promoting Pro-Environmental Behaviour: Existing Evidence to Inform Better Policy Making” by Andrew Darnton *et al*, available at <http://www.sustainable-development.gov.uk/government/task-forces/research>

Table 2
SAVINGS IN kg CARBON DIOXIDE PER YEAR

0–100	Switch-off/unplug 1 power supply type plug when not in use (eg mobile phone charger)	15
	Walking or cycling 1 mile instead of driving (once per week)	17
	Part fill kettle instead of full 4 times a day	30
	Change 1 high-usage (eg living room) light bulb to a low energy one	52
	Travel by rail to Paris (return trip) once instead of flying	84
100–200	Dry clothes in spring and summer instead of tumble dry	110
	NOT replacing standard 5 foot fluorescent tube with set of 6 halogen spotlights	110
	Walking or cycling 1 mile instead of driving (once per day)	120
	Travel by rail to Edinburgh (return trip) once instead of air	180
	Put jacket on hot water tank that doesn't have one	180
	Drive at 55 mph instead of 70 mph on A roads	180
	Turn off standby on multiple appliances (also includes power supply type plugs)	190
200–500	Walking or cycling school run instead of driving (school run = 4 miles/school day)	250
	Turn down thermostat in typical house by 1 degree	290
	Reduce temp of hot water from 80 to 60 degrees c.	310
	Fly to Paris on holiday instead of Rome	320
	Drive at 70 mph instead of 85 mph on motorways	340
	Install a solar water heater system	450
500–1000	Fly to Rome on holiday instead of NY	570
	Install cavity wall insulation	730
	Install solar panels	880
	Drive a hybrid medium car instead of a 5-seater car	900
1000 +	Install a micro wind turbine	1,300
	Drive a hybrid medium car instead of a 4 × 4	2,330
	Offset 100% your electricity bill with genuine carbon credits	2,540

Notes:

1. The figures given here are indicative estimates, and subject to revision;
2. The methodology for these calculations has been discussed with the Department for Transport but is still being refined;
3. Savings from electricity assume a carbon intensity of 0.59 kg CO₂/kWh—which applies currently but is projected to fall by 2010;
4. Aviation calculations do not include additional climate change impacts so constitute a conservative CO₂ only saving.

SUMMARY OF KEY POLICIES TO ENCOURAGE PERSONAL ACTION

(Linked where appropriate to more detailed annexes or published sources of information)

(i) *Economic incentives (grants, subsidies, fiscal instruments)*

1. *Energy Efficiency Commitment and the Supplier Obligation after 2011*

The Energy Efficiency Commitment (EEC) is the largest programme targeting household energy usage. All the main household energy suppliers are obliged to meet three-year targets for the installation of energy saving measures. They do this principally through the provision of subsidised measures, with those for the “priority group” of low-income consumers being free or charge.

In the first phase of the energy efficiency commitment (2002–05) suppliers attained their targets early and delivered measures which save 0.4 MtC per annum, saving consumers £9 for each £1 spent and reducing consumer bills by £3 billion over the period to 2020. A recent evaluation concluded that the net benefits of carbon saved under EEC1 was £300/tC with a cost of reducing energy consumption estimated at 1.3p and 0.5p per kWh saved for electricity and gas respectively. The target was doubled for the second phase, EEC2 (2005–08). The costs of delivering the measures are estimated at £9 per fuel annually for the average household in each of the three years. The resulting energy savings for the average household are worth £15 annually, but last for up to 20 years. The 2006 Climate Change Programme has signalled Government's intention to seek a further increase of 50–100% in the target for next phase of EEC, starting in April 2008.

While the EEC mechanism has been very successful at delivering technical measures, it does not address the important issue of consumer behaviour. The Climate Change and Sustainable Energy Act 2006 enables EEC3 to cover a wider range of measures such as metering and billing and the provision of information, as well as all forms of microgeneration. Defra is currently consulting on the implementation of these options.

A key barrier to be overcome is the difficulty of projecting in advance exactly how much carbon will be saved given the inevitable variation and uncertainties around the extent and persistence of individual consumers' responses to information, advice and other incentives.

But even with these changes, EEC is designed to deliver energy saving measures in a "bottom-up" way and will not directly address overall energy demand from the household sector. Defra has therefore been considering one of the key recommendations of the 2005 Energy Efficiency Innovation Review: the scope to move EEC towards a supplier cap and trade model. Setting overall energy or carbon demand targets for each supplier would align the objectives of the programme directly with the Government's objectives—to reduce emissions from the household sector in line with our carbon goals for 2020 and 2050. It would encourage suppliers to engage more actively with consumers through energy services and encourage promotion of measures to address behaviour and microgeneration.

Next Steps:

Initial public consultation on options for EEC3 July–October 2006;

Formal consultation on Statutory Instrument for EEC3, Spring 2007.

Work on Supplier Obligation commencing with a stakeholder workshop in September 2006.

Further information:

- Information about EEC on the Defra website: www.defra.gov.uk/environment/energy/eec/index.htm
- Consultation Document on implementing the Climate Change and Sustainable Energy Act 2006 in EEC3: www.defra.gov.uk/corporate/consult/eec3/index.htm

2. FISCAL INCENTIVES

The Government has used the tax system to support progress towards environmental goals where measures are considered to be the best-targeted and most efficient use of resources. Within the pre-Budget Report 2005 the Treasury published the Government's *Principles of Environmental Policy Making*:

- the decision to take action must be evidence-based;
- any intervention to tackle environmental challenges must take place at the appropriate level;
- action to protect the environment must take account of wider economic and social objectives;
- action on the environment must be as part of a long-term strategy;
- the right instrument must be chosen to meet each particular objective; and
- where tax is used, it will aim to shift the burden of tax from "goods" to "bads".

Fiscal measures—as part of a range of measures—can help to address market failures. Since 1998 the Government has introduced a reduced VAT rate of 5% for a range of professionally-installed household energy-saving materials such as insulation, draught stripping, hot water and central heating controls to improve energy efficiency and to help in tackling fuel poverty. European agreements currently prevent their extension to the DIY market.

The Government has also introduced a reduced rate of VAT for microgeneration to support the development of the market in generation technologies using renewable and sustainable energy sources. Since Budget 2000, reduced VAT rates have been introduced for the installation of solar panels; photovoltaics; micro wind and water turbines; ground and air source heat pumps; micro-combined heat and power (micro-CHP); and wood-fuelled boilers.

To encourage investment by landlords in the energy efficiency of their rental properties, the Government introduced the Landlord's Energy Saving Allowance (LESA) in 2004, offering upfront relief of up to £1,500 against tax for capital expenditure on the installation of cavity wall and loft insulation. This was extended in 2005 to include solid wall insulation, and again in 2006 to include draught proofing and hot water system insulation. The Government is currently looking to improve awareness of LESA among landlords, as well as examining the possibility of extending LESA to corporate landlords.

In the 2005 pre-Budget Report, the Government also announced that, to provide further incentives for landlords to invest in the energy efficiency of their property, it intended to implement a Green Landlord Scheme by reforming the existing Wear and Tear Allowance and making it conditional on the energy efficiency level of the property. The Government is continuing to explore how the allowance should be reformed to incentivise landlords to invest in the energy efficiency of their properties, with a view to introducing the new allowance structure alongside the forthcoming Energy Performance Certificates.

The Government has also put in place incentives for consumers to use more fuel efficient vehicles, by linking Company Car Tax (CCT) and Vehicle Excise Duty (VED) to carbon emissions as well as introducing a new zero rate of VED to support the development of the low carbon vehicle market. Both these incentives were sharpened in Budget 2006.

Next steps:

Decisions on fiscal instruments are a matter for the Chancellor and any changes will be announced within the Budget process.

3. SUPPORT FOR MICROGENERATION

In 2004 there were less than 100,000 microgeneration installations throughout the UK so the current contribution of microgeneration to tackling climate change is minimal. But the provision of low carbon sources of heat and electricity at a local level clearly has the potential to make a significant impact, and can act as a vital tool to engage individuals and communities and raise awareness about energy use. Anecdotally, a study undertaken by the Energy Saving Trust on behalf of the DTI suggests that microgeneration could reduce household emissions by approximately 15% pa by 2050. The main policy to support microgeneration is the Low Carbon Buildings Programme, which was launched in April 2006 with funding of £30 million, and subsequently expanded with a further £50 million in Budget 2006.

The £50 million

We hope to set up a framework-type agreement whereby a few suppliers of microgeneration installations agree to provide products at reduced prices, secure in the knowledge that they will have access to the market guaranteed by the £50 million grant funding. A condition of the grant award will be that equipment is purchased from signatories of the framework agreement. Expressions of interest were published mid-June, and we hope to have the programme up and running by November.

The £30 million

Stream 1 will provide grants to household and small community projects, whereas Stream 2 will fund larger-scale projects. Stream 1 will continue the support for projects at the individual and community level that has been started under previous capital grant programmes (Clear Skies and the Major PV Demonstration Programme). The larger projects funded under Stream 2 will incorporate advice from the Carbon Trust on optimising energy efficiency and microgeneration technologies in buildings. The projects will help to raise the profile of microgeneration, bringing it to the attention of a wider audience. They will also encourage the construction industry to make use of microgeneration with a focus on projects that can be replicated, with the aim of helping to generate the levels of demand that will see costs fall.

The scheme is run by a consortium bringing together the Energy Saving Trust and the Buildings Research Establishment, and was launched in April 2006.

Further information:

Annex 2

DTI's Microgeneration Strategy—www.dti.gov.uk/energy/sources/sustainable/microgeneration/strategy/page27594.html

Energy Review: www.dti.gov.uk/energy/review/ Paras 3.32–3.39

4. FUEL POVERTY PROGRAMMES

Warm Front is the flagship fuel poverty³⁹ policy in England, with equivalent programmes in the Devolved Administrations. It works principally by offering grants for the installation of a range of heating and insulation measures in the homes of qualifying individuals. Total fuel poverty funding over the 2005–08 period will be over £800 million. Carbon dioxide savings from Warm Front and other fuel poverty programmes are expected to be 0.4 MtC by 2010.

³⁹ A household is in fuel poverty if in order to maintain a satisfactory heating regime it would be required to spend more than 10% of its income on fuel use.

(ii) *Information and Advice*

5. ENERGY SAVING TRUST

The Energy Saving Trust's (EST) activities are designed to underpin and complement the work of other actors in energy efficiency markets. In particular it seeks to work with key Government policy drivers for domestic energy efficiency—EEC, Warm Front, Decent Homes and Building Regulations. Its principal activities are aimed at increasing demand for energy efficiency by raising awareness, providing advice and support for action. It also supports the supply of energy efficiency products and services to meet this demand by developing partnerships, stimulating innovation, supporting training and providing accreditation.

The EST's energy efficiency activity is grant funded by Defra—£27.6 million this financial year. The Trust also receives funding from Scottish Executive, from the Department of Transport to run transport programmes and from the Department of Trade and Industry to run renewable energy programmes.

The EST is piloting the development of a Sustainable Energy Network (SEN), a network of regional delivery agencies that aims to support national awareness raising of sustainable energy and translate householder awareness into practical action. EST has set up three Sustainable Energy Centres which build on the approach of the 50 or so existing Energy Efficiency Advice Centres (EEACs) by a more holistic service with a one-stop shop providing increased resources, more support for action and covering small-scale renewable energy and transport as well as energy efficiency. Defra has provided additional funding of £10 million over three years for the SEN Pilot.

EST also run the "Energy Saving Recommended" labelling scheme, promoting the most energy-efficient products. The Energy Saving Recommended programme was developed by EST in 2000 as a way of signposting customers to the most energy efficient products. The Energy Saving Recommended logo appears on a range of different products including boilers, heating controls, insulation, lighting, fridges, fridge freezers, tumble dryers and washing machines—now covering around 1,800 products, 109 manufacturers and 34 retailers.

Further information:

Energy Saving Trust website: www.est.org.uk

6. PROVIDING INFORMATION THROUGH BILLING, METERING, ENERGY DISPLAYS AND HOME ENERGY REPORTS

Householders are more likely to invest in energy efficiency improvements and to reduce the waste of energy if they are provided with timely, specific and relevant information on their energy use and how much it costs. The Energy End-Use Efficiency and Energy Services Directive 2006⁴⁰ recognised this and includes requirements for improved information on bills and for the installation of meters that provide information on actual time of use, subject to cost-effectiveness and other criteria.

Better energy bills

At low cost, bills can be improved through the provision of graphic information showing consumption this quarter compared to the same quarter last year or compared to another "average" house in the same area, for example. In the Energy Review, the Government proposed that it will mandate, from 2007 onwards, improvements in the information provided in domestic customers' energy bills, requiring bills to provide comparative historic energy use in graphical form (showing a customer how much energy they have used over previous periods), supported by information on energy efficiency. At present, energy suppliers are obliged to read meters once every two years. Government will consult further with Ofgem, the energy suppliers and interested parties on how we can cost-effectively improve the frequency at which customers are provided with accurate bills.

Real-time displays for households

The technology is available that can provide householders with direct, instant information on how much energy they are using and how much it costs by transmitting information from the electricity meter to a portable display. A recent study in Canada over a two and a half year period showed that households reduced their energy bills by an average of 6.5%. Two suppliers are currently testing a real-time electricity display to determine the extent of energy saving that it can deliver to UK households. The results of this trial should be available next year. Other energy suppliers may propose further trials of displays under the trials of smart meters co-funded by Government and the energy suppliers, announced in the 2006 Budget. We intend to discuss with Ofgem, the energy suppliers and interested parties how best to rapidly roll out the provision of these displays, which could complement action to deliver smart meters—see below.

⁴⁰ See Article 13 Web link to source.

Smart meters

“Smart meters”⁴¹ can provide information that help consumers make more informed choices. Smart meters have the potential to deliver many benefits to the energy supplier and the consumer. They allow remote reading, avoiding the need for house calls and so ensuring energy bills are accurate and reducing transaction costs, they can also help reduce fraud. Smart meters can also be used with variable tariff structures for electricity consumption, for example, to discourage electricity use during peak periods. Smart meters with an “import-export” facility allow consumers installing micro-generation such as small-scale wind, solar (PV) panels or micro-CHP to sell their spare electricity to the grid.

Purchase and installation costs of smart electricity meters vary from £40–£180, depending on function. Ofgem have estimated that the total cost of installing and maintaining one-way smart meters could be up to £5–8 billion. In comparison, the current cost to gas and electricity customers of installing, reading and maintaining meters is £800 million each year. The Government will examine the scope for more sophisticated monitoring of energy usage, its costs and benefits through the forthcoming trials of residential smart meters and other forms of feedback about electricity and gas consumption, as announced in the 2006 Budget. These trials will start this winter, with results available from 2008. Through the trials we can test the effectiveness of smart meters in comparison with cheaper options such as improved billing and real time displays. As noted above, the funding available in 2006–07 for the trials has been increased from £5 million to just under £10 million in order to allow energy suppliers to test broader behavioural measures, including, for example, community-based approaches.

Home Information Packs (HIPs)

The information available to homeowners about the energy efficiency of their homes will be further improved by the introduction of Home Information Packs (HIPs) in England and Wales, which will include energy performance certificates.

As the Government has already announced, the certificates will rate the energy efficiency and environmental impact (carbon dioxide emissions) of a home on scales of A to G. Prepared by qualified inspectors and assessors, they will include information on the current average costs for the heating, hot water and lighting of the home. And, crucially, they will include practical advice on which energy efficiency measures the owner/occupier could carry out to cut carbon emissions from the home and improve its energy efficiency rating.

The focus will especially be on measures, such as cavity wall insulation and thicker loft insulation, which will quickly prove cost-effective. But the certificates will also list measures, such as solar panels and wind turbines, which could cut carbon emissions even further. Around 1.5 million homes are put up for sale each year, and research shows that the vast majority of home improvements are carried out within six months of the purchase of a property. The certificates, therefore, will help to inform and influence the behaviour and spending decisions a large number of households each year. In due course, energy performance certificates will also be provided to prospective tenants of rented accommodation, and also to prospective owners or tenants of commercial property.

Further Information

Metering and billing: Study by Sarah Darby, Oxford Environmental Change Institute: www.defra.gov.uk/environment/energy/research/pdf/energyconsump-feedback.pdf

Home Information Pack: www.communities.gov.uk/index.asp?id=1150984
Energy Review: www.dti.gov.uk/energy/review/paras.2.37-2.61

energywatch—www.energywatch.org.uk

Ofgem—http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/15591_Metering_Innovation_Decision_document_final.pdf?wtfrom=/ofgem/whats-new/archive.jsp

⁴¹ There is no standard definition of a “smart meter”, but they provide at least one of the following functions over and above standard metering: i analysis and local display of consumption data; ii transfer of consumption data to the supplier or his agent; iii payment facility; iv monitors the continuity and quality of the supply and provides data to the Distribution Network Operator v Permits remote control (eg interruption and restoration) of specific consumer circuits or equipment; vi allows display of price signals for different time periods; vii Allows for remote change of tariff rates for charging without requiring access to the home, and, vii. where a consumer has micro-generation equipment installed, provides a facility to measure energy export and/or generation.

7. INFORMATION ON CLIMATE CHANGE AND PERSONAL ACTION

In December 2005 the Government launched its Climate Change Communications Initiative (CCCI). This is focused on changing attitudes rather than behaviour, so that climate change is seen as a “here and now, front of mind” issue, and as relevant to the UK rather than a far away place. It aims at encouraging individuals to feel empowered and positive about tackling climate change. The underlying strategy is evidence-based, having been developed in the light of research conducted by consultants Futerra.⁴²

The Government announced that it would spend £12 million through the CCCI over 2005–06–2007–08, of which at least £6 million would be channelled through the *Climate Challenge Fund* to regional and local communication projects. So far 81 projects from across England have been selected to receive funding totalling £8.3 million.

A competition has also been run to choose nine youth champions, who are now communicating the climate change message in their respective English regions. These young people act as figureheads for the initiative, drawing in additional publicity, working with schools and local government, and adding value to the Challenge Fund projects (see 10 below).

In addition, the initiative provides free resources, including a website (www.climatechallenge.gov.uk), a guide to effective climate change communication, an award-winning two-minute film, filler ads, and the results of specially-commissioned attitude surveys.

Large scale national activities have also been seen as an important part of the strategy—to give national identity, and allowing local-level activities to feel part of a wider, Government-backed initiative. The Government is currently developing ideas for how best to communicate and engage individuals at the national level, and how it can in particular add value to other campaigns and activities planned by NGOs, business and media players.

As mentioned above, the initial focus of the initiative has been on public attitudes to climate change, as an essential precursor to more direct behaviour change. In moving towards activities that encourage more positive individual *action* related to climate change we will draw on the research that has been carried out in the area of pro-environmental behaviour change more generally. In particular, in July 2005 Defra initiated a programme of research aimed at broadening our understanding of how Government (and others) can most effectively promote pro-environmental behaviour amongst producers and consumers⁴³.

Further detail

Annex 4

Defra and CCCI websites—www.climatechallenge.gov.uk and www.defra.gov.uk/environment/climatechange/uk/comms/index.htm

8. TRANSPORT

(a) *What is the scope for individual and local community action to contribute to tackling climate change?*

The decisions of individuals on vehicle purchase and mode of transport have a significant impact on carbon emissions.

The Government has already, by linking Vehicle Excise Duty (VED) and Company Car Tax (CCT) to carbon emissions, put in place incentives for consumers to use more fuel efficient vehicles. Both these incentives were sharpened in Budget 2006. NB: Decisions on fiscal instruments are ultimately a matter for the Chancellor.

We also need to ensure that consumers have the right information when buying vehicles to allow them to make choices informed by the impact on climate change. With this in mind, most UK car showrooms now display colour-coded fuel efficiency labels, developed and delivered in close cooperation with the vehicle industry and the Low Carbon Vehicle Partnership (LowCVP), which are directly linked to the Vehicle Excise Duty (VED) bands and which will be familiar to consumers used to similar labels for their household white goods. We will also need to make information more readily available to travellers generally on the carbon impact of their travel choices.

Many citizens are now seeking a clearer understanding of the carbon consequences of the travel choices they make. The Government will therefore act to raise awareness of transport and climate change issues and the options available to individuals. This will be achieved by:

- improving the quality of information available to purchasers of new vehicles; and
- improving access to information for travellers on the carbon impacts on different modes of travel.

⁴² Available at <http://www.defra.gov.uk/environment/climatechange/uk/comms/comms2.htm>

⁴³ see www.sustainable-development.gov.uk/government/task-forces/behaviour-change.htm#research

A new communications campaign to promote consumer information on buying greener vehicles and on eco-safe driving is to be introduced. The campaign will also target businesses by promoting the benefits of workplace travel planning.

Support for workplace travel planning is being refocused to work more effectively with business and encourage wider adoption of voluntary travel plans. These plans have the potential to reduce commuter car driving by 10–30%. As a first step the Ground Floor Partners Network (of major private sector companies with an interest in travel plans) will be re-launched and expanded in the autumn to support and encourage more employers to develop travel plans and to promote them to business groups.

(b) What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome?

In the near term, measures to reduce emissions from transport are often difficult and expensive to implement. Securing a change in people's transport behaviour and their choice of transport is also not straightforward. In the longer term, we expect the emergence of new technologies including hybrids, advanced biofuels and hydrogen to play a major part in reducing transport emission post 2020. New vehicle technologies take a long time to feed through to market and become more widespread.

The Government also recognises the importance of giving people real alternatives to travelling by car. Transport Direct gives people practical information on the alternatives to car use. And our record investment in transport infrastructure reflects our commitment to reducing the carbon impact of transport by encouraging more environmentally friendly forms of transport. Britain now has the fastest growing railway in Europe—with more than a billion passenger journeys undertaken last year. People are now travelling further by rail than in any year since 1946. Since 1996–97, rail passenger kilometres have grown by 30% and rail freight is up by 36%.

The foundation on which this growth has been achieved is unprecedented levels of government investment in the rail network to address decades of under-investment. For example, between 2004–05 and 2008–09 the Government will be spending over £23 billion on Britain's railways to make up for years of under-investment. Next year we will set out firm plans for the coming five years to meet the demands of a growing railway.

Buses too provide essential alternatives to the private car, especially where congestion—and the associated problems of air quality—are a growing problem. The Government has worked to halt the long-term decline in bus use. Local and central Government provides over £2 billion annually to provide bus services that offer a genuine alternative to the car. Rural Bus Subsidy Grant now supports over 2,200 rural bus services with over 29 million passenger journeys made on these services annually. Total journeys taken in England by bus have increased for each of the last six consecutive years; in the last five years bus use in England has grown by around 8%.

But in too many places outside London, bus use is still declining. The Department for Transport is therefore currently examining the existing arrangements for bus provision and will be working through in the coming months proposals for improving the public transport offer provided by buses outside London.

At the same time, the Department for Transport recognises the need for better and clearer information as to people's knowledge and understanding of climate change and its relationship with transport, how individuals perceive the link to their own travel behaviour and their attitudes towards the potential for behavioural change in relation to their own travel choices.

This is why we published, in August 2006, the report of a study that has reviewed the research evidence base on public attitudes towards climate change and transport behaviour. In response to the report's conclusions we are about to embark upon a significant piece of research that will provide an in depth understanding of public engagement with climate change issues, the barriers to behavioural change in transport choice and how best to influence individuals to reduce the environmental impacts of their travel.

(c) How can Government and other agencies at national, regional and local levels encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

Together with these investments and innovations in public transport, the Government promotes a package of policies entitled Smarter Choices, aimed at helping people choose sustainable travel options. Smarter Choices projects include the Travelling to School initiative which aims to have active travel plans in every school in England by the end of the decade. In recent weeks, the Government has also doubled Cycling England's budget to £30 million over the next three years.

Further information:

Department for Transport website—www.dft.gov.uk/stellent/groups/dft_susttravel/documents/sectionhomepage/dft_susttravel_page.hcsp

(iii) *Product policy and market transformation*

9. PRODUCTS—LABELLING AND MARKET TRANSFORMATION

Around 25% of the UK's total electricity is used to power lighting and appliances in the home. If we do nothing, this domestic use is predicted to rise by 20% between now and 2020 as new energy using products—such as computers and gaming consoles—become more common-place in the home. If we are to reduce this growth in energy demand we need to find ways to make the products we all buy and use more efficient. Defra's Market Transformation Programme supports this work. This sits within the Government's broader Sustainable Consumption and Production Strategy.

We use several ways to drive improvements in the energy efficiency of products, including:

- Encouraging consumers to choose more efficient products—through labelling (the European A-G energy rating and EST's (Energy Saving Recommended) and financial incentives through the EEC programme.
- Improving product standards. Although behaviour will always play an important role, we can also tackle household emissions by moving towards more efficient appliances that use less energy both when in use and on standby. In the Energy Review Government identified several groups of products for action including domestic lighting, consumer electronics such as set top boxes, televisions and chargers, and white goods such as fridges, freezers and washing machines. These can be delivered through:
 - mandatory standards—minimum efficiency performance standards, which are largely via EU legislation;
 - voluntary agreements with manufacturers; or
 - influencing retailers—a new retailers' initiative focussing initially on consumer electronics was announced in Budget 06.

Further Information:

- Market Transformation Programme: www.defra.gov.uk/environment/consumerprod/mtp/andwww.mtprog.com/
- Energy Review: [www.dti.gov.uk/energy/review/Paras 2.19–2.27](http://www.dti.gov.uk/energy/review/Paras%202.19-2.27)
- The Energy saving Trust's report "The rise of the machines: A review of energy using products in the home from the 1970s to today" provides a useful overview of the increase in consumer electronics over recent decades.

10. THE ROLE OF LOCAL AND COMMUNITY ACTION

Local authorities and community groups can play a key facilitating role in the involvement of individuals. Research, such as that undertaken by Futerra for Defra in 2005, has shown that engagement at a local and community level is important because attitudes to climate change are more likely to be changed through individual interaction with trusted intermediaries, and because climate change messages need to have local relevance to appeal to people.

The Climate Change Communications Initiative (CCCI—see 7 above) has local, community and regional engagement as one of its cornerstone principles. The CCCI's Climate Challenge Fund projects (CCF) and the youth champions project both involve local and community action. In the case of the CCF approximately 80 projects communicating about climate change have been funded in all nine regions of England (and some which cover all-England). Each project is led by a local trusted intermediary (eg the Womens Institute, a sports club or local charity) in partnership with local action groups and in many cases regional government and authorities. They communicate at a local level in a variety of ways including seminars, games, online and theatre. The CCF projects address a range of audiences from farmers to the elderly, to children and youth as well as those involved in the education sector.

It is the youth and education sector audiences, although not exclusively, which are of particular relevance to the Climate Change Champions, of which there are nine, one for each region of England. Each Champion is now working in regional, and in some cases national, projects to bring the issue of climate change closer to their respective communities. The Champions Project has already gained significant attention regionally and within the media. Potential exists to reach a far greater range of key audiences, including those within the education sector. To this end a relationship has been developed between Defra and the Department for

Education and Schools such that the Champions project can be linked with DfES's Sustainable Schools Initiative, which calls for a "year of action". Defra and DfES are working closely to evolve the current Champions Project in the 2007–08 period.

The 2006 Climate Change Programme stressed the importance of local and regional government in delivering emissions reductions, both as community leaders and through their own estates and operations. It set out a package of measures to encourage action by local authorities. There is already excellent practice in some local authorities and the Government supports the work of the Energy Saving Trust and the Carbon Trust in disseminating and encouraging good practice. But we recognise that individuals identify with different communities—some may look towards their local authority, parish councils or neighbourhood group; others may feel closer to clubs, societies, faith groups or other interest groups. We want to understand these links and the opportunities they present to overcome barriers to individuals taking action personally to combat climate change.

There are also examples of initiatives which can help to provide a local approach for the delivery of measures. The Warm Zone approach provides an example of this—the Zones work in discrete local areas to identify all households that need help (in particular the vulnerable and fuel poor) and provide help in a concentrated way. EST's Community Action for Energy (CAfE) programme is designed to promote and facilitate local community-based energy projects.

In addition to funding the Energy Saving Trust the Government has also announced £20 million funding over 2006–07 to 2007–08 to strengthen consumer demand for energy efficiency. During 2006–07 £4.75 million will be allocated to energy demand reduction trials, boosting the funds already available for smart metering trials and allowing a broader range of behavioural measures to be examined. We are also working closely with energy suppliers and local authorities to work up details of plans to use the remaining funding.

Next steps:

As announced in the Energy Review, we are exploring different approaches to engaging individuals and overcoming barriers to action through local and community approaches. Over the next 12 months Government will undertake a study to look at "community level" approaches to mobilising individuals, and the role of local authorities in particular in making them work effectively. It will draw on experience of what initiatives have worked and which have not in both the environmental area and other policy areas, such as public health. In the light of this information, the study will also examine what new policy options, such as tradable personal carbon allowances (see 11 below), could be deployed to stimulate local action and consider their relative advantages and disadvantages. This will enable us to consider further how individuals can be better informed about and personally involved in the carbon trading market. We expect it to report to Ministers in the first half of 2007.

11. PERSONAL CARBON ALLOWANCES

Some observers maintain that the best way to encourage citizens to take responsibility for their own "carbon footprint" is to use a system of Personal Carbon Allowances (PCAs). Although there is as yet no hard and fast definition of PCAs, suggestions for the main features of such a scheme are:

- Equal allowances for all individuals (different treatment for children?);
- Fully tradable allowances;
- Only energy used in the household and for personal transport included;
- Year-on-year reduction of the annual allowance, signalled well in advance; and
- Mandatory participation.

In his speech to the Audit Commission on 19 July, David Miliband said:

"A variety of models of tradable personal carbon allowances have been proposed. But the basic elements are easy to describe. It is a compelling thought experiment—limit the carbon emissions by end users based on the science, and then use financial incentives to drive efficiency and innovation.

Imagine a country where carbon becomes a new currency. We carry bank cards that store both pounds and carbon points. When we buy electricity, gas and fuel, we use our carbon points, as well as pounds. To help reduce carbon emissions, the Government would set limits on the amount of carbon that could be used. Imagine your neighbourhood. Each neighbour receives the same free entitlement to a certain number of carbon points . . .

It is easy to dismiss the idea as too complex administratively, too utopian or too much of a burden for citizens. Do we really want another Government IT programme? Are there not simpler ways of achieving the same objective by focusing on business to change their behaviour not citizens? And will it ever be politically acceptable?

But, as the Tyndall Centre's work shows, in the long term, there may be potential to make a system work, and in a way that is arguably more equitable, more empowering and more effective than the traditional tools of information, tax, and regulation.

It could be more equitable because instead of tax increases which hit all consumers of products, personal carbon allowances provide free entitlements and only offer financial penalties for those who go above their entitlement. People on higher incomes tend to have higher carbon emissions due to higher car ownership and usage, air travel and tourism, and larger homes. People on low incomes are likely to benefit as they will be able to sell their excess allowances.

It could be more empowering than many forms of regulation because instead of banning particular products, services or activities, or taxing them heavily, a personal carbon allowance enables citizens to make trade-offs. It is also empowering because many citizens want to be able to do their bit for the environment, but there is no measurable way of guiding their decisions.

It could be more effective because unlike taxes or attempts to ban products, personal carbon allowances regulate the outcome to be achieved, not the means of achieving it. Carbon trading fixes the outcome to be achieved, and leaves the price of carbon to adjust to the necessary level to change behaviour. By intervening downstream, it enables each part of the supply chain to adapt—consumers change their preferences which has a domino effect throughout the system. By focusing on just the energy a citizen buys—their electricity, gas, petrol and air travel—not the energy used already to make food, cars or domestic appliances—the complexity is reduced. However, vast majority of individual emissions are captured which in turn make up 44% of the economy's total emissions.

Personal carbon trading is not for the short term, nor is it a silver bullet. Changing behaviour will require the full range of tools to be employed. Major questions would need to be answered about its impact and feasibility in comparison with other measures. And of course it would only cover individuals not businesses or the public sector . . .”

Further Information:

Annex 5

Next steps:

In the Energy Review, we announced a study to look at the role of different “community level” approaches to mobilising individuals, and the role of local authorities in particular in making them work effectively. The study will build on the 2005 work conducted by Futerra on climate change communications and consolidate lessons from existing initiatives to examine the role of different types of community in influencing individual action. In the light of this information, the study will also examine what new policy options, including Personal Carbon Allowances, could be deployed to stimulate local action and consider their relative pros and cons. We expect it to report to Ministers in the first half of 2007.

Department for Environment, Food and Rural Affairs

September 2006

Annex 1**POSSIBLE ACTIONS INDIVIDUALS CAN TAKE TO REDUCE CARBON EMISSIONS****1. BEHAVIOURAL**

Emissions that can be directly controlled by individuals' behaviour roughly account for over a third of total UK emissions—the remainder being made up of commercial, including public sector, and industrial energy usage. Emissions that individuals control and can directly influence include:

	<i>Potential gains</i>	<i>Existing measures or incentives</i>	<i>Disincentive/ barriers</i>	<i>Comments</i>
HEAT/COOKING				
Efficiency of building fabric (new and existing homes)	Increased insulation; High efficiency glazing; Design (passive solar)	Home Information packs (2007); Reduced VAT on insulation; EEC measures (existing homes only) Warm Front (fuel poverty) (existing homes only) Landlord Energy Saving Allowance (existing homes); Building Regulations and Code for Sustainable Homes (new homes); Labelling of new homes	Hassle factor; Landlord-tenant split; Perceptions of cost; Lack of incentive in house building sector.	Comfort-taking can offset gains made through efficiency improvements
Choice of heating system	Shift from coal/oil to gas or biomass; Use of solar thermal/ground source heat.	Boiler regulations; Low Carbon Building Programme (LCBP); Reduced VAT on some technologies; EEC; EST—Energy Saving Recommended.	Lack of availability Cost	EEC has potential to include all forms of microgeneration following Climate Change and sustainable Energy Act 2006.
Use of heating system (or air conditioning)	Acceptance of lower ambient temperature (or higher if using AC) Remote management/smart metering Better controls Room by room controls	EST information and campaigns	Bill structure and low cost of energy	
Cooking fuel	Switch from electricity to gas		Lack of availability	Gas network extension important
ELECTRICITY				
Number of appliances	Influencing product design and customer choice to take into account the carbon footprint of the product and to value integrated functionality and “adaptability” of product ie future proofing		Lifestyle choice over environment	Incentivise designers and manufacturers to innovate;

	<i>Potential gains</i>	<i>Existing measures or incentives</i>	<i>Disincentive/ barriers</i>	<i>Comments</i>
Efficiency of appliances	Product design	Market Transformation Programme; Regulatory minimum performance for washing machines, fridges and boilers; Labelling (A-G and Energy Saving Recommended); Voluntary agreements; Retailers Initiative;	Lack of information about energy use of many goods, Perceived quality and cost of product ie CFL lightbulbs; Lack of regulation to increase standards	Eco-Design of Energy Using Products Directive is a major opportunity to broaden the base of mandatory minimum standards
Use of appliances/ lighting	More controls—ie movement sensors; Remote programming; Energy displays, better information on bills or smart metering; Behaviour changes ie filling washing machine, filling kettle, switching off, unplugging	Energy Saving Trust information, campaigns, advice centres.	Lack of information or awareness on impacts; Bill structure and low cost of energy; Habit; Perception of actions as low status;	
Source of electricity	Change of tariff; Shift to embedded generation ie solar panels/CHP/wind	Disclosure of source on bills; Low Carbon Buildings Programme; VAT discount on some technologies	Lack of accreditation and labelling of tariffs; Lack of availability of new technologies.	
TRANSPORT				
Number of journeys	Better planning has the potential to reduce the need to travel	Fuel duty and fuel duty escalator (frozen); Planning guidance; Green transport plans with tax incentives for employers	Economic growth; Wider social and demographic trends driving increased travel; Limited acceptance of alternatives	Government has announced that it will publish a Planning Policy Statement on Climate Change
Mode of transport	Shift from higher to lower carbon means of transport.	Record investment in public transport. 2005–06 estimated expenditure: £445 million on buses £4,440 on railways; Smarter Choices programme; Congestion charge—London and Durham.	Cost and inconvenience; Integrated ticketing/ payment options at early stages of development.	The Government has established the Transport Innovation Fund. From 2008–09, around £200 million per year will be available for local authorities to bid for funding for and innovative package of road pricing schemes and complementary public transport measures which could encourage modal shift
Lowering the fossil carbon content of fuel	Switch to lower carbon fuels	20p rebate on biofuels; LPG rate; Using Government procurement to set example.	Lack of availability; Air quality disbenefits in shifting from petrol to diesel.	Renewable transport fuel obligation (2008–09)

	<i>Potential gains</i>	<i>Existing measures or incentives</i>	<i>Disincentive/ barriers</i>	<i>Comments</i>
Choosing more fuel efficient vehicles	Move to hybrid battery/engine Selection of fuel efficient engine	Graduated VED; Labelling; Company car tax; Using Government procurement to set example	Conflicting desires—safety/status; Lack of availability and cost	
Fuel Efficient Driving	Real time fuel efficiency information; Gear shift indicators; Reduced speed; Congestion avoidance/GPS.	Range of DfT programmes to promote eco-safe driving in the logistics sector.	Lack of awareness; Conflicting desires.	DfT campaign on eco-safe driving forthcoming.

2. PARTICIPATIVE

There are a range of actions that can be thought of as symbolic and/or representative of having a concern for the issue and therefore potentially greater acceptability of the need for change. However, it cannot be assumed that this link between concern and acceptance always necessarily exists—knowing that climate needs to be tackled does not necessarily mean an individual won't object to rising fuel prices or a local wind farm—particularly if the reason for the rise/change is not properly articulated or perceived in terms of it being a genuine solution to the problem.

Potential options:

- carbon offsetting via: support for carbon reduction projects, retiring carbon allowances, tree planting;
- switching electricity tariffs (this is a largely symbolic action because it has little real effect on investment decisions regarding renewable developments or other fuel choices);
- Investment in “climate friendly” funds or companies;
- Community based initiatives ie carbon neutral villages.

Annex 2

What is the real scope for microgeneration to contribute to tackling climate change?

1. In 2004 there were approximately 82,200 microgeneration installations throughout the UK, of which 78,400 were solar water heating systems. The current contribution of microgeneration to tackling climate change is, therefore, minimal in the overall context of reducing UK carbon emissions. But the provision of low carbon sources of heat and electricity at a local level clearly has the potential to make a significant impact in this area. A study undertaken by the Energy Saving Trust on behalf of the DTI suggests that microgeneration could reduce household emissions by approximately 15% pa by 2050.

2. A range of constraints is adversely affecting widespread deployment of microgeneration technologies. These constraints are outlined in the Government's Microgeneration Strategy, but are summarised below for ease of reference:

- (a) Cost constraints—the lack of demand for microgeneration has restricted the extent to which the industry has been able to exploit scale economies and learning effects in their production and installation. This means that the costs of these products remain high enough to act as a deterrent to mass market demand.
- (b) Information constraints—inadequate promotion and poor information regarding microgeneration technologies and the lack of a widely understood accreditation system for products and installers reduces the incentive for consumers to purchase microgeneration products due to insufficient signals regarding the quality and performance of these products.
- (c) Technical constraints—a range of issues surrounding metering, connection to the distribution network and balancing and settlement arrangements could be preventing widespread take-up of electricity generating technologies.
- (d) Regulatory constraints—regarding the installation of microgeneration in existing buildings, concerns have been expressed regarding a lack of clarity as to whether specific planning permission is required, different interpretations of the rules by local authorities and the sometimes complex process of seeking planning permission. Other areas of regulation provide opportunities to encourage microgeneration, eg planning requirements for new build (such as the so-called “Merton” policy) and Building Regulations.

3. The Microgeneration Strategy outlines a number of actions the Government will be taking to tackle these constraints. Key actions (the full list can be found on page 42 of the strategy) include—

- (a) The allocation of £80 million of capital grants through the Low Carbon Buildings Programme. Including an innovative approach to spending the £50 million tranche announced in Budget 06, which is aimed at achieving real price reductions.
 - (b) Helping microgenerators gain better access to the rewards for generating electricity. For example, easier access to Renewable Obligation Certificates and better rewards for electricity exported to the grid.
 - (c) Ensuring that, as far as possible, homeowners will be able to install microgeneration technologies such as solar panels and micro wind turbines without having to apply for planning permission.
 - (d) Reviewing the effectiveness of existing communications activity relating to microgeneration and identifying gaps.
4. The Energy Review underlined the Government's commitment to microgeneration by highlighting an aggressive approach to implementing the Microgeneration Strategy.
5. It is very difficult to make a concrete assessment of the real potential contribution microgeneration could make to tackling climate change. The EST study referred to above was the first attempt to look at how uptake for all microgeneration technologies might develop and provides the only assessment of this kind. But the real unknown is the impact the measures outlined in the strategy will have and also, how consumers will react to the growing profile of these technologies. For example the recent initiative by Currys to sell photovoltaic panels in high street stores (initially on a trial basis, but hopefully moving to a full roll-out later in 2007) could really help to kick-start the market. Under the requirements of the Climate Change and Sustainable Energy Act we will be closely monitoring the development of the market and assessing future trends in order to gain a greater understanding of the potential of microgeneration and to help us to adjust our policies accordingly.

Annex 3

How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

1. All levels of delivery—national, regional and local—have an important role to play in encouraging uptake of measures to reduce UK emissions. In very broad terms, the key contribution that different tiers of government and their agencies can make are likely to be as follows:

National Government

- Setting a clear overall UK policy and objective to drive effort.
- Driving uptake of emissions reductions measures directly through:
 - Regulation of markets in a way that drives uptake of low carbon technologies and an energy services approach—eg through the Renewables Obligation or Energy Efficiency Commitment (EEC).
 - A fiscal framework which incentivises low carbon products, services and behaviours—eg the Climate Change Levy or VAT reduction on installed energy efficiency measures.
 - Effective national communications campaigns aimed at individuals to change behaviours—eg EST's "your 20%" campaign.
 - Tough building regulations, product standards and associated labelling and information for consumers.

Regions (eg RDAs, Regional Assemblies etc)

- Integrating effective measures designed to reduce emissions into:
 - Regional Spatial Strategies—eg requirements for embedded renewables in planning.
 - Regional Housing Strategies—eg raised standards for social housing.
 - Regeneration projects—eg showcasing innovative low carbon developments and accelerating the turnover of low quality housing.
 - Regional Economic Strategies and RDA programmes to support the development of low carbon supply chains, resource productivity in business, innovation and skills.
- Helping to co-ordinate local activity and delivery, including community engagement and communications activities.

Local (eg Local Authorities, Housing Associations)

- Engaging directly with individuals, through grass roots communications and education initiatives.
- Promoting emissions reductions through:
 - Planning decisions promoting low carbon developments (in line with national and regional planning policy).
 - Provision and maintenance of good quality, low carbon social housing.
 - Effective enforcement of Part L of building regulations.
- Assisting the implementation and targeting of national programmes such as EEC—eg by identifying opportunities in local communities and neighbourhoods, and encouraging uptake of energy supplier offers (eg Braintree’s Council Tax rebate offer in partnership with British Gas).

2. No one level of government—national, regional or local—can alone deliver the needed changes in standards and individual behaviour needed to drive the improvements in emissions needed over the next 50 years. National Government is in possession of what are seen by most as the “big” policy levers—regulation, tax and funding. But a number of potentially key levers—planning, building regulations—rely on local and regional decision-making.

3. More importantly, research suggests that the most effective level of climate change communications—that which is most likely to change “hearts and minds”, and therefore behaviours—is delivered “locally”, through the people we know and engage with day to day.

4. In their recommendations for the Governments Climate Change communications initiative,⁴⁵ consultants Futerra notes that it is “difficult to change an individual’s attitude without taking into account the attitudes of his or her family, friends, colleagues and community”. They go on to note that a variety of studies underline “the extent to which attitudes and behaviours are influenced by “personal contacts . . . [and] localised networks of understanding which are relied upon for expert advice as well as social relationships”. An effective Climate Change Communications campaign must also “bring climate change ‘home’, while instilling a sense that local action will have a real difference.” It is for this reason Defra has established the Climate Change Communications Fund, aimed specifically at local and community level initiatives.

5. But we are aware that our knowledge about the most effective approach is limited. What sort and what level of community engagement is likely to be most effective in changing the behaviour of individuals? Do geographical communities (streets, neighbourhoods, wards, local areas) have a key role or do other sorts of community (clubs, faith groups etc) have more influence?

6. To better understand what the evidence is, including from other areas of policy, we announced in the Energy Review that we would commission a more detailed study on the role of local and community action in driving behaviour change by individuals. On the basis of this study we will look at the case for further intervention.

7. The community and voluntary sector, through the “Every Action Counts” programme (<http://www.everyactioncounts.org.uk/>), is already being encouraged to unlock the potential of local groups and clubs across the country to get more people to join in and help to meet the big environmental challenges all of us face, such as climate change. The evaluation of this programme, as part of the wider study, will add to the evidence available about the effectiveness of these approaches.

Annex 4

CLIMATE CHANGE COMMUNICATIONS

1. In December 2005 the Government launched its Climate Change Communications Initiative (CCCI). This is focused on changing attitudes so that climate change is seen as a “here and now, front of mind” issue, and as relevant to the UK rather than a far away place. It aims at encouraging individuals to feel empowered and positive about tackling climate change. The underlying strategy is evidence-based, having been developed in the light of research conducted by Futerra.⁴⁶ This underlined, for example, the importance of using positive and inspirational messages rather than fear or concern;⁴⁷ and the value of galvanising local and regional communicators through financial support and guidance. It also counselled against “above the line” TV or billboard advertising. The approach adopted also drew on desk research carried out by Andrew Darnton⁴⁶ which indicated that levels of awareness of climate change were high, and suggested that the vast majority of the general public around Britain believed climate change was happening (dating back at least

⁴⁴ “The Rules of the Game—Principles of Climate Change Communications” (2005).

⁴⁵ Available at <http://www.defra.gov.uk/environment/climatechange/uk/comms/comms2.htm>

⁴⁶ See also IPPR report “Warm Words: How are we telling the climate story and can we tell it better?”; G Ereaud and N Seguit, August 2006 (www.ippr.org.uk/publicationsandreports/publication.asp?id=485)

as far as early 2001). However, the research suggested that understanding of the causes and effects of climate change was low (particularly respondents' own individual contributions to the problem), and that climate change was seen only as a very remote threat to respondents themselves.

2. The Government announced that it would spend £12 million through the CCCI over 2005–06—2007–08, of which at least £6 million would be channelled through the Climate Challenge Fund to regional and local communication projects. So far 81 projects from across England have been selected to receive funding totalling £8.3 million. Examples of the “trusted intermediaries” being supported include the Scouts, who will be encouraging members to “Be Prepared for the Future”, and the Women’s Institute, which will develop EcoTeams to help bring home the realities of climate change.

3. A competition has also been run to choose 9 youth champions, who are now communicating the climate change message in their respective English regions. These young people act as figureheads for the initiative, drawing in additional publicity, working with schools and local government, and adding value to the Challenge Fund projects.

4. In addition, the initiative provides free resources, including a website (www.climatechallenge.gov.uk), a guide to effective climate change communication, an award-winning 2-minute film, filler ads, and the results of specially-commissioned attitude surveys.

5. Large-scale large scale national activities have also been seen as an important part of the strategy—to give national identity, and allowing local-level activities to feel part of a wider, Government-backed initiative. The Government is currently developing ideas for how best to communicate and engage individuals at the national level, and how it can in particular add value to other campaigns and activities planned by NGOs, business and media players. It is likely that along with the addition of national-level activities, greater emphasis will also be given to encouraging change in behaviour as well as attitude. Government will want to be able to advise individuals about the range of actions they can take to tackle climate change, and to give them the tools to be able to choose which options are most appropriate for them. The carbon metric described above is likely to be an important part of any toolkit for individual action offered by Government. However, we will want to continue to work alongside and support the communication activities of non-governmental organisations, and see a role for providing further communication resources aimed at explaining the links between climate change, carbon emissions and individual behaviour.

6. In moving towards communication and marketing activities that encourage more positive individual *action* related to climate change we will again draw on the considerable research that has been carried out in the area of pro-environmental behaviour change more generally. In particular, in July 2005 Defra initiated a programme of research aimed at broadening our understanding of how Government (and others) can most effectively promote pro-environmental behaviour amongst producers and consumers (see website link below).⁴⁷ A number of findings can be drawn from the various studies commissioned as part of the research programme:

- *Behaviours are complex, and non-linear.* Each behaviour comprises many factors, many of which need addressing simultaneously to facilitate change. Thus interventions should combine multiple types of instrument in a “package” of measures (eg infrastructure, fiscal measures, and information).
- *The outcomes of interventions are difficult to predict.* Behaviours are undertaken by individuals in the context of current habits, peer groups and wider networks (which together make up complex systems). As such, setting targets or accurately predicting results is likely to be difficult.
- *Behaviour responses to policy interventions vary by target audience and require targeted or tailored interventions.* Interventions should be context-specific (in terms of the behaviour in question, the setting for that behaviour, etc.) and perceived as fair and equitable.
- *Change is almost always an on-going and slow process.* It is not a one-off event. Feedback is vital to driving and sustaining change; interventions should build in “feedback loops” ie opportunities to feed learning from the change process back in to subsequent behaviours. The audience for a change intervention should not be regarded as a passive target or audience whose behaviour is to be changed, but as “actors” who are themselves at the heart of the change process. A consistent message over time is important.
- *Local networks and change champions can act as brokers* between Governments and target groups. These individuals are vital to delivering pro-environmental change within organisations and networks as powerful “agents for change”. Engaging, and nurturing, such key individuals may be more effective in bringing about system-wide change than targeting the behaviour of all individuals.
- *Collective action can help deliver responsible consumption of scarce resources*, while participatory planning and common-value identification can increase compatibility between individual self-interest and the common good. To encourage this, stakeholders should be involved in the change process from as early a point as possible. They should not merely support the delivery of the

⁴⁷ www.sustainable-development.gov.uk/government/task-forces/behaviour-change.htm#research

end policy, or be affected by it. Ideally, a total partnership working approach should be adopted in which change partners are involved from the start in defining (and redefining) the problem through a continuous cycle of action and reflection—from which learning and innovation will result.

7. A further study commissioned by the Department of Transport reinforces a number of these messages in the area of climate change/transport communications (*Evidence base review of public attitudes to climate change and travel behaviour, 2006*).⁴⁸ It concludes that there is only a weak link between knowledge and awareness of climate change, and travel behaviour. In order to effect change, different factors need to be addressed for different travel behaviours and different people. It concludes that any travel behaviour change strategy will be most effective if it targets change at the community level using community-based social marketing. Transport policies can set out to change attitudes first without necessarily changing behaviour, or can aim to change behaviour first, without necessarily changing attitudes: the report concludes that a combination of both approaches is desirable. It also argues that the public needs to be engaged in transport/climate change issues using deliberative methodologies rather than more traditional “top down” methods of information provision.

Annex 5

PERSONAL CARBON ALLOWANCES

1. In his speech to the Audit Commission on 19 July, Defra Secretary of State David Miliband expressed his interest in the idea of personal carbon allowances (PCAs), which he described as a “compelling thought experiment.”⁴⁹ As the Secretary of State set out, PCAs have huge potential, encapsulating principles of fairness, individual choice and personal responsibility in a way that few, if any, other means of allocating carbon emissions may be able to match. They could be an extremely useful tool in raising awareness amongst people of their own impact on greenhouse gas emissions and—depending on the level of the emissions cap—have a significant impact on a nation’s emissions.

2. However, as David Miliband recognised in his speech, there a number of formidable administrative, cultural and political barriers to implementation of PCAs. Issues such as public acceptability, burden on citizens, and whether the benefits of their introduction would be proportionate to the costs of administration, would all need to be considered before coming to a conclusion on the feasibility of PCAs as a policy approach. It is important to explore these issues further, as well as the advantages and disadvantages of PCAs as a means to influence individual behaviour in comparison with other tools such as upstream trading, downstream trading, taxation and regulation.

3. We also need to consider what we might need to put in place over the next years in order to overcome the practical and political difficulties, were we to want to introduce such a scheme in, say, a decade’s time. Further work is necessary to examine: which issues would need further examination and hence any prior research that would be necessary; what kinds of pilot studies and/or trials might be necessary; what public information and engagement strategies would be necessary; and what legislation would be necessary.

4. It may also be that many of the advantages of PCAs can be gained without implementing a full-blown cap-and-trade system. We should therefore also explore other means of involving individuals in carbon trading, for example, voluntary trading systems built around either carbon allowances or positive points systems where behaviour that results in reduced emissions is rewarded, but there is no overall cap on individual emissions. A further option worth exploring is the use of offsetting—including at point of purchase—ie individuals take part in the upstream cap and trade market by purchasing and retiring carbon credits and/or purchasing products (such as energy tariffs or fuels) where the price of carbon offsets is built-in.

5. More generally, we need to better understand what key factors can drive behaviour change—in particular the balance between measures aimed solely at individuals and those aimed at changing individual action through collective community action.

6. Research, such as that undertaken by Futerra for Government in 2005, shows that engagement at a local and community level is important: because attitudes to climate change are more likely to be changed through individual interaction; and because climate change messages need to have local relevance to appeal to people. It is for this reason that Defra aimed its Climate Change Communications Initiative in large part at local and community level initiatives.

7. However, individuals identify with different sorts of communities: local authorities, parish councils, neighbourhood groups, clubs, societies, faith groups or other interest groups. In the Energy Review, we therefore announced a study to look at the role of different “community level” approaches to mobilising individuals, and the role of local authorities in particular in making them work effectively. The study will build on the 2005 work conducted by Futerra on climate change communications and consolidate lessons from existing initiatives to examine the role of different types of community in influencing individual action.

⁴⁸ www.dft.gov.uk/stellant/groups/dft_susttravel/documents/page/dft_susttravel_612225.pdf

⁴⁹ See speech at: <http://defraweb/corporate/ministers/speeches/david-miliband/dm060719.htm>

In the light of this information, the study will also examine what new policy options, including PCAs, could be deployed to stimulate local action and consider their relative pros and cons. We expect it to report to Ministers in the first half of 2007.

Department for Environment, Food and Rural Affairs

September 2006

Supplementary memorandum submitted by the Department for Environment, Food and Rural Affairs (Cit 30a)

OVERVIEW—KEY POLICIES SUPPORTING ENERGY EFFICIENCY AND CARBON REDUCTIONS

<i>Policy or Programme</i>	<i>Sector—individuals, businesses, public sector or communities</i>	<i>Nature of incentive or support</i>	<i>Uptake and/or carbon savings</i>	<i>Comments</i>
1. Energy Efficiency Commitment (EEC) and the Supplier Obligation after 2011	Individuals (via Energy Suppliers)	A range of offers and incentives for consumers, including installation and full or part subsidy of energy saving measures, Council Tax discounts, information and advice.	EEC1 (2002–05) 0.37 MtC by 2010; EEC2 (2005–08) 0.62 MtC by 2010.	Preparation for EEC3 (2008–11) currently underway. Target savings will be in the range 0.9–1.2 MtC. A supplier obligation in some form will be extended to at least 2020, saving 3–4 MtC by 2020.
2. Fiscal Incentives—reduced VAT on energy-saving products	Individuals	5% VAT on a range of professionally-installed insulation and micro-generation products.	Small reduction of carbon emissions.	
3. Landlord's Energy Saving Allowance (LESA)	Individuals	Relief of up to £1,500 against tax for capital expenditure on insulation.	Small reduction of carbon emissions.	
4. Low Carbon Buildings Programme	Individuals, communities, public and private sector	Capital Grants—£80 million between 2006–09.	So far main uptake has been by householders (the streams of funding for other projects have not been open for as long).	£80 million is split into 2 phases—Phase 1 has £30 million for all projects, Phase 2 has £50 million for public/third sector projects only.
5. Warm Front programme	Individual	Grant-funded installation of heating systems and insulation for households in receipt of qualifying benefits.	Total fuel poverty funding over the 2005–08 period will be over £800 million. Carbon savings from Warm Front and other fuel poverty programmes are expected to be 0.4 MtC by 2010.	
6. Energy Saving Trust	Individuals, businesses, local authorities and communities	Information, advice and support, delivered through national programmes, EST's website and publications, the "Energy Efficiency Recommended" label, training and accreditation schemes and a network of 52 energy efficiency advice centres.	Total budget for EST in FY2006–07 is £68 million. ⁵⁰	EST have been successfully trialling Sustainable Energy Networks, which will offer more holistic advice covering energy efficiency, microgeneration and transport.
7. Information through billing, metering and energy displays	Individuals and businesses	Information on energy use is proven to help consumers avoid wasting energy and reduce consumption.	2006 Climate Change Programme Review included 0.2 MtC savings by 2010.	Proposals to take forward these Energy Services Directive commitments will be set out in the Energy White Paper. Government is sponsoring field trials of smart meters and associated equipment (see below)
8. Carbon Trust	Business and public sector	(1) Carbon Trust Solutions—a range of advisory services for businesses, as well as financial assistance to SMEs and the public sector, to encourage and support low carbon investments; (2) Administration of the Enhanced Capital Allowance scheme for energy-saving technologies	Total Defra grant funding of £78.6 million in FY2006–07. Solutions programme (1) aiming to identify 3.7 MtCO ₂ and implement 1.1 to 1.3 MtCO ₂ savings in 2006–07.	Funded in part through the CCL package, with separate funds from Defra, the landfill tax-funded BREW programme and from the Pre-Budget Report 2005 for work with SMEs and public sector. Further Defra funding in 2007–08 & 2008–09 for "Partnerships for Renewables" scheme to

⁵⁰ All EST's carbon savings support other climate change programmes such as EEC, so we are not able to provide a separate estimate of carbon savings achieved by EST.

<i>Policy or Programme</i>	<i>Sector—individuals, businesses, public sector or communities</i>	<i>Nature of incentive or support</i>	<i>Uptake and/or carbon savings</i>	<i>Comments</i>
		(see 21 below). (3) Encouraging the transition to a low carbon economy by supporting the development of new low-carbon technologies, financing low carbon business ventures and creating new low carbon enterprises.		work with public sector on mid-scale renewable projects.
9. Differential Vehicle Excise Duty	Businesses and individuals	Graduated VED for all cars registered after March 2001, based primarily on CO ₂ emissions introduced in 2001 and subsequently reformed to strengthen environmental incentives.	Mandatory tax. Expect some reductions in carbon dioxide.	
10. Differential Company Car Tax	Businesses and individuals	Reformed in 2002 to base the charge on the vehicle's list price, graduated according to its CO ₂ emissions.	CO ₂ emissions from the reformed CCT system estimated to be 0.2 to 0.3 MtC in 2005, estimated to rise to between 0.4 MtC and 0.9 MtC per year.	
11. Vehicle Labelling (A-G fuel economy and emissions)	Businesses and individuals	Information	Carbon impacts are difficult to quantify. Labels now in the majority of showrooms.	
12. Product policy, including labelling (European A-G label and EST's Energy Efficiency Recommended), industry voluntary agreements, retailers initiatives.	All sectors	Removing worst performing products and promoting the best through minimum standards, public procurement standards and engagement with retailers and manufacturers. Providing information on energy performance of products, endorsement of best appliances and fiscal incentives for certain products—see 2 and 21.	Raising standards for all priority products sold in the UK has the potential to save up to 5 MtC by 2020, but delivery depends critically on action at EU level, and these savings overlap with other policies.	
13. "Every Action Counts"	Communities	Every Action Counts aims to catalyse changes in behaviour by working through local community and voluntary organisations. These behaviours are brigaded under five action topics. Carbon-saving behaviours appear in all five: Save Energy, Save our Resources, Travel Wisely, Shop ethically and Care for your area.	Every Action Counts provides ideas, advice and information through a website, community packs, organisational support and face to face "community champions"—all of which focus on behaviours which could result in individuals saving up to 300 kg of carbon per year but also includes some behaviours on microgeneration and renewables which could save 500 to 1,000 kg per year.	This runs from 2006–07 to 2008–09. This scheme is delivered by and for the third sector in England. Every Action Counts is working directly with 25 to 30 national third sector bodies who each have regional and local networks involving thousands of community groups. Defra providing up to £4 million grant funding spread over the three years.
14. Climate Change Communications Initiative	Communities and Individuals	(1) Grant funding for communications projects focused on shifting attitudes towards tackling climate change. (2) Provision of communication resources (eg short film, booklet, website (www.climatechallenge.gov.uk), polling data). (3) Competition and support for communication activities of 9 regional youth "Climate Change Champions". (4) Provision of "information tools" to help individuals take action (web-based CO ₂ calculator, offsetting code of best practice, new short film). (5) Public campaign	(1) Fund 100% committed (total of £8.5 million), with 83 funded projects. (507 project proposals were made). (2) Film has received over £5.5 million free airtime. DVDs of the film and the brochure "Your Guide to Communicating Climate Change" have been downloaded ~40,000 times and distributed another 6,000 times. The website has received an average of 120,000 page views per month. (3) Independent report on the regional print media coverage gained by the Champions during 2006 indicated 18% of adults reached by this form of	Work of the CCCI initially focussed on shifting attitudes. Now moving into the area of behaviour change more directly, with the provision of tools giving individuals more information about the different actions they can take, and their relative impact in reducing CO ₂ emissions.

<i>Policy or Programme</i>	<i>Sector—individuals, businesses, public sector or communities</i>	<i>Nature of incentive or support</i>	<i>Uptake and/or carbon savings</i>	<i>Comments</i>
		activities aimed at increasing awareness of link between individual action, CO ₂ emissions and climate change including advice on car-purchasing and smarter driving (advertising and PR campaigns, new cross-departmental call-to-action brand “Act on CO ₂ ”).	communication (67% strongly favourable, 33% slightly favourable). (4) and (5) To be launched in coming months.	
15. Building Regulations	Businesses and Individuals	Legal requirement to comply with minimum standards for new buildings and certain elements in existing buildings (windows, boilers). Also applies to refurbishment of large (> 1000m ³) buildings.	By 2010, 2002 and 2006 Building Regulations projected to save 0.6 MtC and 1.5 MtC in non-domestic and domestic sectors respectively. The transition to zero carbon homes by 2016 has the potential to save a total of 5–7 MtC between 2007 and 2020, and 6.5–7.0 MtC per annum by 2050.	Building Regulations Part L were tightened in 2002 and 2006. CLG have announced their intention for further improvements in 2010, 2013 and 2016, with the aim of attaining zero-carbon standards by 2016.
16. Code for Sustainable Homes	Businesses and Individuals	Performance standards covering energy, water and other elements of new-build homes. Assessment against the Code will initially be voluntary. From April 2008, Govt. currently minded to propose that all new homes should be required to have a mandatory Code rating. Govt. also requiring that all new homes built by Registered Social Landlords (RSLs), or others with Housing Corporation funding, will comply with Level 3 of the Code, together with homes developed by English Partnerships or with the direct funding support from the Department’s housing growth programmes.	Savings will depend on level of uptake. Each home built to Code level 3 will save 0.09–0.16 tonnes of carbon per year. Code level 4 will additionally save between 0.09–0.26 tonnes of carbon. Code level 6 will save 0.4–0.8 tC. All compared to 2006 Building Regulations.	There are six levels of the Code, with mandatory minimum standards for energy efficiency and water efficiency at each level of the Code. For energy these range from Code Level 1, representing a 10% improvement over 2006 Building Regulations, through to Code Level 6, which would be a completely zero carbon home (heating, lighting, hot water, and all appliances). Minimum standard for publicly[en rule]supported homes is level 3.
17. Reduced Stamp Duty on zero carbon new homes	Businesses and Individuals	Time-limited stamp duty exemption for first purchase of zero carbon homes to incentivise construction and demand from homebuyers.	—	Further details to be announced at Budget.
18. Energy Performance Certificates	Individuals (and businesses and public sector from 2009)	EPCs will provide an energy rating and information on measures to improve energy performance.	Estimated savings 0.6 MtC per year	EPCs will be mandatory for all homes sold or let from June 2007, and for other building types from 2009.
19. Climate Change Levy (CCL)	Businesses	Levy to encourage business and the public sector to use energy more efficiently.	Estimated to save over 3.5 MtC a year by 2010. Reduced emissions by a cumulative 16.5 MtC up to 2005.	
20. Climate Change Agreements	Businesses	CCAs provide an 80% discount from the CCL for energy-intensive sectors, provided they enter into agreements to meet energy efficiency targets.	Estimated that CCAs will save 2.8 MtC per year by 2010.	Part of the CCL package
21. Fiscal Incentives—Enhanced Capital Allowances	Businesses	Allows the whole cost of investment in energy-saving technologies to qualify for tax relief against a business’s profits for the period during which the investment is made.	15 qualifying classes of energy-saving technologies and over 14,000 energy-saving products are on the qualifying Energy Technology List.	Part of the CCL package
22. EU Emissions Trading Scheme	Large direct emitters—principally businesses but catches some large public	A market-based mechanism which combines emission	Phase I (2005–07) is set to deliver carbon savings of around 18 million tonnes	Over 1,000 UK installations covered by the Scheme in the first

<i>Policy or Programme</i>	<i>Sector—individuals, businesses, public sector or communities</i>	<i>Nature of incentive or support</i>	<i>Uptake and/or carbon savings</i>	<i>Comments</i>
	sector.	reduction targets with flexibility to trade emissions on the carbon market.	(roughly 8%) below the projected baseline emissions. Phase II set to deliver 8 MtC savings.	phase, covering around 45% of the UK's CO ₂ emissions in 2002.
23. DTI Technology Programme	Businesses, Academia	Grants to support research and development in specific technology areas.	£31.8 million committed to renewable energy research projects since 2004.	
24. Renewables Obligation	Individuals, communities, public and private sector	An obligation on electricity suppliers to provide a specified and annually increasing proportion of sales from electricity sources. Suppliers meet their obligation by presenting Renewables Obligation Certificates. Generators of any size, providing they are accredited, can obtain ROCs and sell them to electricity supply companies.	Combined with CCL exemptions will provide £1 billion pa support for renewable electricity installations by 2010.	

ADDITIONAL INFORMATION

The **Community Energy Programme** was set up to make community heating more efficient by supporting a large number of small, innovative projects, using renewable fuels such as biomass and lead the way for developing even more innovative solutions to cutting carbon emissions in the future. The programme will close as planned on 31 March 2007. To date 59 schemes have been set up under the programme with a total spend of £28.7 million and a carbon saving of 27,700 tonnes of carbon per annum.

The **Community Renewables Initiative** was put together in 2001 by the Countryside Agency (now Natural England) with funding from DTI. The Initiative involved the establishment of 10 Local Support Teams throughout England. Each Local Support Team provided advice and support for the development of community based renewable energy projects. So far, it has delivered over 120 projects across the country, often with more than one technology per site, providing electricity and heat. These projects improve community energy security, local skills, livelihoods, and education. It costs about £450,000 per annum. As an advice service it is difficult to demonstrate how much additional carbon was saved by its existence, but evaluation shows that 104 out of 238 Clear Skies community projects in CRI areas had CRI input, with CRI playing an instrumental role in over a quarter of projects. The Clear Skies programme has now been replaced by the Low Carbon Buildings Programme.

After successful monitoring and evaluation of the process and outcomes, the CRI has secured further funding through to April 2007, and is now co-ordinated by the Severn Wye Energy Agency (SWEA), one of the existing Local Support Teams.

Personal Carbon Allowances. Government is examining the concept of a personal carbon allowance as a potential way of reducing domestic greenhouse gas emissions. The idea is just one of a number of potential long term options being explored for making individuals better informed about, and involved in, tackling climate change. In such a scheme an overall emissions cap would be set, and emissions rights (in the form of carbon credits) then allocated across the population. The credits would be surrendered upon the purchase of, say, energy or fuel or transport. Those who need or want to emit more than their allowance would have to buy allowances from those who can emit less than their allowance. Over time, the overall emissions cap (and hence individual allocations) could be reduced in line with international, european or nationally adopted agreements.

Field trials of smart meters. Government announced last year that it would co-fund with companies trials of smart meters and associated feedback devices. The Government is contributing nearly £10 million. Ofgem is managing this project on the Government's behalf. Final details are currently being negotiated with participating companies, following which the trials should commence very quickly. More than 18,000 households are expected to receive a smart meter or feedback device as part of the project.

Department for Environment, Food and Rural Affairs

March 2007

Witnesses: **Rt Hon Ian Pearson MP**, Minister for Climate Change and the Environment, and **Ms Jackie Janes**, Head of Climate Change and Energy—Households and Markets, Defra, gave evidence

Q781 Chairman: Minister, good afternoon. We welcome Ian Pearson, the Minister for Climate Change and the Environment, supported by Jackie Janes, the Head of Climate Change and Energy—Households and Markets. I bet you have got your hands full then! Miss Janes, do you monitor the number of households who are positively practising energy efficiency methods as opposed to having ticked boxes and sent bits of paper back?

Ms Janes: We do a survey for our climate change communications initiative. Every six months we commission a survey, at the same times in the year with the same questions, to find out how attitudes are changing. So that helps to provide a yardstick.

Q782 Chairman: What proportion of English households would you estimate are actually doing something to save energy?

Ms Janes: The statistics say that in excess 50% of people say they do something, but the evidence suggests that that might be something relatively minor, like energy-efficient light bulbs, and what we need to do is move them on a journey from taking one relatively small action to taking a number of more significant actions, like insulating their attic or cavity wall, driving less, or off-setting emissions.

Q783 Chairman: Thank you very much. Let us move to a big thing, Minister, and welcome you, and thank you very much for your various pieces of evidence and the information that you have sent about the range of programmes which Defra is involved in. I wonder if, for the record, you can confirm that the Climate Change Bill draft is going to be published on Tuesday 13 March?

Ian Pearson: What I can say, Chairman, is that the Climate Change Bill will be published shortly.

Q784 Chairman: You could, surely, be a little more specific if we are getting as close as we think it might be. Is “shortly” within a few days, weeks, months or years?

Ian Pearson: “Shortly” is exactly when “shortly” is.

Q785 Chairman: “Shortly”, Minister, is that beautifully elastic ministerial word which is deployed when you do not want to give a specific answer to a very specific question.

Ian Pearson: That is absolutely right, and I think I have made my intention clear not to give you the specific date; but we do hope to publish the Bill shortly, we do want to have the widest possible dialogue and debate on the Bill, we think it is a landmark piece of legislation, and we are keen to ensure that this Committee has full access to the Bill. I will be very happy to make myself available to discuss the contents of the Bill, and we want to see widespread public debate on the Bill and on what more we can do to avoid dangerous climate change emissions.

Q786 Chairman: So you would welcome this Committee carrying out an exercise of pre-legislative scrutiny on the Bill, and we would have full co-operation from your department if we did it?

Ian Pearson: As I know you are aware, we have had discussions about how pre-legislative scrutiny would take place on the Bill, and I think it is right that there should be pre-legislative scrutiny on an important piece of legislation like this.

Q787 Chairman: Perhaps you would convey to your Secretary of State our continued enthusiasm to undertake this work in the shortest possible time but in the most thorough manner and, should it appear next Tuesday, we would be only too happy to indicate publicly our willingness to get on with that work.

Ian Pearson: We have been discussing which would be the best way of ensuring that we have proper pre-legislative scrutiny, whether it should be through one select committee, whether it should involve both Houses, and I think that we need to be clear about what is the best way forward on this, but certainly the Government wants to be as open as possible on the Bill itself and we want a bill that is going to work and make a real difference in the United Kingdom.

Q788 Chairman: Let us look at the overall position that your department is in. It would appear that if we take the years 2004 to 2005, CO₂ emissions only went down by 0.1% and you are running somewhat behind in achieving the Government’s CO₂ reduction target of 20% by 2010; so could you give us the main headlines as to how you are going to make up time and, in overall terms, the 60% by 2050 reduction, which means that we have got to run at something like a 1.5% reduction nationally in carbon dioxide if we are going to make it. How are we going to do it? Can you give us some numbers and a time line as to how we are going to achieve this?

Ian Pearson: You have put a number of things together there, and let me try and distinguish between them. Firstly, there is the issue of the Government Office Estate itself and the sustainable development targets that we have got, including targets to reduce our CO₂ emissions, and I have to say that performance overall is not as good as it should be and we do need to up our game. I think it is one of the reasons why we appointed the Sustainable Development Commission to act as an advocate on SD issues.

Q789 Chairman: They have not been very nice to you, have they? They only rated you as ninth in their hit-list of the material that they published today. There are lots of “could do better” for Defra!

Ian Pearson: There are lots of “could do better” for Defra, there are lots of “could do better” right across government as well, but there are also examples of good practice, and I think the SDC report makes it very clear that there are a number of pockets of excellence at the moment, and I think

7 March 2007 Rt Hon Ian Pearson MP, and Ms Jackie Janes

the task for us in government as we move forward is to mainstream sustainable development to make sure that we hit our sustainable development targets, which, as I say, include not just climate change targets but a wide range of other targets as well.

Q790 Chairman: In the context of the Bill as such, is that going to contain further measures which will help the process of capture?

Ian Pearson: As far as the Government Office Estate is concerned, we have a range of measures in place at the moment. For instance, within Defra we are constructing a new building with AMEC that will have a number of renewable technologies and will be low or zero carbon, and we have said in our sustainable development targets that we want new buildings to be built to BREAM excellent standards. We are working with the Carbon Trust on a carbon management policy right across Defra, and there is a range of activities already underway. When it comes to the broader picture about achieving a 60% CO₂ reduction by the year 2050 across the UK economy, it is clear that that is a challenge for us, and we believe that having a Climate Change Bill, having enabling measures in the Climate Change Bill, the Carbon Committee to advise us, all the things that were in David Miliband's statement to the House, is very much the right approach. We have through the Climate Change Programme Review, as you know, a number of policies already in place, and no doubt we will go on and talk about a number of these in a few moments, but we do need to do more, and as a government we recognise that we do need to do more if we are going to hit our future targets and ensure that we are on the right pathway.

Q791 Chairman: Let us talk about some specifics. You very kindly sent an overview document of a range of initiatives which were designed to involve (the focus of this inquiry) the citizen in things that they can do to contribute to our carbon reduction programme, and a lot of them have sums of money (some big, some small) attached to them.⁵¹ Can you take us through the decision-making process, bearing in mind not all of these programmes are in the gift of Defra, they involve the Department of Trade and Industry, the Department for Transport, and possibly others, and how you decide how much money you are going to spend on these different programmes, bearing in mind the differential achievements in terms of carbon reduction? Perhaps you might just, in parenthesis, help me to understand why on some of the programmes in your list you have measured that performance in terms of the reduction in carbon but others are measured in terms of carbon dioxide; there is no common denomination in terms of the measurement. Let us look at the money. How do you decide as a Government how much you are going to spend in terms of these different programmes?

Ian Pearson: Firstly, on carbon or carbon dioxide, I agree we ought to be clearer and I apologise that this table is not as clear and consistent as it should be. Personally, I think we just ought to use carbon dioxide all the time, it would be far clearer all round.

Q792 Chairman: Just to help us, how many tonnes of carbon dioxide have we actually got to save on an annual basis between now and 2050 to get there? Where are we in the CO₂ tonnes savings, so we can put these programmes in context?

Ian Pearson: If we look at the household sector, emissions will need to have fallen from around about 40 million tonnes of carbon at the moment.

Q793 Chairman: Carbon or carbon dioxide?

Ian Pearson: Carbon, 40 million tonnes of carbon at the moment. If we are going to reduce that by 60% you can do the maths yourself.

Q794 Chairman: So that is 24 million tonnes?

Ian Pearson: Yes, that is right.

Q795 Chairman: Good.

Ian Pearson: Our calculation is that to be on track by 2020 we need to have got down to 29.4 million tonnes of carbon. When you look at our existing policies in the Climate Change Programme Review we think these will take us to 35.2 million tonnes of carbon by 2010 and if we successfully implement the policies outlined in the Energy Review we think we can be in the range of 28.8 to 30.5 million tonnes of carbon by 2020, so we are almost on track in terms of our 60% target.

Q796 Chairman: Those numbers are helpful but what would be helpful to us to relate it to these programmes is if you might go back and do a bit more work to relate the downward march of carbon as to how these programmes are going to contribute to it to make certain that we can relate the effectiveness of the programmes that you have outlined to the target track that you have described to us. To come back to my question in terms of the use of the public money to help this movement, how do you decide how much you are going to spend by programme?

Ian Pearson: Well, I think some of the things I have just said help provide a context to that because we believe that the household sector needs to reduce its carbon emissions by 60% by 2050, we want to see a pathway to achieve that, and we want to put in place a range of policy instruments that are going to help us do just that and, therefore, we go through a rigorous policy evaluation process that determines the overall balance of policy mix.

Q797 Chairman: For example, Minister, you say in here, the Carbon Trust, that you are going to spend 78.6 million in financial year 2006–07.⁵² Somebody must have determined why that was the right number. In Defra do you have a value of the price of carbon so that you are saying, "This is the value we

⁵¹ Ev 358

⁵² Ev 358, para 8

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put on it, these are the number of tonnes we want to save by this programme, therefore expenditure will be X", or is it perhaps less precise than that?

Ian Pearson: I think it is a little less precise than that but we do have a social cost of carbon that we use in calculations when determining what the overall benefit in carbon reduction from different policies is.

Q798 Chairman: I know what the benefits are, I am anxious to try and understand because when my colleagues come to ask you about some of the pressures on the finances of some programmes it might help us to understand how the expenditure was determined, in other words how much carbon do we get for the use of the public money. If you had said to me, "We use the social price of carbon", that would have been a useful benchmark but I do not get the impression that even that degree of precision is the one that counts, is it?

Ian Pearson: When officials are putting up submissions to me about different policy options we do quite rigorously look at the different carbon impacts and relate those to financial expenditure, so there is quite a clear and rigorous process that is gone through when determining our policy in these areas.

Q799 Chairman: As far as citizen-based activity is concerned, which gives the best value for money at the moment in terms of carbon or carbon dioxide saved?

Ian Pearson: I think you have to look at it on a measure-by-measure basis. It is not just about expenditure because you can achieve carbon savings through regulation, you can achieve carbon savings through grants and fiscal incentives but also through other means as well. You just need to look at policy in the round on this. I want to assure you that when we are evaluating our policy and determining our overall budgets for Defra and individual organisations we look closely at carbon as one of the key metrics.

Q800 Chairman: If we take the cross-departmental discussions that, for example, must inevitably occur over something like microgeneration, something which has caught the public's imagination, what is Defra's role in determining the DTI's activity in that area because they currently run the programmes that help to fund microgeneration? We are going to talk about that in some detail in a second but just in terms of Defra's role, the mechanism, how does it work?

Ian Pearson: Defra works very closely with DTI on the whole energy agenda. We worked very closely at official level and at ministerial level last year on the Energy Review and we are currently working very closely again in the run-up to the Energy White Paper and we will talk to them about the Low Carbon Buildings Programme and other programmes as well.

Q801 Chairman: Minister, you have just described what you do but you have not told me how it works. Is there a committee? Do ministers meet jointly?

What is the decision-making team? Who has the final deciding "yes" or "no" on the programmes in question?

Ian Pearson: DTI lead on microgeneration and that is very clear. Defra officials, like Jackie and others, will regularly meet with their DTI colleagues to discuss policy. Similarly, I will have meetings with Peter Truscott, and before him Malcolm Wicks, and David Miliband regularly meets Alistair Darling to discuss these issues.

Q802 Chairman: Coming back to the target setting, you are the overall keeper of how we are doing, because we have just discussed that. Do you look, for example, at the DTI and say, "Look, guys, this is what we would like you to take responsibility for with your microgeneration programmes, X amount of savings of carbon dioxide" and then look to them to justify that their programmes can do that?

Ian Pearson: If you look, for instance, at the Climate Change Programme Review and how that process operated, I was not in Defra at the time but I was on one of the Cabinet committees where the Climate Change Programme Review was discussed and it had members of all government departments looking at the overall range of policy measures and how those measures would help to achieve our climate change targets. Right across Whitehall there is a process of involvement and clearance when it comes to key policy decisions and documents like the Climate Change Programme Review that are cleared across government and involve ministers in a number of different government departments.

Q803 Chairman: That is a very nice general description but let me bring you back to the question I asked. If you take the microgeneration programme which involves individuals being given an opportunity to work in that field, when you looked at the way in which your track that you described to us a moment ago towards achieving certain carbon savings was moving forward, did you, as Defra if you like, take a segment and say, "Right, that's the bit we want micro to do, we think this is the potential and you, oh DTI, we want you to deliver this number", or did it work the other way round, that they said, "Oh no, this is what we can deliver to you"? I am trying to get the idea of who is in charge.

Ian Pearson: Defra overall has lead policy responsibility when it comes to climate change.

Q804 Chairman: So you are in charge.

Ian Pearson: But the process of government is an iterative one between government departments and that is why it is right and proper that we have ongoing dialogue with ministerial colleagues on a whole range of policy initiatives.

Q805 Chairman: I know that but somebody somewhere, even if it is not iterative, must sit down between these two departments and say, "Here is the domestic sector, let's have a look at what we think the potential is for energy saving by a whole raft of citizen involvement matters" and then you look at who is responsible and do you say, "What can you

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achieve?” or do you say, “We would like you to achieve this number”? I want to find out who actually initiates the process of saying, “This is what we would like you to do because we have got the overall target to achieve”.

Ian Pearson: We clearly have an overall target to achieve and that is the important thing to stress.

Q806 Chairman: Yes.

Ian Pearson: Then the decision about how you divide up that target by different sectors results as a process of discussion and debate within government and an evaluation of different policy options. Officials will come up saying, “These, Minister, are your overall objectives and these are a number of different ways in which you could achieve your objectives”. Jackie might want to say something about that.

Q807 Chairman: When you go knocking on the door of your colleagues in the DTI and say, “Right, look, these are the things you are in charge of. We think you can do this, this and this in terms of carbon dioxide saving over this period of time, yes or no, can you do it?” do you actually work the number out? Do you start the process?

Ian Pearson: Sometimes yes, sometimes some of the initiatives might come from elsewhere. The key thing is the fact that there is effective co-ordination across government. I know it is fashionable to say that government is not joined-up but it is a lot more joined-up than most people actually recognise.

Q808 Chairman: Ms Janes, I sense you want to contribute.

Ms Janes: It might be helpful to give an official level perspective.

Q809 Chairman: Yes.

Ms Janes: We work out for the household sector where we need to be by 2020 to deliver the reductions that the Minister outlined and we break down the actions and behaviour that we need to achieve. So by 2020 we need really all lofts and cavities to be insulated. We estimate that by cutting waste in households, like standby power, people leaving lights on when they leave the room, there is a 10% potential for improvement. We know that we need to make a step change in products, so to push up from the bottom and regulate out the worst products and incentivise people to buy better products through labelling, *et cetera*. We also know that we need to start rolling out more expensive measures like solid wall insulation and microgeneration and, for new buildings we need the zero carbon aspiration to be reflected in regulation by 2016. That is where we need to be by 2020. We look at what the obstacles are to reaching that goal.

Q810 Chairman: Which are? You might like to tell us about some of those.

Ms Janes: The obstacles are multiple and challenging. One obstacle is consumer inaction due

to the hassle factor, high upfront costs, and poor information. Often consumers are confused because they are subject to multiple messages coming from multiple sources and they do not have a framework for assessing the relative value and impact of different measures. Access to low cost finances is another issue, particularly for more expensive measures. We then assess how the range of different policy instruments can try and tackle some of those barriers so that we can move towards where we need to be by 2020. Sadly it is not as simple as saying there is one single approach to that, you need a blend of instruments. You need the regulation to start pushing up the quality of products on the market but you also need grants and incentives to encourage people to go out and invest in loft insulation or get their cavity walls insulated, but to do that you need to provide them with effective information to help them on that journey. In addition, because products are subject to mandatory standards within the EU, we can work at a voluntary level with the retailers and shops and the lighting industry to try and get them to push above the regulatory minimum. We need to work with a blend of instruments to try and achieve the kind of step change we are seeking to secure. As we develop policies we often create project boards. A project board will have members from different government departments invited to sit on it. If I use the Energy Efficiency Commitment as an example of a project board, Defra is the lead department responsible for driving forward the analysis but we have a board that meets every month to discuss the policy issues on which Ofgem and DTI are represented. The Treasury has been invited but they are unable to attend all the meetings so we have separate brief catch-ups with them. Through that process we discuss and evaluate policy and the costs and benefits of it and expose it to scrutiny and challenge across departments. On that basis we work up recommendations for ministers which show how this instrument will play a role in taking consumers on the journey we need to take them on and how this policy relates to other instruments. With respect to the Energy Efficiency Commitment, ministers have just agreed to allow all forms of microgeneration into the Energy Efficiency Commitment so we need to look at how that relates to policies on ROCs and how that relates to the Low Carbon Buildings Programme. Are we giving multiple subsidies? If so, is that a bad thing or is it, because microgeneration is so costly, actually a positive thing? That is broadly how we work. At periods like the Climate Change Programme Review and the Energy Review we have big evaluations of all the policies and their relative cost-effectiveness. One such analysis was published with the Climate Change Programme Review last March where there was an evaluation of the effectiveness of all policies ranking them according to how much they cost per tonne of carbon to deliver. We have a group called the Interdepartmental Analysts Group which involves officials from the different departments which does this kind of cost benefit analysis to constantly check the relative cost-effectiveness of policies.

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Q811 Chairman: Is that appraisal by project in the public domain or something that you did internally?

Ms Janes: The CCPR synthesis is available on the Defra website.⁵³

Q812 Chairman: That is very helpful indeed.

Ian Pearson: It is actually in the report.

Q813 David Taylor: Our inquiry is called “Climate Change: the Citizen’s Agenda” and I guess the Minister would agree with me that to maximise the contributions of individual citizens you need to bring opinion-formers on board and the movers and shakers, the leading citizens, do you not? Can I quote to you a snippet of *Sky News* from January. I will reveal who said this in a moment. “I would frankly be reluctant to give up my holidays abroad” in Sir Cliff’s villa I imagine is what he was referring to, and he went on to say, in relation to climate change: “you can deal with it through developing the science and technology”. Do you agree with your Prime Ministerial boss on that?

Ian Pearson: What I think it is important to recognise, is that what the Prime Minister was saying represented how many people in the United Kingdom think they want to see technological progress and the best available technology to help reduce CO₂ emissions, and most people in the United Kingdom do not want to give up their annual holiday. What we need to do, therefore, is recognise where people are when it comes to the issue of climate change but to encourage them to change their behaviour. In Germany at the moment they are encouraging people to holiday closer to home, that is a good idea. The key thing is to ensure at an individual level we all try to reduce our CO₂ emissions and we can make choices to fly less, we can make choices to use less energy, we can make choices to have different ways of getting around, using public transport more and using the car less. What the right balance is will vary from individual to individual.

Q814 David Taylor: Is technology more likely to reduce greenhouse gas emissions than eliciting individual behavioural change, in your view?

Ian Pearson: I think we have got to do all of these things.

Q815 David Taylor: Of course we have, but let us not hide behind words; is it likely to contribute more greatly, would you say?

Ian Pearson: I am not hiding behind words, I am being very clear that we do need to do all of these things.

Q816 David Taylor: Of course we do, but what I am asking is what is the relative importance of those two broad areas, technological investment or behavioural change?

Ian Pearson: Both are hugely important, it is not a question of either/or. If it was a question of either/or then we would not get anywhere close to reaching our targets.

Q817 David Taylor: No-one is suggesting it is that. You are wriggling a bit here.

Ian Pearson: No, I am not wriggling, I am trying to make you understand that we need to do both and there are key technological improvements that we will need to see, such as carbon capture and storage, that are going to be absolutely vital if we are going to avoid dangerous climate change, and so is behavioural change.

Q818 Lynne Jones: Can I just come in there. Who should be responsible for this technological innovation?

Ian Pearson: A lot of the technological innovation is going to be driven by the private sector. What we can do as Government is provide the right sort of policy framework, which encourages innovation to take place. Through government research and development support we can also help foster some of that innovation directly ourselves but a lot of it is going to be business driven. We are already seeing a lot of innovation at the moment where some of our best companies have been very innovative in terms of taking carbon out of their business models. What we have got to do is take action not just at a business level and a technological level but at a household level as well.

Q819 David Taylor: Thank you for that. Can we move on briefly to one area where the Government has shown some enthusiasm, which is smart metering and information displays. Why is our Government so cautious on this area when state and national governments like Sweden, Ontario and Italy, are taking steps to require their installation in all homes? Are we not being a bit timid on this front, would you say?

Ian Pearson: I am a strong supporter of smart meters, I believe this is a key enabling technology for the future. I would like to think that in 10 years’ time every home will have a smart meter and every business will have a smart meter as well.

Q820 David Taylor: Retrofitted as well as—

Ian Pearson: I think that installing smart meters gives you an opportunity to do a lot of things, such as peak load shifting, which can help in terms of reducing CO₂ emissions. It can also, when you ally it to displays, provide household information on energy use on a real time basis which I think can be used by citizens to help reduce their CO₂ emissions.

Q821 David Taylor: I do so strongly agree. Early day motion 821, which I tabled a few weeks ago, has got a lot of support. At the end of the statement it is: “calling on the Government to mandate smart metering with a minimum level of functionality in the Energy White Paper recognising that savings”, as you said, linking displays and smart metering,

⁵³ See: <http://www.defra.gov.uk/environment/climatechange/uk/ukccp/pdf/synthesisccpolicy-evaluations.pdf> and <http://www.defra.gov.uk/environment/climatechange/uk/ukccp/pdf/synthesisccpolicy-appraisals.pdf>

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“can be as high as 25% in individual homes”. Do you hope that that might be present in the White Paper in the way the early day motion calls for it?

Ian Pearson: I do not think it would be right for me to speculate on what is going to be in the Energy White Paper. What I can say is we have been having close discussions with DTI colleagues about smart metering, about real time displays, about better billing as well, and you can expect something in the Energy White Paper that will take things forward. In the future we have to see a movement to household energy management systems whereby from your mobile phone you can phone up your home and turn your heating on when you want to. That sort of technology can be made widely available and smart metering is just the start of that, I think. I would like to think that we can get to a stage of saying we want a long-term vision for smart metering.

Q822 David Taylor: Can I just say this, because I know we are all pressed for time: smart metering is now being put out on field trials for some reason but is it possible, in your view, that the conclusion of those field trials might be that smart metering will be discouraged rather than encouraged?

Ian Pearson: Yes, there are trials taking place. I do not think that the trials are designed to present obstacles to the introduction of smart metering throughout the United Kingdom, they are there to facilitate it and to look at some of the practical problems when it comes to installing smart meters widespread across the United Kingdom. There are some challenges there and, as you are well aware, there are some technical issues about functionality and interoperability. There are some important issues that we need to grasp as well given the competitive nature of the marketplace in the United Kingdom when people can switch suppliers over the Internet or over the phone. Those issues need to be sorted out. I have got no doubt that we are moving in the direction of smart meters in the United Kingdom, I think the issue is how fast we go down that route and how we do it in a sensible and practical way.

Q823 David Taylor: Defra believes that information displays are ready to be rolled out, no field trials required there.

Ian Pearson: Well, information displays is a highly useful technology that is there. There are a number of displays on the market at the moment. There is still a lot of development work going on that I am aware of on the issue of real time displays. This is something that can be done and I believe that we should do it because it will help households to manage their energy bills better but, importantly, manage their CO₂ emissions better.

Q824 Patrick Hall: Can I just ask, Minister, would you agree that information displays would be the most convenient, most effective way of changing behaviour both of households and businesses? If so, should we not be a bit more ambitious than talking about a 10 year programme?

Ian Pearson: The thing to say about this is we have some reasonable information about what we think the anticipated level of energy efficiency savings is that can be achieved through displays but we probably need more information to make it as robust as possible. There is a danger, of course, that people get a real time display and use it for a few days or weeks and then put it in the drawer and do not get the benefit from it. Personally, I think there is strong potential in this area and that is why I have been pushing to see greater progress on smart meters and real time displays. I do think they need to come, but this has to be done in a well managed way with the industry to be sure there are the carbon benefits.

Q825 Patrick Hall: Together with the industry would the Department promote a pilot involving several hundred thousand residents, for example, in a particular area? Is that the way we can learn quickly from this and then maybe be a bit more ambitious than 10 years?

Ian Pearson: We do need to learn from it quickly but I would not want you to think that 10 years is particularly unambitious. When we are talking about the scale of activity that we are here, doing something over a 10 year timeframe can be quite ambitious when you think we have got 25 million homes that we are talking about installing. Two and a half million homes a year at a flat rate is quite a significant level of effort if we are going to achieve this.

Q826 Mr Drew: If we can move on to household energy efficiency. For all the amount of maybes and hopeful aspirations, household energy efficiency is something we are doing now but we could do a lot more of. The figure of some 8.5 million households yet to be given cavity wall insulation is mentioned and, of course, many older properties are not suitable. What is the Government's strategy to try and get energy efficiency really at the front end of all that we do in regard to our climate change aspirations?

Ian Pearson: As you will be aware there are a number of policy initiatives that we have taken in this area and the Energy Efficiency Commitment is obviously one of the major ones. It is making real improvements. EEC2 has been a big success, it has built on EEC1, and we have had an initial consultation on our proposals for EEC3 after 2008 and will be launching a formal consultation on proposed measures for EEC3 shortly. That is a key policy driver for achieving energy efficiency in homes. The Warm Front Programme, although designed mainly to tackle fuel poverty, is an important measure in terms of improving the energy efficiency in homes. Through Warm Zones we have got the ability to put together EEC and Warm Front and to go round on a house-to-house basis to make improvements to people's homes. There are a number of other areas as well like the Decent Homes Standard which are helping to improve the thermal efficiency of homes. We also have some pilot work, for instance the Green Concierge Service that we are piloting with the Mayor and Greater London

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Authority. There is a range of activities that are already on the ground at the moment that are helping to improve energy efficiency in existing homes. When it comes to new homes, as you know we have the Code for Sustainable Homes, we have this target of zero carbon homes by 2016, we have the improvement of Building Regulations, and all this will make a big difference to the new housing stock as well as the measures we are taking for the existing stock.

Q827 Mr Drew: Are we not still being a bit meek when it comes to how we look at this issue. At the end of the day we are only going to make the dramatic paradigm shift if we aim to have every house as energy efficient as possible. There are two ways of doing that: either Government gets hold of real estate regeneration across the board and says, "There will not be any estates left", individual houses are more difficult, I accept, "but we are going to do real estate regeneration"; and, secondly, put the onus on the householder, use the council tax and other measures to say, "If you cannot prove what your SAP rating is with the Home Improvement Packs" which we could roll out over a period of time, "If you cannot prove your SAP rating is at a certain level you will pay additional tax because you are costing the planet in terms of energy and efficiency". What is wrong with that?

Ian Pearson: There is certainly a role for regulatory sticks and there is also a role for carrots and incentives as well. One of the things that have been delivered through the EEC Programme has been encouraging people to make their homes more energy efficient because they can get a council tax rebate. That has been piloted in a number of areas. Getting the right and appropriate mix of policy sticks and carrots is one of the challenges for us as a Government. The key thing in what you say is the level of ambition and you are right to say that we need all homes to be as energy efficient as possible, that is why we have been talking about all cavity walls and lofts being insulated by 2020. That will be a huge task if we can achieve it, and move on from just cavity walls and lofts to look at other energy efficiency measures in households, to look at microgeneration where microgeneration is cost-effective as a measure. All of these have got to be on our future policy agenda. I believe with EEC3, by opening up microgeneration and by the stretching of targets that I want to see set in EEC3, we can start to see even bigger improvements in energy efficiency in homes in the future.

Q828 Chairman: Apart from microgeneration, what are the other elements that you will be consulting on in terms of EEC3?

Ian Pearson: Certainly all the measures that at the moment are in EEC2 but certainly microgeneration will play an increasing part in EEC3. The most simple and efficient things to do at the moment are cavity wall and loft insulation. Then there is lighting and energy efficiency, energy efficient light bulbs, and the EEC programme has given out hundreds of millions of light bulbs. Jackie will tell you the exact

figure on lighting. That has been a significant part of EEC. What is important is to do the most cost-effective measures first and to ensure that we do have all the cavity walls and lofts insulated that can be insulated, to look to tackle some of the tougher problems, like homes that have solid walls and what can be done there, and to move increasingly towards microgeneration playing a part in EEC under EEC3. Then we will have this discussion about what a supplier obligation might look like after 2011 and whether we can find a business model that provides incentives to companies to sell less energy and achieves our objectives in that way rather than through the current model for EEC. There is a big policy agenda for us there at the moment. The overriding thing is, as has been said, the requirement to get all homes as energy efficient as possible. If we can do that we can make a significant impact in terms of contributing to our climate change targets.

Q829 Mr Williams: You have already indicated that there are dwellings that are going to be difficult to improve in terms of energy efficiency and after you have done all the loft and cavity wall insulation about 50% of the total stock in the country will still be left. What ideas have you got for improving the energy efficiency of these houses, other than through the Energy Efficiency Commitment?

Ian Pearson: I am not sure about the figure that you quote but clearly there is a problem with some properties that are difficult to make energy efficient. If you compare this building here with the House of Commons across the road it is quite clear which is the most energy efficient building. How you deal with the problem of solid wall homes, technically they can be insulated but it is a lot more expensive. There are some people trying new technologies as well that might make it more cost-effective in the future. The situation we face is that some homes will cost significant sums of money to insulate to modern standards and we have to make some pretty tough decisions about whether we are prepared to provide that funding as a Government.

Q830 Mr Williams: It is in some of those very old properties that some of the poorest families live. Have you got any ideas to help those people get out of fuel poverty and live in decently warm houses?

Ian Pearson: Warm Front, as you know, is our key policy when it comes to tackling fuel poverty and we are going to be spending something in the region of £800 million over the 2005–08 period on Warm Front. It is a highly successful policy. I know that occasionally there are times when performance standards are not as high as they should be but for a massive programme their complaints are running at something like 1%. There is an issue with Warm Front in terms of the overall size of the Warm Front budget and when some people are having completely new heating systems installed at the moment they are being asked to make a financial contribution because they go over the set limit. We are looking at that as an issue as Government because we recognise that vulnerable households probably do not have that money, although in some cases it can be found

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from elsewhere. It is an issue that we need to look at. Warm Front does not just do cavity wall and loft insulation, it can do other measures as well. The really tough thing to do if we are going to successfully eliminate fuel poverty and meet our targets will be to tackle these most difficult to treat properties, the ones that have solid walls, the ones that are off the gas network, and that is a big challenge for us and certainly I do not deny that.

Q831 Daniel Kawczynski: I was very excited at the announcement by the Australian Government about making compulsory legislation on light bulbs. In October 2006 you said that: "the Government is pressing the European Commission to make light bulbs a priority for regulatory action". What progress has the Government made on that?

Ian Pearson: We are making progress at a European level. We need to make progress at a European level because it is not possible to ban the most energy inefficient light bulbs in the United Kingdom, we do need to take that level of action. I hope that through the Energy Using Products Directive we can move to a stage where we reach agreement across Europe on a phase-out of the most energy inefficient light bulbs. We have been discussing with the lighting companies here in the UK what they might be able to do on a voluntary basis and we are continuing to have discussions about that because it would be possible to do it in the United Kingdom. There are clear wins here if we can actually get rid of some of the most energy inefficient light bulbs and there are clear savings. There is a higher cost in terms of purchasing the light bulb but, as we all know, a far longer life and it saves people money over the medium term if they buy the new most energy efficient type light bulbs. We are keen to see what progress we can make on a voluntary basis as well as continuing to push at an EU level.

Q832 Lynne Jones: Could I ask you about tenanted properties. We have heard evidence that it is very difficult to persuade landlords to invest in their properties, there is no incentive for them to do so beyond the Landlord's Energy Saving Allowance which is only a maximum of £1,500. Have you got any ideas what other measures could be taken to overcome this problem?

Ian Pearson: The Landlord's Energy Saving Allowance is actually quite a recent initiative and we need to see whether that does bring about a significant change and more landlords agreeing to their properties having energy efficient measures put into them. I am optimistic that it will. It is a reasonably significant level of assistance. I think we need to keep that under review to see whether it is at the right level. In terms of other policy instruments, if somebody who owns a property does not want something done to it, it is difficult to make progress. The Landlord's Energy Saving Allowance is at least one way of trying to encourage landlords to make sure that their properties are more thermally efficient. If the Committee is going to come up with ideas and suggestions about what more we can do in this area I would be very interested to hear those.

Q833 Lynne Jones: It is going to be mandatory when you are selling a house to have an energy efficiency rating, is it going to be mandatory for landlords letting their properties?

Ian Pearson: Yes, it is, that is my understanding.

Q834 Lynne Jones: So that will come in this year. Certainly where there is a market for vulnerable households who have little choice it is going to be difficult.

Ian Pearson: The Energy Performance Certificate will make that information available for people who are letting by 2009, as well as people who are buying from June 2009. This provides more information in the marketplace.

Q835 Lynne Jones: Has there been any publicity that landlords will have to have an Energy Performance Certificate on letting?

Ian Pearson: Certainly there has been information put into the public domain on that, whether it has been as widely publicised I do not know.

Q836 Lynne Jones: On microgeneration, are you satisfied that the resources allocated to the implementation of the Microgeneration Strategy are sufficient?

Ian Pearson: Certainly we have been seeing stories in the press over the last couple of months with respect to the Low Carbon Buildings Programme and it is my understanding that its monthly allocation was sold out in two hours for March.

Q837 Lynne Jones: We were told 75 minutes.

Ian Pearson: Less than two hours then. That stimulates a number of questions, does it not? If as a matter of government policy you are trying to encourage uptake and there is that high level of demand already, is there additionality for government spending here or is this spending that would have taken place anyway? I think this is something that probably needs to be looked at. I am aware that DTI ministers are looking at the Low Carbon Buildings Programme and I also have to question as to the fact that it does not have any relation to the benefit system, it is just a grant for any household that wants to take microgeneration measures, so David Cameron can qualify for a grant and I do not really think he needs the money.

Mr Drew: Hear, hear!

Q838 Lynne Jones: The DTI in answer to parliamentary questions has told me that the market may have matured to a point where householder grants are no longer necessary and they are talking about by June 2008. Do you think there is no need for any incentives for the UK to play its role in increasing microgeneration to the level we need to if we are going to meet our targets on renewable energy?

Ian Pearson: There is certainly a strong demand at the moment, as evidenced by the fact that the grant applications were sold out within 75 minutes, as you say. I think there are capacity constraints within the microgeneration sector at the moment and that is

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one of the reasons why the DTI has been having this monthly allocation process because if it was to make its whole budget available straight away and allocated all the microgeneration projects I think there would be real capacity issues in terms of those different projects being able to take place. I have not concluded yet that we have reached a stage where the market is sufficiently mature that we do not need government intervention in terms of grants, but I do think we need to have a hard look at the policy and see whether it is delivering the objectives that we want it to.

Q839 Lynne Jones: Many of our witnesses have told us that micro-wind is a waste of space basically if you have not got the right location. You are still giving money for micro-wind generation when perhaps other measures, such as solar water heating, could be much more effective. Should there be some distinction not just on perhaps the means of the person applying for the grant but the type of installation that is being proposed and how effective it is?

Ian Pearson: Certainly I believe that we need to make sure that if microgeneration measures are going to be installed in a household they are going to work and be effective, that is absolutely vital. We need to make sure that if we are spending government money subsidising the installing of microgeneration then it is microgeneration that is appropriate to a particular home. In some cases houses will not be in a situation where they will be benefit from wind-turbines, they might however be in a position where they can benefit from solar panels, although in some cases houses will not benefit substantially from that either.

Q840 Lynne Jones: When you say “solar panels”, what do you mean?

Ian Pearson: Putting solar panels on roofs as a means of microgeneration.

Q841 Lynne Jones: Photovoltaics you mean?

Ian Pearson: Yes.

Q842 Lynne Jones: They are very expensive, are they not?

Ian Pearson: They are very expensive. One of the issues with microgeneration is that it has been very expensive and that is why there has been this grant regime in the first place. Typically, as in other areas of government policy, what we try and do is stimulate new technologies by providing grant assistance, get the technologies to a stage where hopefully the costs come down, there is widespread take-up, there is lift-off so the market becomes more mature, and then the Government's role is more to provide information, advice and guidance. It might be that we have reached that stage with some microgeneration technologies at the moment but I still think there is significant potential in the sector at the moment. There is a big challenge on

microgeneration to scale-up. That is why I think we need to be very careful and to work with the industry when we decide what the most appropriate policy mix is because making sure we have effective advice and support for households who are making microgeneration decisions is one of the key issues.

Q843 Lynne Jones: B&Q have said that they would like the Government to issue some kind of standard. Is that something you have thought of? They have had difficulty, for example, in working out the carbon footprint of the actual manufacturer of the microgenerators compared to the CO₂ savings from the generation itself.

Ian Pearson: I think it is a good point that B&Q make and we are looking at that at the moment. Trying to find a way of ensuring that households have the advice and support that they need so that they can get a microgeneration solution that is most appropriate to them I think is one of the key things. When I was saying about Warm Zones, the household approach of picking a particular area, looking at how you can make homes in that area more energy efficient and then moving on and talking about renewable energy as well for those who actually want to go for microgeneration measures—

Q844 Lynne Jones: Would you be looking at more community-based district heating schemes?

Ian Pearson: That is certainly one option. Through Energy Service Companies, ESCOs, local authorities are already taking a number of actions. We have seen some ESCOs that have been in existence for 20 or more years and we have started to see the formation of new ESCOs recently. We have seen the publication of a guidance report on setting up ESCOs that was launched by the Deputy Mayor of London. Some of our biggest cities are actively taking forward ESCOs as an approach. It is a question of getting the right blend here and in some districts heating systems will be a cost-effective solution that can be delivered through an ESCO or some other route. In other cases it might be more appropriate to have a range of microgeneration technologies installed in addition to energy efficiency measures. It depends on what works best from area to area.

Q845 Mr Drew: Has Defra carried out an evaluation of whether it would be better to replace the grant regime with a system of targeted loans with fiscal incentives as they have got in Germany? As you said earlier, surely it is ridiculous that we are giving subsidies to people who would be undertaking this work anyway. Is that not something that would make a much greater difference based on payback periods to get this whole area moving much more quickly?

Ian Pearson: We do have to look at what is the best way to actually stimulate the growth of the microgeneration market. Microgeneration is important and I think people are increasingly accepting that it is an important part of a future energy mix. The challenge that I have put out to officials is what I call the “sofa test”. Let me explain:

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if I wanted to buy a new sofa, I cannot but fail to see lots of advertisements on the television telling me I can have this sofa or that sofa and nothing to pay for 12 months and then three years interest-free credit and I think to myself why can it not be the same when it comes to microgeneration and making it easier for people to install microgeneration if it is appropriate—

Q846 Chairman: Have they got the right sofa?

Ian Pearson: Making it easier for people to install microgeneration if it is the right thing for their house, whether it be through simplifying the planning regulations, where we are making progress, or making sure that there is an easy service, which is important. There is also an issue about finance and affordability and making it easier for people to buy or even rent microgeneration measures. I can see ways in which we can try and encourage the formation of either loans or low-cost finance, green finance packages, or maybe even find ways of encouraging companies, whether they be energy suppliers or others, to be able to say, “As part of my energy bill I can pay an extra £15 or £20 a week”, or whatever it is, “and I can have a wind turbine fitted”. I think that should be do-able. We need to consider how we might encourage companies to think about doing that so it is not necessarily through B&Q and others in retail.

Q847 Sir Peter Soulsby: My question follows from that. Here is an idea: the majority of EU States have feed-in tariff support, premium rates, for renewable technologies, why not the UK?

Ian Pearson: We have gone down a different route in the United Kingdom in terms of having a Renewables Obligation rather than the feed-in tariff route. As you know, we have consulted on banding the Renewables Obligation and in essence what banding the Renewables Obligation is doing is providing incentives in the way that a feed-in tariff would be. I have been very interested to read some of the research on feed-in tariffs in Germany—

Q848 Chairman: Have you not read it yet?

Ian Pearson: Pardon?

Q849 Chairman: Have you not read it yet?

Ian Pearson: I have read it. I said I have been very interested to read some of the research on feed-in tariffs in Germany. One of the conclusions coming from it is that it looks quite an expensive option itself as well. Germany has made great—

Chairman: What, €2 per household, that is what it costs in Germany per month, do you think that is an expensive option?

Sir Peter Soulsby: Expensive it may be but it works. It is certainly producing results there that we are not getting in the UK.

Q850 Lynne Jones: £12 to £7 is the cost, the difference.

Ian Pearson: Germany certainly has had great success in encouraging growth in photovoltaics but it has come at a price and I would be happy to provide the Committee with some information about it.⁵⁴

Q851 Sir Peter Soulsby: The fact is that Germany is already exceeding its 2010 targets and we are not.

Ian Pearson: That is one of the reasons why we have been consulting on banding the Renewables Obligation as a way of stimulating renewable technologies that are further from the market at the moment.

Q852 Sir Peter Soulsby: Minister, if it is demonstrably working in Germany and producing results there, do you not think it ought not to be lightly dismissed as something that is appropriate for the UK?

Ian Pearson: It is certainly not being lightly dismissed. Feed-in tariffs is one of the policy options that is being considered as part of the Energy Review because we have been looking at all policy options. At the moment the approach that we have been adopting has been to suggest that banding the Renewables Obligation does look to be a better and more cost-effective way of achieving our policy objectives given where we are in the UK at the moment with the Renewables Obligation.

Q853 Lynne Jones: The Secretary of State told the Globe Conference in February: “We are looking at how to enable citizens to sell energy back to the grid at a fair price and removing all the barriers to distributed energy generation”. What did he mean by that?

Ian Pearson: He meant that we are actively looking at that and you should expect some answers to that as part of the Energy White Paper.

Q854 Lynne Jones: But you are still committed to Renewables Obligation as a mechanism for doing that rather than feed-in tariffs?

Ian Pearson: You will have to wait for the Energy White Paper for the conclusions of Government. The point about selling energy back into the grid and making it easier for people to be able to do that I think is a very important one, it has a symbolic importance as well as a financial one and we need to get this sorted out.

Q855 Chairman: This Energy White Paper is going to be the sum total of parts of lots of government, so what does Defra want? What do you think would work? What does your Department recommend because you are going to have to battle it out with the DTI, the Treasury and everybody else? What do you say? What is the analysis from Defra?

Ian Pearson: Firstly, we are a Government that produces policy as a result of—

Q856 Chairman: You are the department that is responsible for this programme. In terms of the

⁵⁴ Ev 373

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feed-in tariff, the banding of the Renewables Obligation or the present system, which do you think is going to work best in the future to encourage the uptake of these microgeneration facilities? What is Defra's recommendation? Not what is in the White Paper, what does your Department evaluate as best buy?

Ian Pearson: I am currently having discussions with officials on this. The view emerging from officials has been that a banded Renewables Obligation looks the best way forward, it looks the most cost-effective policy solution.

Chairman: Why?

Q857 Lynne Jones: How is an ordinary person—

Ian Pearson: Hang on, can I finish? I have been actively challenging this because I am certainly aware of feed-in tariffs elsewhere and we have been looking very long and hard at the cost-effectiveness of different policy options here. What I can say in conclusion, given the vote, is I am sure what will come out of the Energy White Paper will be a thorough assessment of what the most cost-effective approach in the UK is if we are going to help achieve the policy objectives.

Chairman: Minister, you have been saved by the bell from our probings on Personal Carbon Allowances and many other issues. Thank you very much for your point of view. There may well be some further questions that we put to you in writing. Also may I thank Ms Janes for her very clear contribution at the start of our proceedings. Thank you both very much.

Further supplementary memorandum submitted by the Department for Environment, Food and Rural Affairs (Cit 30b)

THE COMMITTEE REQUESTED THE FOLLOWING SUPPLEMENTARY EVIDENCE:

1. *The Chairman requested that Defra provide further details on the projected contribution over time from each of the programmes detailed in the supplementary evidence (sent on Monday 5 March) to meeting the Government's domestic target to reduce CO₂ emissions by 60% below 1990 levels by 2050 (Q795–796);*

(i) Before the Government committed itself to the 60% target for 2050 a technical feasibility assessment was carried out (see Supporting Analysis for the 2003 Energy White Paper, in particular, "Sectoral Energy and Emissions Projections in the Energy White Paper")⁵⁵. However, no specific route for reaching the target—with specific contributions for particular measures—was set out for the period up to 2050.

(ii) Section 2, Chapter 10 of the 2006 UK Climate Change Programme, "Pulling it all Together" provides information about the expected contribution of different front-line policies to meeting targets by 2010 (see extract at Table 1). These front-line policies include EEC 1 and 2, building regulations, Warm Front and products policy. A number of supporting policies are also detailed (for example, communications work, activities of the Energy Saving Trust, and Decent Homes initiative), but do not have specific targets assigned to them.

Table 1

EXTRACT FROM *CLIMATE CHANGE: THE UK PROGRAMME 2006*

<i>Existing Measures</i>	<i>Carbon savings in 2010 (MtC)</i>
<i>Domestic</i>	
Energy Efficiency Commitment (EEC) (2002–05)	0.4
Energy Efficiency Commitment (EEC) (2005–08)	0.6
Energy Efficiency Commitment (EEC) (2008–11)	0.6
Building Regulations 2002	0.7
Building Regulations 2006 including 2005 condensing boilers update	0.8
Warm Front and fuel poverty programmes	0.4
Market transformation including appliance standards and labelling	0.2
<i>Sub-total</i>	3.7
TOTAL (for measures in all sectors)	17.1

⁵⁵ <http://www.dti.gov.uk/energy/policy-strategy/energy-white-paper-2003/supporting-analysis/page21345.html>

<i>Additional Measures</i>	<i>Carbon savings in 2010 (MtC)</i>
<i>Domestic</i>	
Increased activity in Energy Efficiency Commitment (EEC) (2008–11)	0.5
Provision of advice to stimulate early replacement of inefficient boilers and implementation of the Energy Performance of Buildings Directive	0.2
Package of measures to improve energy efficiency in buildings	0.1
Better billing and metering	0.2
Products policy: consumer information and standards for lights and other energy-using products (EUPs)	0.2
<i>Sub-total</i>	1.2
TOTAL (for measures in all sectors)	7.0–12.0

(iii) In addition to the Climate Change Programme 2006, last year's Energy Review proposed additional policies covering the period up to 2020.⁵⁶ This includes Better Billing (0–0.1 MtC abated in 2020), more energy efficient products (2 MtC abated in 2020), successor to EU voluntary agreements on new car fuel efficiency (1.8–2.1 MtC abated in 2020), and a continued commitment on energy suppliers to 2020 (3.0–4.0 MtC abated in 2020). The Energy White Paper, to be published in May, will provide further detail on policies for the period to 2020.

2. *The Minister kindly offered to provide the Committee with further information on the situation in Germany in encouraging growth in photovoltaics (Q850);*

(i) In January 1999 the German Government introduced its “100,000 Roofs Programme”. This provided 10-year interest-free loans to support new solar energy installations. The Programme closed in 2003.

(ii) In February 2000, Parliament adopted the Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz or EEG). The EEG placed an obligation on the German electric utilities to buy all wind, solar and other renewable power preferentially at a minimum fixed price per kilowatt-hour above the market rate. The EEG set out separate feeder tariffs for each renewable energy technology based on the actual cost of generation. It also required the grid operators to give immediate priority to connecting new renewable installations.

(iii) The cost of electricity generated by solar photovoltaics (PV) is higher than for other renewables, and this was reflected in its feeder tariff. For 2005, the EEG tariffs ranged from 66.5 €/MWh for hydropower and 87 €/MWh for new onshore wind plants, to 574 €/MWh for small roof-mounted solar PV. For reference, at the end of 2005 the forward price for electricity on the German wholesale market was around 53 €/MWh. The additional costs associated with feeder tariffs set above the market price are passed onto consumers through the electricity bill.

Table 2

FEEDER TARIFFS AND RENEWABLE ENERGY GENERATION IN GERMANY (2005)

<i>Resource</i>	<i>Limit</i>	<i>€/MWh</i>	<i>Reduction in tariff for new projects/pa</i>	<i>Electricity/ TWh (in 2005)</i>	<i>% of gross electricity consumption</i>
Onshore Wind	First 5 years	87	2%	26.5	4.3
	Years 6 to 20	55			
Offshore Wind	First 12 years	91	2%		
	Years 13 to 20	61.9			
Hydropower	< 500 kW	96.7	0%	21.5	3.5
	< 5 MW	66.5			
	< 150 MW	From 37 to 66.5	1%		

⁵⁶ The Energy Challenge: Energy Review Report (2006), Chapter 8, Table 8.1, p 149; <http://www.dti.gov.uk/files/file31890.pdf>

Resource	Limit	€/MWh	Reduction in tariff for new projects/pa	Electricity/TWh (in 2005)	% of gross electricity consumption
Solar PV	Ground	450.7			
	Building < 30 kW	574			
	Building < 100 kW	546	5%	1.0%	0.16%
	Building > 100 kW	540			

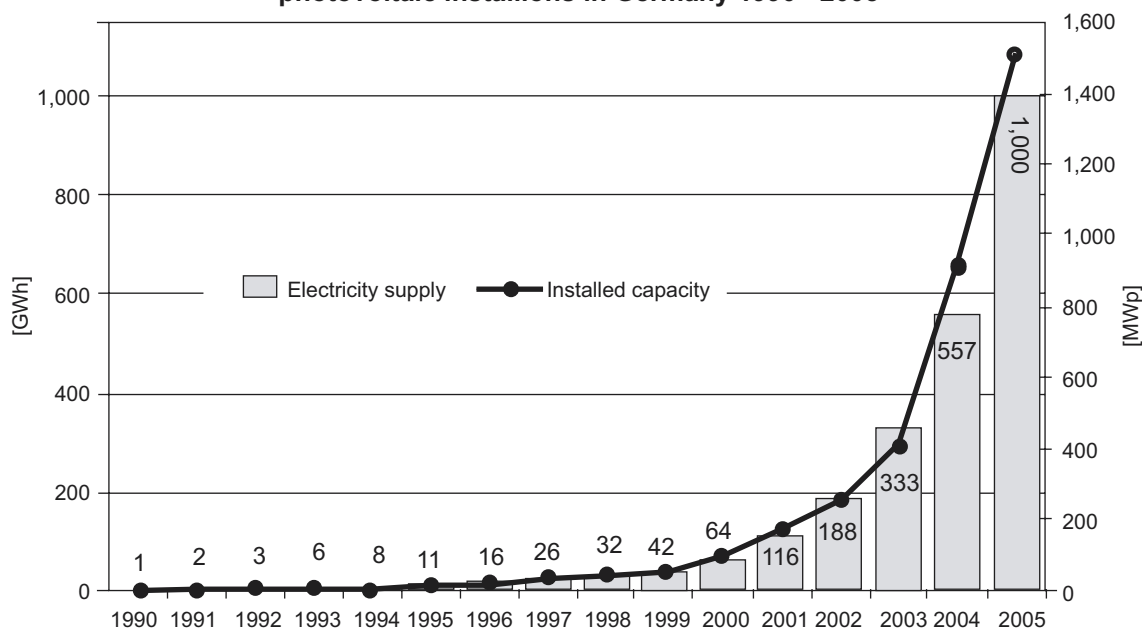
Source: German Federal Ministry for the Environment, (2006) *Graphics and tables on the development of renewable energy sources in Germany in 2005*.

(iv) Once a renewable electricity plant is installed, the minimum feeder tariff valid for its first year of commissioning typically applies for a 20-year period. The fixed minimum tariffs are degressive, reducing annually for new installations, to encourage capacity to be brought forward quickly. For solar PV the annual reduction is 5%.

(v) The package of incentives offered in Germany has brought forward significant new solar PV capacity relative to a base that produced just 42 GWh of solar electricity in 1999.

Table 3

Installed capacity and energy supply from photovoltaic installations in Germany 1990 - 2005



Source: BMU publication "renewable energy sources in figures - national and international development", status: May 2006

(vi) However, renewable electricity generation in Germany is still dominated by wind and hydro, both of which receive a lower level of incentive under the EEG. In 2005, Solar PV generated 0.16% of Germany's electricity needs, onshore and offshore wind together generated 4.3%; and hydro produced 3.5%.

3. What evidence does Defra have that voluntary measures—such as the Code for Sustainable Homes—are effective in tackling CO₂ emissions?

(i) Voluntary measures can play an important role as part of the spectrum of different instruments used to tackle CO₂ emissions. They are often the quickest to implement, often as a precursor to more stringent measures, and can provide an opportunity to explore the scope for regulation. However, they also have their limitations. Government therefore often uses voluntary measures in combination with other measures, for example with EEC, which is obligatory for energy suppliers, but provides incentives to encourage the voluntary take up of energy efficiency measures.

As part of a 2005–06 programme of research looking at pro-environmental behaviour change, Defra commissioned a study *Promoting Pro-Environmental Behaviour: Existing Evidence to Inform Better Policy-*

Making.⁵⁷ This examined the advantages and disadvantages/risks of different policy measures, including “social/voluntary measures” looking particularly at information dissemination and public awareness campaigns, labelling schemes and participatory methods. Its main findings in this area were that:

- “— Consumers are more likely to seek out information on well-publicised topical issues. They need clear and simple messages and should be able to see fairly immediate and tangible benefits from their changed behaviours.
- The people who are currently less likely to seek out environmental information come from lower economic income groups (D and E), are younger (15–24 year olds) or older (65%+) and generally have less access to the internet.
- Different industrial sectors need specific advice tailored to their own activities and needs and the ways they perceive their own market activities.
- Policy-makers need to be more responsive to feedback from target audiences and should incrementally adapt their information programmes to better accommodate their needs.
- Research has demonstrated that engaging target audiences in the design and presentation of environmental information and change programmes increases the likelihood of their impact on actual behaviours.
- The limitation of information-based and educational programmes needs to be recognised and confronted by policy-makers. They work best as a package of measures, which include clear pricing mechanisms and regulatory standards.”⁵⁸

Further detail about the impact of three examples of voluntary measures—the Code for Sustainable Homes, voluntary product agreements, and the Energy Saving Trust’s activities—are provided below.

CODE FOR SUSTAINABLE HOMES

(ii) The Code for Sustainable Homes is a voluntary star rating system that shows the sustainability of a new home as a complete package. It recognises the importance of tackling climate change by having minimum standards for CO₂ emissions at each star rating. The Code went live in early April this year, so it is too early to tell whether it has been a success as a voluntary measure. Early feedback from industry has been positive, especially as they recognise that the Code shows the direction of future building regulations for energy performance.

(iii) The Code was launched as a voluntary standard and is designed for learning (by both Government and the industry) during a voluntary phase, before Building Regulations are tightened to match successively higher levels of the Code. As set out in the consultation document “Building a Greener Future: Towards Zero Carbon Development”, the Government is currently minded to propose that, from April 2008, all new homes should be required to have a *mandatory* Code rating, indicating whether they have been assessed and the performance of the home against the Code. This consultation closed on 8 March 2007, and the Government is currently analysing responses. Before taking this step we will complete a fuller analysis of the likely costs and benefits, both environmental and economic, and will undertake a further consultation on any specific proposals.

PRODUCTS & VOLUNTARY AGREEMENTS

(iv) Voluntary agreements can be very useful as part of an overall approach to raising product efficiency standards. Voluntary action by industry to achieve fleet average improvements or to phase out the least efficient models can complement or avoid altogether the need for regulatory measures.

(v) The existence of industry commitments can also demonstrate the extent to which business would agree that more efficient, commercially viable products can be delivered—with or without other policy interventions.

(vi) To date the EU has negotiated self-commitments with manufacturers covering digital TV services, external power supplies, consumer electronics including televisions, and inefficient domestic washing machines and dishwashers. These have resulted in improvements to the stand-by power consumption of new televisions, video-cassette recorders and power supplies and the removal of the least efficient washing machines and dishwashers from the market.

(vii) Increasingly, it is apparent that we can help markets to work more effectively if we can engage a wider range of actors in the supply chain, especially retailers, in delivering more efficient products, focussing on the most important sectors.

⁵⁷ Promoting Pro-Environmental Behaviour: Existing Evidence to Inform Better Policy Making, A Darnton, J Elster-Jones, K Lucas, M Brooks (2006). (http://www.defra.gov.uk/science/project_data/DocumentLibrary/SD14002/SD14002_3712_FRP.pdf)

⁵⁸ Ibid, p 46

(viii) Following from the initiative we announced in 2006, to work with retailers to improve energy efficiency standards for consumer electronics products, in Budget 2007 we announced that UK manufacturers and retailers have agreed voluntarily to phase out inefficient GLS light bulbs by 2011. This will be well in advance of EU regulations which are expected to be in place by 2010 at the earliest, with a phase out taking, perhaps until 2019 to complete. By starting the process earlier in the UK through a voluntary agreement, we are not only bringing forward carbon savings and saving consumers money on their energy bills, but also making it easier for manufacturers to phase out inefficient bulbs across Europe sooner.

(ix) The Digital TV Services Code of Conduct is an example of a particularly successful industry self-commitment which has mitigated the risk of a substantial increase in UK energy consumption from digital TV equipment. In 2005, the voluntary agreement was estimated to have saved 1 TWh/year—equivalent to 140,000 tonnes of carbon. However, this approach has not been successful in improving standards for terrestrial set top boxes (essentially “freeview” boxes). Manufacturers of these products, which are freely traded in high-street shops and over the internet, are under severe commercial pressure to reduce prices, and have reverted to technology which provides 1997 efficiency levels. This is an example of where, by engaging with retailers on this issue, we think we can achieve a substantial improvement in the efficiency of these products. However, complementary regulation at EU level could be both effective and necessary to ensure fair competition and a level playing field.

(x) Increasingly, business is pointing to the need for effective enforcement and compliance as being critical to the success both of voluntary agreements and regulatory measures. CECED, the industry association for household appliance manufacturers, have recently announced that, while voluntary agreements to date have been very effective, they would now prefer mandatory measures because a lack of compliance testing and free riders is undermining the effectiveness of current product policy, slowing innovation and market development.

ENERGY SAVING TRUST

(xi) The Energy Saving Trust (EST) manages a number of voluntary programmes on behalf of DEFRA, DTI and the devolved nations with the aim of promoting the uptake of sustainable energy (including transport) measures. The main audience is the individual householder either directly or through local authorities, housing associations or the supply chain (eg retailers). In all cases the key purpose of these programmes is to bring about carbon savings through a reduction in energy usage. Its householder facing activities (including the advice network, website, hotlines and advertising/PR) are evaluated through surveys of a representative sample of customers. Quotas are set for gender, age, socio-economic group and any other factors appropriate to the audience. Fieldwork is typically undertaken by market research companies that are accredited members to bodies such as the Market Research Society. Questionnaires typically range from 20–25 minutes and in most cases are conducted by telephone interview. They typically cover questions relating to awareness, usage, satisfaction and most importantly for assessing impact, energy saving actions undertaken and attribution of those actions.

(xii) Each action that is assessed has an energy saving, carbon saving and lifetime or persistence attached to it. EST also assess the extent to which the advice received had a bearing on customers’ decision to act. Steps are also taken to allow for overclaiming and also overlap with other EST channels.

(xiii) Savings fall into two broad categories:

1. Measures that are not covered by other policy mechanism eg EEC, fuel poverty programmes. This includes behavioural measures such as turning lights off.
2. Measures where our advice leads to customers taking action through referral to another policy such as EEC. Only those measures where the customer says our intervention was crucial to their taking action are counted.

(xiv) In total, EST estimates that it has influenced consumers to implement (mainly behavioural) measures, saving 132,000tC/a that are not covered by other policies (category 1 above). A further 90,000tC/a is saved through category 2 measures. As such, EST’s activities both support existing policies, and provide unique additional savings by encouraging householders to take steps to reduce their carbon footprint.

4. *In your written evidence, you say that investing in a micro-wind turbine will save householders more CO₂ per year than many other measures including solar hot water heating, cavity wall insulation and solar PV panels (Table 2). Could you provide the Committee with the evidence upon which this assessment has been based?*

(i) The micro-wind data included in the evidence submitted last year was based on a large (1.5kW) domestic turbine installed in an exposed, high wind area. This data was caveated at the time as work in progress. Updated figures, shown in Table 4 below, model the more typical situation of a smaller (1kW) micro-wind turbine, installed in an urban area, and suggest a reduced savings figure of 0.378 tonne CO₂/yr. This figure assumes a load factor of 10%, equivalent to a windspeed of 4.7 m/s.

(ii) The amount of carbon emissions saved by a wind turbine depends on the quantity of electricity produced, which is strongly dependent on local wind conditions. Wind conditions in built-up, urban areas are not well understood and estimating electricity production can be difficult. The Carbon Trust is commissioning new research into wind conditions in urban areas for completion later this year. This will seek to further improve understanding about wind flows in towns and cities to clarify where and how turbines should be sited for maximum carbon savings.

(iii) As the Minister explained in his oral evidence to the Committee, for the average household the simplest and most efficient measures to take first are installing cavity wall and loft insulation, coupled with basic energy efficiency practices such as changing to low energy light bulbs. Going forward, we need to better understand the economics of microgeneration deployment, so consumers can more easily take account of their own particular circumstances such as solid wall construction, being off-the-gas grid or residing in a high wind area.

(iv) The latest draft figures for different microgeneration technologies and their expected annual carbon savings, prepared for EEC, are presented in Table 4 below. The figures and assumptions presented are indicative and more detailed work is required in many cases to establish firm values.

Table 4

<i>Microgeneration measure</i>	<i>kgCO₂/yr</i>
Wood chip boilers (prim)	7,294
Wood burning stoves (sec)	598
PV (2.5 kWp)	911
SWH (4m ²)	326
mWind (1 kWp, 10% LF)	378
mHydro (0.7kWp, 50% LF)	1,322
Ground source heat pumps	3,649
mCHP	344

ASSUMPTIONS USED IN TABLE 4:

Wood chip boilers

1. Here it is assumed that 100% of the space and water heating energy are provided by a boiler burning wood chips, at an efficiency of 65%, with a responsiveness of 0.75. It should be noted that this implies changing fuel and therefore the energy savings are the difference of the energy content of two different fuels. The counter-factual is assumed to be a condensing boiler which has a higher efficiency, and hence the energy savings are negative, although the carbon savings are positive due to the much lower carbon intensity of wood.

Wood burning stoves

2. The assumption used for the savings for wood burning stoves is that 10% of space heating would be obtained from wood (burned at an efficiency of 65%) instead of the main heating fuel.

Photovoltaic panels (PV)

3. A 2.5 kWp PV system is assumed. The annual electrical output is estimated by applying a factor 846 kWh/yr per kWp, implying an annual output of 2115 kWh/yr. Both the size and conversion factor are based on a recent EST Element Energy microgeneration report.

Solar water heating

4. For solar water heating, it is assumed that a typical flat plate unit with a collector area of 4m² would be fitted and that its efficiency (in the form used in BREDEM) is 58%. These inputs result in the calculated provision of 33% of annual hot water needs for the dwelling modelled.

Micro wind turbines

5. A 1 kWp unit is assumed to be installed. An average load factor of 10% is assumed for the 8,766 hours in a year, leading to a figure for annual electricity generation of 0.877 MWh/yr. The load factor (LF) is highly dependent on the mean windspeed and also on the distribution of wind speeds. It is expected that, depending on location, the load factor could vary between 5% and 30%. The value chosen here corresponds

to a mean wind speed of 4.7 m/s, and Weibull parameters A and k of 5.3 m/s and 2 respectively. This is a little higher than the average wind speed in a built up area, but it has been assumed that most micro-wind turbines will be installed in areas which are slightly windier than the average.

6. The lifetime of micro wind turbines is assumed to be 10 years, which is consistent with estimates by some manufacturers such as WindSave.

Micro hydro

7. It is assumed that a micro hydro turbine of 0.7 kWp is installed and that it has an annual average load factor of 0.5, leading to an annual output of 3068 kWh/yr. Size, load factors and lifetime are based on the EST Element Energy microgeneration report.

Ground source heat pumps

8. For heat pumps, it is assumed that the space heating is provided using electricity at an efficiency of 300% (with responsiveness of 1) and water heating would be achieved at an efficiency of 150%.

Micro-CHP

9. Micro combined heat and power (mCHP) units are currently the object of a Carbon Trust trial measuring their in-situ performance. The current values shown in this document do not take account of potential under-performance; the effectiveness is assumed to be as claimed in the manufacturers' documentation, but this will be updated when further evidence is available. A mCHP unit with a seasonal performance where 80% of the energy is converted to heat for the dwelling, and 15% to electricity, is assumed.

10. It is assumed that the same amount of heat output would be required of it as in the case of a normal gas boiler system. By dividing by the heating efficiency it is therefore possible to calculate how much gas it would require over a year, and from this, the electrical output is calculated by multiplying by 15%. (By using this method, no knowledge of running hours is required to estimate heat and electrical output.)

Department for Environment, Food and Rural Affairs

April 2007

Wednesday 9 May 2007

Members present:

Mr Michael Jack, in the Chair

Mr David Drew
Mr James Gray
Patrick Hall
Lynne Jones

Daniel Kawczynski
David Lepper
David Taylor
Mr Roger Williams

Memorandum submitted by the Carbon Trust (CIT 06)

1. Thank you for the invitation to contribute to the EFRA Select Committee's Inquiry to examine the "citizen's agenda" in relation to tackling climate change. Your invitation for written evidence covers a wide range of issues many of which are not central to the Carbon Trust's areas of responsibility. We therefore propose to focus on the potential for, and barriers to, microgeneration—in particular: their current state of maturity, related matters concerning metering, and the opportunities for cost reduction and increased deployment going forward. In preparing our evidence, we have shared our thinking with our colleagues in the Energy Saving Trust who are making a substantive contribution to your Inquiry.

SMALL SCALE LOW CARBON TECHNOLOGIES—CURRENT STATE OF MATURITY

2. There are a number of these types of technologies including, for example: small and micro-turbines; solar thermal for space and water heating; solar photovoltaics for power generation; ground source heat pumps; biomass fuelled heating systems; and micro-combined heat and power systems providing both heat and power. Some of these technologies—eg solar water heating—have been around in the UK for 20 years or more; and there are tens of thousands of installations. Others such as micro-chp are available in relatively small numbers and operational experience is very limited. All these technologies are immature compared with the standard boiler and grid delivered electricity which millions of people take as the default means whereby they obtain heat and power for their homes. They are, currently, costly to buy and run. That is not to say that there is no prospect of technology improvements or cost reduction. Most maturing technologies will, given the necessary investment and development, continue down the cost curve and up the reliability curve. However, the snapshot we see today for micro-technologies is one of potential yet to be fully realised.

3. The Carbon Trust considers there is scope to reduce capital and operating costs, improve reliability and generally make these products more attractive to consumers. In mature markets, product improvement is via RD&D paid for by the profits earned by equipment owners on product sales and specified through "learning by doing" experience of products in use. However, in the case of high premium, low market pull products, profits tend to be insufficient to support product development unaided. Public support—justified by the potential for these new and emerging technologies to contribute to public good, carbon savings goals—is needed to bridge the gap, improve product performance and reduce costs to the level which would attract more customers. What we call technology accelerator projects (intelligent demonstration projects) also have a role to play to gather independent, impartial information on performance in use, consumer attitudes, etc.

4. Meanwhile, it is vital that consumer confidence is not eroded by inflated claims from manufacturers about possible outputs/savings from their products. Not only is this important in terms of any Government subsidy scheme in relation to potential carbon savings, but also it could hinder market penetration if consumer confidence is eroded by unsubstantiated, or exaggerated, performance claims. Independent demonstration projects, working with the key stakeholders are one way of addressing this issue.

SUPPLY CHAIN MATURITY

5. New and emerging low carbon products tend to be hampered by immature supply chain service providers—eg specifiers, installers, maintenance people—who are inadequately trained and who are not sufficiently familiar with the products they handle. Whereas attention is often paid towards reducing capital costs to consumers, too little attention is paid to raising the competency of the supply chain. Unless the supply chain is encouraged to take responsibility for the goods and services it provides, early introduction of new and emerging products will carry a risk of failure. Bad news travel faster than good, generally speaking, and the reputational risk deriving from immature supply chain players—and immature technologies—has a habit of creating consumer distrust which in turn impedes market penetration. It is for manufacturers to ensure that their supply chains are fully competent throughout the range of products and services. However, Government can help encourage positive action for low carbon technologies by setting minimum standards of competency for specifiers and installers wishing to become involved in Government

grant schemes to promote take-up of new technologies. In this regard, the Government's Low Carbon Buildings Programme, with which the Carbon Trust is partnering, is to be commended to the Committee. This programme seeks to raise the quality of installations:

- (a) by ensuring that a high standard of inherent energy efficiency is incorporated into the buildings in the programme; and
- (b) by requiring the use of accredited installers.

6. Better training, better understanding of the reputational risk, and tighter control of the supply chain by the original equipment manufacturers would all help reduce the risks outlined above. This should not be viewed as an add-on "luxury". It should be part and parcel of a strategic approach by the stakeholders. The stakeholders include: the product manufacturers, the players in the supply chain, and the Government who has a role to play to accelerate the delivery of the public good benefits (ie carbon savings) for which consumers are unwilling to pay a premium or take unnecessary risks.

THE IMPORTANCE OF METERING

7. Metering has an important, generic role to play in relation to the development of a market for energy and carbon savings technologies—including micro-technologies:

- (i) Our metering field trial has shown that having a "smart meter" (ie a pulsed meter capable of providing time-related consumption data) installed can itself be a catalyst for behavioural change, over and above the specific detailed recommendations for energy savings arising from data analysis. Consumers with smart meters make the link between their activities and their energy use—especially where they know that there is a direct link between the meter data and the energy for which they are billed.
- (ii) Meters offer the means whereby energy flows—in particular, exports to the grid—can be measured. In some end use applications, some micro-technologies tend to export a significant proportion of the electricity generated. Two-way metering with fair export reward and accurate bills derived from meter data would help encourage consumers to invest in micro-technologies. The pace at which smart meters are rolled out, billing systems/processes enhanced, and mechanisms for export reward made available will all have an impact on take-up of micro-technologies.

MARKET MATURITY

8. Manufacturers, the supply chain and consumers determine: the extent to which products are purchased; the rate at which products make the transition from being new and emerging to mature; and the rate at which optimum market penetration is achieved. Measures which help de-risk new and emerging low carbon technologies, and reduce costs, will help overcome consumer doubts brought about through unfamiliarity. Measures which help improve supply chain competency will also help accelerate market take-up.

9. The Government attitude towards and support for these new and emerging micro-technologies will have a crucial impact on the rate of technology improvement, cost reduction, supply chain maturity and consumer take-up—ie market maturity. In its Energy Review Report, published in July, it confirmed its earlier policy support for micro-generation to meet energy and climate change policy goals: "*The Micro-generation Strategy will be implemented aggressively by Government, and the powers acquired by Government under the Climate Change and Sustainable Energy Act 2006 will be exercised where appropriate.*"

10. The support framework will be most effective if it is designed to address the "big picture" rather than individual barriers such as capital cost. Therefore, the Government's intention—to carry out an investigation of the potential of distributed energy as a long-term alternative or supplement to centralised generation, looking at the full range of scientific, technical, economic and behavioural issues—is to be welcomed. Only by an impartial and robust analysis is it possible to determine the contribution which these technologies can make to our energy and climate change policy goals. We would, however, point out that a number of useful studies have already been carried out—for example, the joint DTI/Carbon Trust Renewables Innovation Review; and the Energy Saving Trust's work for DTI on micro-generation technologies to name but two. These, and other studies, have all informed the Government's Micro-generation Strategy and should help ensure a good starting point for the further technology and market-based analysis going forward.

CONCLUDING REMARKS

11. The Carbon Trust hopes that the Committee's Inquiry will find the above contribution provides helpful insights into the current state of micro-generation technologies, the supply chain and the market. Looking for ways to encourage individual action by citizens to help tackle climate change is part and parcel of the transition to a low carbon economy. However, making impact, at scale, is dependent upon:

- (a) consumer behaviour translating into positive action on energy efficiency and low carbon technologies; and

- (b) the market's ability (and willingness) to provide viable, affordable and effective low carbon options which are attractive enough to displace incumbent high carbon products. Sometimes, consumer and market interests align and change happens. However, where these alignments do not happen fast enough, or on a scale which will not achieve significant greenhouse gas emission reductions, there is a need for purposeful, coherent and consistent Government action at a scale commensurate with the scale of the challenge. A start has been made but there is some way to go before consumers, markets and Government(s) can be said to be moving forward fast enough towards a common goal. The Carbon Trust's work, through its micro-chp field trials and other projects in train or preparation, is informing this process.

The Carbon Trust would be happy to discuss its evidence with the Committee if that would be helpful.

The Carbon Trust

August 2006

Supplementary memorandum submitted by the Carbon Trust (Cit 06a)

Further to our earlier submission (10 August 2006) to your citizen's agenda inquiry, please find attached a further submission. Rt Hon Michael Jack MP met with our Chief Executive Tom Delay in October 2006 and requested that the Carbon Trust review our earlier submission and provide additional evidence to develop the Committee's thinking. We have done this in response to the extended terms of reference on green taxes announced in November, namely:

To what extent is "green taxation" an effective driver of behavioural change?

We hope the Committee will find our contribution provides helpful insights into the market for low carbon goods and services and in particular a context in which to consider the role of the citizen's agenda.

I have enclosed copies of referred reports "The UK Climate Change Programme: Potential evolution for business and the public sector" and "Carbon Footprints in the Supply Chain: the next step for business" for your information.

CONTEXT

1. The Environment, Food and Rural Affairs Select Committee launched an inquiry into climate change: the "citizen's agenda" in June 2005. The inquiry is examining actions which individuals can take in their daily lives to help tackle climate change. Following the Stern Review on the Economics of Climate Change, the Committee has extended the inquiry's terms of reference to include a sixth question specifically on "green taxes".

2. The Carbon Trust welcomes the opportunity to submit evidence on the additional question posed by the Select Committee in the light of the Stern Review. We hope that our comments and insights will be helpful to the Committee and add to our original contribution to the inquiry that focussed on the potential for, and barriers to, microgeneration (reference our letter dated 10 August 2006).

3. Green taxation is a broad and complex subject. In a few pages of evidence, therefore, we focus on what we see as the key issues we think the Committee may wish to consider in relation to its Inquiry.

INTRODUCTION TO THE CARBON TRUST

4. The Carbon Trust is a private company set up by government in response to the threat of climate change to accelerate the transition to a low carbon economy. We work with businesses and public sector organisations to identify carbon dioxide emissions reduction and to find ways of achieving those savings cost-effectively. On average, the Carbon Trust identifies over 3 million tonnes of CO₂ reductions each year—saving over £300 million on annual energy bills. This, together with our support for low carbon technology innovation and our work to improve the understanding of climate change mitigation options helps businesses (including new and emerging businesses) reduce the carbon footprint of the goods they sell.

MARKET SUPPLY AND CONSUMER DEMAND

5. Our approach to the question posed by the Select Committee is to consider and simultaneously address both sides of the market supply and demand "equation". Unless we do this we will not achieve our low carbon economy goal. In our response, we have therefore considered the question from the perspectives of citizens (as consumers) and of businesses (as suppliers of energy efficient and/or low carbon goods and services to consumers).

6. On the consumer demand side, we are beginning to see a shift in thinking in favour of low carbon goods and services, driven by concerns about climate change impacts. Independent market research, carried out as part of our supply chain study which was published last year, showed the emergence of the low carbon

consumer. The research showed that nearly three quarters of UK consumers are concerned about climate change and their own carbon footprint; around two thirds of UK consumers are more likely to buy from a business they think is taking action to tackle climate change; and two thirds want to know the carbon footprint of the products and services they buy.

7. Consumers drive demand and businesses therefore need to be aware of shifts in consumer thinking. Many companies are already taking action to cut carbon emissions, driven by increased regulation, rising energy costs and corporate social responsibility. Our study reveals another strong driver for business action: significant consumer interest in low carbon products and services.

8. However, shifting attitudes and greater concern do not of themselves automatically lead to a green purchasing revolution. The awakening of a green consciousness amongst consumers needs nurturing and converting into positive purchasing decisions and strategic, green investments on the part of business and the supply chain. Tax and other policy instruments can, and should, be designed to provide incentives for consumers and the supply chain alike. Indeed, developing and implementing a package of policies and measures to stimulate behavioural change amongst consumers will make policies and measures to move business and the supply chain down the low carbon pathway much more effective. Encouraging one market segment without the other either creates demand which cannot be satisfied or puts investment capital at risk of not achieving the desired returns. Neither outcome brings us one step nearer to achieving the low carbon economy goal.

POLICY MEASURES

9. Changing consumer and business behaviour is vital to making progress towards a low carbon economy. Our experience, drawn from the non-domestic sector, shows that a comprehensive package of policy measures designed to tackle the barriers to progress is essential. The same argument, we suggest, applies to achieving consumer behavioural change. Placing undue reliance on one instrument—be it taxation, regulation, grant subsidies, or information and awareness campaigns—carries a high risk of failure, waste of public resource and loss of time—a resource we do not have much of where action on climate change mitigation is concerned.

10. Our thesis is that the package of policy measures needs to be designed to tackle the full complement of barriers inhibiting action. These barriers will be different for different stakeholders and products. Analysis we published in Spring last year in response to the Government's review of its Climate Change Programme showed that whereas for some segments of the economy the policies and measures were strong and were delivering results (eg the tax incentives available to the energy intensive industries under the climate change agreements), they were not so effective so far as consumers or business in general are concerned. For example, for the large energy consuming businesses not in the EU Emissions Trading Scheme, the main policy instrument is the climate change levy. There is no equivalent for these businesses of the climate change agreements, acknowledged to have been successful in driving change in the energy intensive industries. That is why we proposed an emissions trading scheme, with auctioning, to complement the climate change levy. This proposal, now known as the energy performance commitment, is currently the subject of Government consultation.

11. We think that significant carbon dioxide abatement could be achieved using existing energy efficiency measures. However, existing policies do not sufficiently target the diverse barriers that inhibit take up. Neither do we utilise the corresponding drivers that could most cost-effectively deliver change. For example, we know from our independent market research that the latent demand for low carbon products is there. The challenge is to convert interest into purchasing decisions which favour the low carbon alternative, whilst signalling this shift to business in time for them to make the appropriate green investment decisions to make products more energy efficient and to reduce the carbon footprint of their manufacture throughout their supply chains.

12. Our supply chain study showed that there is an almost untapped seam of carbon savings to be achieved across many sectors by addressing the supply chain. It sets out a practical approach to reducing the carbon dioxide emissions in the products we all consume, by understanding and optimising emissions across full product supply chains. This approach, called carbon life-cycle analysis, helps us to understand the reasons why emissions are generated across the economy. Processes, and their emissions, do not occur in isolation but are always part of the supply chains for different products or services. This research has already attracted attention from business and we will be building our knowledge of this area going forward.

13. On green taxes specifically, we think that tax signals, suitably designed as part of a comprehensive package of policies and measures, could play a significant role to encourage consumer choice and investment in favour of low carbon goods and services. Reducing VAT for energy efficient or low carbon products; offering council tax reductions for energy efficiency home improvements (as per the British Gas initiative whereby, in return for opting for subsidised cavity wall insulation installed by British Gas, owner-occupiers will see their council tax bill reduce by £100); penalising products which present higher carbon footprints; reductions in stamp duty for buildings which are designed to deliver lower carbon footprints, are all examples of the kind of tax measures which could incentivise low carbon behaviour. In fact, stamp duty featured in the Chancellor's Pre-Budget Report last month when he announced a time limited initiative to exempt the vast majority of new zero carbon homes from stamp duty. The precise details have yet to be

worked out but the new voluntary Code for Sustainable Homes gives an example of the kind of energy efficiency measures and low carbon technologies which would need to be incorporated to create a zero carbon design.

LEARNING FROM SUCCESS—ELIMINATING LEAD FROM PETROL

14. One example from the 1980s and 90s which seized the imagination of consumers nationwide was the shift from leaded to unleaded petrol. We think it is worth considering this success story in order to see what lessons can be drawn which might be relevant to the Government's climate change mitigation goal.

15. The policy goal was to improve air quality (and public health) by eliminating lead from petrol. The chosen policy instrument was environmental taxation to create a price differential in favour of unleaded petrol. A 5p tax differential at the pumps, coupled with a simple adjustment under the bonnets of most cars (often carried out free of charge at the same time as the MOT annual test) led millions to make the transition. In this case, the behaviour barriers were addressed relatively easily. Keen-eyed consumers were tuned to the 5p price differential at the pumps. Petrol suppliers, the automotive industry and garages geared up to meet demand. The intention was clearly signalled that leaded petrol would be phased out. Consumers were personally convinced about the beneficial economic impact of this (they bought the value proposition) and, importantly, they could see the link between mass action and better air quality for them and their children. As a result, the transition went smoothly. Today, air quality in relation to lead, particularly at the kerbside, has improved out of all recognition.

16. This example demonstrates the commitment of successive Governments to using environmental taxation to encourage behavioural change to achieve a societal good. It worked well in this case because:

- (i) environmental taxation was an appropriate, powerful and visible policy instrument designed to impact consistently on the mass consumer at scale;
- (ii) Governments made clear their intention, over time, to phase out leaded petrol;
- (iii) the market geared up to deliver unleaded petrol and convert cars at scale; and
- (iv) action to improve air quality and health was not a hard or a difficult value proposition for consumers to understand, accept and act upon.

17. The Government's Statement of Intent on environmental taxation (2 July 1997) signalled a continuation of this fiscal policy. It said that: "*over time, the Government will aim to reform the tax system to increase incentives to reduce environmental damage [and thereby] shift the burden of tax from "goods" to "bads"; encourage innovation in meeting higher environmental standards . . .*"

18. However, driving behavioural change in favour of energy efficiency and low carbon consumer purchases (and low carbon lifestyles) is not, in our view, such a straightforward story as shifting to unleaded petrol. By contrast with the above:

- (i) the vast majority of the inefficient, high carbon footprint products remain available for consumers to purchase;
- (ii) the supply chain has insufficient incentive to shift mass manufacture away from high carbon to low carbon products; and
- (iii) though mass consumers are beginning to accept the proposition that climate change is happening, they do not yet accept, on any significant scale, that their behaviour and purchasing decisions need to change. (They have not accepted the value proposition as they did with unleaded petrol. Indeed, given the local and measurable benefits of action on lead compared with the uncertain benefits of individual consumer action to reduce carbon dioxide emissions, it is not surprising that most consumers are unconvinced that their individual actions will amount to much.)

19. It is because climate change carries with it the potential to change the world (perhaps irrevocably) and cause severe environmental, economic and social damage in the process that it is essential we address the challenge of achieving behavioural change. Removal of barriers to behavioural change was cited by Sir Nicholas Stern in his review on the economics of climate change as one of the three essential elements of climate change mitigation policy alongside carbon pricing and technology policy. He went on to say that: "*Leaving out any one of these elements will significantly increase the costs of action*". We support that conclusion. Behavioural change is one of the main drivers of market change: consumers demand—business invests to deliver. The corollary is also true: no consumer demand—no business investment.

20. However, recognising the importance of something and doing something about it are two different things. The package of measures to effect change at the scale of the mass market will vary according to consumer/business understanding and acceptance of the issues; and their willingness and capacity to take action. These factors will change with time as consumers, supply chains and the market understand, accept and commit to the need for action. It is therefore important that green taxation is not seen as a "silver bullet" solution. We think that achieving irreversible change in mass behaviour towards energy efficient and low carbon footprint goods and services requires a comprehensive set of long term policies and measures designed to overcome barriers on both the consumer and supply chain sides of the equation. Environmental taxation will, we think, be a key instrument in the package of policies and measures.

SUMMARY

21. In our view, the answer to the Committee's question depends very much on:

- (i) the reasons why current behaviours are the way they are;
- (ii) whether the "strength" of the tax instrument(s) is commensurate with the scale of the barriers identified; and
- (iii) whether the tax instruments are part of a coherent, consistent and long term policy intent on making the transition to a low carbon economy.

The Carbon Trust

January 2007

Memorandum submitted by Friends of the Earth (CIT 52)

INTRODUCTION

We welcome the opportunity to give evidence to this inquiry. Our response focuses on question 6: "*to what extent is "green taxation" an effective driver of behavioural change?"*"

Our response has four points:

- Green taxation an essential role to play in the policy mix for tackling environmental problems by providing clear financial incentives.
- When designed properly, green taxation is a very effective driver of behavioural change. In particular, the design must integrate tax with other policies such as public spending, regulation, information and other market mechanisms—in effective policy "packages". This integrated policy approach is essential, and can deliver environmental, social and economic benefits.
- To date although there are several examples of green taxes driving behavioural change a lack of integrated environmental policy packages has hindered rather than helped this positive outcome. A much greater effort is needed, from Treasury in particular.
- The Government should use the driving force of green taxation alongside spending and other policies to implement a "New Deal" for households to help them go green. Green taxation can both provide the financial incentives required and the revenues to fund integrated spending programmes that together make the "green" option cheap and easy, rather than difficult and expensive as it so often the case at present.

TAXATION IN THE POLICY MIX

Broad causes of environmental problems are

- lack of adequate protection of public goods;
- the price of polluting activities being too low;
- inadequate information about people's and businesses' resource use and its impacts

These are broad examples of "market failure" which was set out by the Stern Report as the key cause of climate change.

Friends of the Earth agrees with Gordon Brown's 2002 statement that: "*Well designed environmental taxes and other economic instruments can play an important role in ensuring that prices reflect environmental cost—in line with the "polluter pays" principle—and discouraging behaviour that damages the environment*".

There is already good evidence from the impact of UK green taxes.

- Differentials in road fuel duty to shift consumers to cleaner fuels has been a clear success first with lead-free and subsequently with low Sulphur diesel and petrol.
- Research into the impact of the landfill tax also demonstrates the ability of a green tax to change behaviour.¹ Actions taken in response to the tax not surprisingly varied according the financial impact of the tax. Companies facing a relatively small increased cost for the first time began to separate some waste materials for recycling and in some case introduced targets for waste minimisation. Companies facing more significant increases and who in general already considered waste as an important cost took a variety of actions including innovation for waste minimisation and seeking markets for recycling their waste products.

¹ ECOTEC, 1997. Effectiveness of the Landfill Tax in the UK: Barriers to Increased Effectiveness and Options for the future. Friends of the Earth, London.

- The climate change levy package has also been effective in changing behaviour.² The tax itself has been designed in a policy package that includes negotiated agreements for sectors to benefit from an 80% rate cut, exemptions for on-site renewable energy, an enhanced capital allowance scheme for investments in energy efficient products and a information and advice provided through a new Carbon Trust.

However, the effectiveness of some UK green taxation has been undermined by lack of commitment and a failure to augment them with the necessary policy package approach. The most telling example is road fuel duty.

- The fuel duty escalator (had it not been abandoned by the Chancellor) could have been a successful environmental tax (in terms of shifting behaviour) especially if the Government had followed its own 2002 policy and used revenues to invest in public transport and other alternatives. According to the IFS “a 10% rise in the price of fuel reduces fuel consumption by around 2.5% and the volume of traffic by 1% after a year.” They show that “had the real rates of duty been maintained at their peak values since 1999, we might expect current fuel consumption to be around 4–5% lower (and as much as 9–12% lower in the long run).”

There is also evidence that green taxation has an important role to play in tackling market failure and environmental, social and economic problems such as climate change—by altering prices. For example,

- Oxford University’s Environmental Change Unit’s recent report on aviation³ sets out the annual price rises on a plane ticket needed to slow growth in aviation passenger numbers. In 2006 the Institute for Fiscal Studies (IFS)⁴ said of aviation: “demand does appear quite sensitive to price, suggesting that there could be scope for using tax incentives to reduce demand for flights”.
- The Department for Transport has published research showing that a £150 differential in Vehicle Excise Duty bands would be sufficient to persuade 55% of car-buyers to choose the less-polluting band.

POLICY PACKAGES

The Stern Report is quite clear that a wide variety of policy measures will be needed, together, to tackle climate change. Taxation is one such tool to affect prices, alongside other market-instruments such as emissions trading schemes. Other measures—such as Government support for new technologies, and improved information-based measures—like eco-labelling—are also needed. The key to success is that green taxation and other measures are implemented together as integrated packages of policies. Aside for the need for an overall Government strategy to deliver on problems such as climate change, there are two central issues here—the use of revenue, and the levels of taxation:

1. Use of revenue

The use of revenue from increased green taxes is crucial for delivering effective outcomes. There are broadly three issues here:

- In some cases, green taxes need to be linked with spending or other measures—to address distributional issues arising from the impact of the increased taxation, particularly impacts on poorer people. In our view, environmental and social goals are inextricably linked, and policies designed to meet them together—this is a central principle of sustainable development, and set out in the Government’s Sustainable Development Strategy.⁵
- In some cases, revenues need to be used to ensure there are decent alternatives to the polluting behaviour in question—for example, the use of road fuel duty revenues to fund improvements to public transport.
- In some cases, revenues can be recycled back via reductions in other taxes. Green taxes should be part of a broad “Environmental Tax Reform” (ETR) agenda, whereby if green taxes are raised, then other taxes, for example on employment, should be lowered.

The Government clearly recognised these issues in its policy document Tax and the environment: using economic instruments.⁶ This states: “Where there is a strong case [for taxation], some or all of the revenue may also be used to reinforce the effectiveness of a tax measure by strengthening incentives for positive action, or mitigating adverse impacts”. [para 1.3]

² Cambridge Econometrics and Policy Studies Institute for HM Customs and Excise cited in Budget 2005, p159; and Ekins, P, Monkhouse, C and Willis, R, 2002. Next Steps for Energy Taxation: A survey of Business Views. Green Alliance/IPPR, London.

³ <http://www.eci.ox.ac.uk/research/energy/downloads/predictanddecide.pdf>

⁴ <http://www.ifs.org.uk/comms/r68.pdf>

⁵ <http://www.sustainable-development.gov.uk/publications/pdf/strategy/Chap%201.pdf>

⁶ <http://www.hm-treasury.gov.uk/media/D54/07/adtaxenviron02-332kb.pdf>

It further states that: “there may also be benefits in using part of the revenue from an environmental tax to help facilitate the desired response to the tax. The benefits of this approach would depend upon a range of factors, including the period of warning given before the introduction of the tax (or before increases in rates) and the ability of taxpayers to respond to the tax quickly. Where the short-term response is relatively inelastic, recycling revenue in this way can help to increase the elasticity of the response in the longer term.”; and “Support for innovation and technology development can play a key part in this process. Where a low price elasticity reflects a lack of knowledge among polluters about alternatives, providing information may help to increase the response.” [para 6.14]

However, in practice apart from isolated successes such as the Climate Change Levy there is little evidence that this approach has been adequately implemented.

Other than effectiveness, there are political reasons for delivering packages, rather than treating tax in isolation. There is a strong danger that “green taxation” will be stigmatised if it is perceived as simply “stealth taxation”. Green taxation will be far more effective, and far more likely to be politically acceptable, if it is part of a policy package which makes clear how the revenues will be spent. £10 on Air Passenger Duty can easily be targeted as “a tax on our holidays”, but if that revenue is recycled back to people via, for example increased grants for people to install energy efficiency measures in their homes, this is altogether more attractive. 2006 MORI polling showed that 60% of people support increased taxes on air travel for environmental reasons, this increased to 73% if the money raised were spent on improving the environment.⁷

There is evidence of the success of policy package approaches—for example the Climate Change Levy. The CCL used a combination of tax rises on energy and tax cuts on national insurance contributions, allied with other measures—such as enhanced capital allowances and funding for the Carbon Trust—to deliver overall economic and environmental benefits.⁸ More broadly, the experience in the UK and Europe is that ETR can stimulate innovation and job creation, and overall deliver economic and environmental benefits together.

1. Levels of taxation

At present, levels of taxation are generally far too low to deliver the scale of environmental improvements needed. In many cases tax levels are at levels which do not affect behaviour enough. For example:

- The £20 difference between band F and G for Vehicle Excise Duty is far too small, and has next to no effect on people’s purchasing decisions.
- Air Passenger Duty was raised at the 2006 pre-budget, for the first time in five years, but still at far too low a level to prevent the forecast massive increase in passenger numbers.
- Fuel duty has been largely frozen since the fuel tax protests, ie falling in real-terms. This has been a contributory factor to the rise in road transport emissions, and a major cause of green tax revenues falling from 9.4% of total tax in 1997 to 7.7% in 2005, at odds with stated Government policy.⁹

What is required is the systematic use of green tax escalators, as part of a general programme of environmental tax reforms, as part of policy packages, to tackle major problems such as climate change. These escalators, with revenues used to cut other taxes or to fund improvements to the alternatives to polluting activities, would give a clear signal to people and businesses, time for people to adjust, and would transform the economy.

TRANSITION FROM CURRENT POLICIES

A step-change is needed in climate change policy. The scientific evidence for such a change has been in place for some time. The Stern Report now provides the economic ammunition for Government to deliver such a change. The report has been used so far to bolster the UK’s negotiating position at an international level. However Stern also provides a powerful set of economic arguments for action at the national level, through the use of a variety of policy measures. This national economy agenda has been largely ignored by the Treasury so far—but Stern is clear that action at the national level is both necessary and can be good for the economy. It is this national analysis which needs to inform a major change in policy at Budget 2007.

The UK public is far more concerned about climate change than it was 5 years ago. Green taxation has a key role to play in driving behavioural change, but the Government must use packages to ensure that overall this agenda is not, and is not perceived to be, about financial sacrifice or inconvenience.

⁷ www.ipsos-mori.com/polls/2006/aet.shtml

⁸ http://www.hm-treasury.gov.uk/media/1E1/03/bud06__climate__169.pdf

⁹ “Over time, the Government will aim to reform the tax system to increase incentives to reduce environmental damage.[nbsp] That will shift the burden of tax from “goods” to “bads”; encourage innovation in meeting higher environmental standards; and deliver a more dynamic economy and a cleaner environment, to the benefit of everyone.” Statement of intent on environmental taxation, July 1997, http://www.hm-treasury.gov.uk/topics/environment/topics__environment__policy.cfm

We would want to see all political parties argue for a “New Deal” for ordinary people to help them go green, a series of policy packages so that the green option was the cheap and easy option, and not expensive and difficult as is so often the case at present. Increased green taxation, and the use of the revenues from that taxation, will be essential to make sure this happens.

Friends of the Earth

January 2007

Witnesses: **Mr David Vincent**, Technology Director, **Mr James Wilde**, Head of Strategy, the Carbon Trust; **Mr David Timms**, Economics Campaigner, **Mr Ed Matthew**, Senior Campaigner, Friends of the Earth, gave evidence.

Q858 Chairman: May I apologise for the slightly delayed start. As you will appreciate, the timing of votes is outwith our control. You are very welcome. We decided that we needed a further, focused session on the subject of so-called green taxation and therefore I am most grateful to you for coming and assisting us in that respect. Before us we have Mr David Vincent, the technology director of the Carbon Trust, assisted by Mr James Wilde, their head of strategy; and Friends of the Earth in the shape of Mr David Timms, the economics campaigner, and Mr Ed Matthew, senior campaigner. Thank you very much indeed for your written evidence. The term “green tax” has become almost a term where, if you say it is a green tax, people say, “I suppose I could just about accept it.” It is almost a veneer of respectability over something that people do not particularly like, which is paying tax, but when you go into what constitutes green taxes, or at least what the government categorises as green taxes, you get some interesting answers. Before we talk in a little detail about what the government thinks are green taxes, let me ask you if you could tell us what, in your judgment, distinguishes a green tax from any other kind of tax.

Mr Timms: Thank you very much for asking us along today. Obviously there is the government’s definition which is now in line with the OECD’s definition of green taxes which, as I understand it, is a tax levied on any entity the additional consumption of a unit of which has an environmental impact. It is not just those taxes which were designed to have an environmental impact but those taxes which have been levied, in some cases such as fuel duty, for the better part of a century and which also have an environmental impact. The public has a very different perception and what we would add in terms of the green tax debate would also be those tax incentives or fiscal measures which were perhaps taxes that are nothing to do with the environment or environmental entities which can be altered in order to have an environmental impact, so cutting rates of VAT on energy efficiency measures or perhaps looking at council tax rebates or the work that some local authorities have done in cutting, say, parking charges or increasing them for gas guzzlers. All that comes for us within the terms of the environmental taxes debate as well as debates around a tax shift, so which taxes one would make tax cuts in if one were putting up environmental taxes.

Mr Vincent: May I preface my remarks by saying that the Carbon Trust looks at markets and the various instruments which are going to help make

those markets transform from high carbon to low carbon. In that context, neither my colleague nor myself are tax experts or environmental tax experts. What we would regard as green taxation is a measure which is going to change behaviours as distinct from raising revenue. We would draw a clear distinction between the two objectives. In terms of the statement the Chancellor made in the summer of 1997 on environmental taxation, it is a measure that helps incentivise the reduction of environmental damage. That is what we would regard as a generic description of environmental taxation and green taxation.

Q859 Chairman: Do you think the characteristic of a tax that can call itself green is more to act as a catalyst to move policy in a direction and for the government of the day to flag up, through an economic signal, that this is its preferred direction of travel; or should it be a carefully crafted economic instrument taking into account all the arguments about elasticity which is designed, through its sheer economic force, to change a behaviour or characteristic?

Mr Wilde: The Carbon Trust focuses on the business sector. If it is useful, we can bring a lot of analysis from the business sector. We have spent quite a bit of time looking at policy that influences the business and public sector and one component of that is the climate change levy. When you look at the barriers and drivers for energy efficiency across the business sector, they vary. We categorise them as four types. First, financial cost benefit, with the additional investment costs versus the energy savings you will make. Second, hidden costs, so transition costs associated with having some down time in your kit or having to spend some time to work out what to put in place. Thirdly, market failures. Things like landlord/tenant divide and metering are specific examples that are very prevalent in the business sector. Fourthly, materiality, awareness and behavioural effects are quite key. As you move across the business sector, the barriers and drivers vary quite significantly. In the energy intensive part of the market where they are covered by the EU Emissions Trading Scheme, the financial cost benefit is a key driver. Energy is 5% plus of their cost base. There, a tax or putting a price on carbon like the EU ETS can drive behaviour due to elasticity, but when one looks at the less energy intensive parts of the market the elasticity is incredibly low, 0.1, so a 10% increase in energy prices through the climate change levy would drive a 1% reduction in demand. The

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climate change levy is not necessarily hitting the key barriers and drivers for that part of the market which are far more about materiality, behavioural effects, market failures and also there are key drivers like CSR and the way consumers, investors and employees are looking at this. The tax in itself is not necessarily going to drive the required change in other policy mechanisms that are required.

Q860 Chairman: One might argue that the kind of change we have seen in hydrocarbon pricing of itself, the good as opposed to the tax, may have had more effect in concentrating people's minds because of the difference, if you like, in the change in price. One thing has always fascinated me. When green taxation was being discussed, there was quite a debate as to whether you should have a carbon tax or whether you should have something else, another kind of tax that was not related directly to carbon emission, for example. Can you help me to understand why, for example, in the case of the climate change levy, the government has backed away from having a pure carbon tax to something which was affecting the behaviour of business over its consumption of energy?

Mr Vincent: There is not a direct relationship between the carbon content of the energy kilowatt hour delivered and the ratios of the levy on electricity, gas, coal, *et cetera*. If you take the view that that levy is driving behaviour simply because it is there, it becomes perhaps less important to make that direct arithmetical connection because the initial aim, as we understand it, of that levy is to send a signal in an attempt to change behaviours and focus business and company management on something which, in the past, they have only done not in a systematic way as a controllable cost; it is always something that has eluded management in the impact that energy efficiency can have on their bottom line. It has either not been a credible proposition to them or it has for some reason not been high up on their investment agendas. The aim in introducing the levy in 2001 was to send a directional signal rather than get the carbon arithmetic correct and in a proportionate ratio.

Mr Timms: From Friends of the Earth's point of view, we think it is important not to get too buried in setting environmental taxes based on the theory of environmental taxes, looking at marginal damage curves and marginal cost curves. We are very much of the opinion that environmental taxes are a very useful instrument but you should be led to quite a large degree by looking at the outcome in terms of moving the behaviour in the right direction. We would not want to get too bogged down into whether tax X or tax Y reflects a notional price for carbon or not. On the specific issue of the climate change levy, we think this is a very good environmental tax. The study that Cambridge Econometrics did of it shows that it has been quite successful in terms of the measure that counts, which is the reduction of carbon emissions. As a package, we think it is a very good package and one that government should repeat, the combination of a tax, the creation of the Carbon Trust and the work that

that does plus part of the green tax shift so a reduction in national insurance contributions, so it has that package together of the information, the assistance, the green tax switch, which is very good. Whether it accurately reflects the carbon content of those fuels or not is something that can be tweaked. There is an argument as to the extent to which environmental taxes are levied on things which are proxies for something else, so fuel duty is really acting as a proxy for the carbon content of that fuel. I think that is a debate of the detail, to be honest.

Q861 David Taylor: I do not know whether I ought to declare an interest as a member of Friends of the Earth but I will do it anyway. I was interested in what David Timms had to say in his definition and I would like to put to him what Mr Wilde said and I will try and paraphrase accurately. It is that environmental taxes that are raised on activities which are relatively inelastic or goods that are relatively inelastic are not going to achieve behavioural change and therefore the tax itself will be seen as a revenue gatherer rather than a behaviour alterer. Would you incorporate what Mr Wilde said in that way?

Mr Timms: I do not think it is illegitimate for the government to impose an environmental tax on something which is relatively inelastic. Most of the things we are talking about are relatively inelastic. I am trying to think of something which has very high levels of elasticity which has had a tax imposed on it: something like the Irish experience with plastic bags maybe, where the response was a massive drop off in the use of plastic bags. Mostly we are talking about things that are relatively inelastic. The argument for government is what actions does government take in order to maximise the level of elasticity of the behaviour that will result from the imposition of that tax and whether that is through—

Q862 David Taylor: You have to ensure the existence of substitute activities.

Mr Timms: You could. The environmental tax could just drop off your level of consumption of the thing that you are concerned with, or you could be looking at encouraging people to switch to a more environmental alternative. Unleaded petrol is probably a really good example of this. We had a very small tax differential which led to an enormous switch in behaviour. Why would somebody not put unleaded petrol in their car if they possibly could? You had the presentation of two very close alternatives. When you are looking at something like air travel where an alternative is much less easily available, you are going to have much lower elasticities, especially for business travellers who are able to pay very easily.

Q863 David Taylor: You are reasonably positive about the government's track record in terms of environmental taxation in what you have to say.

Mr Timms: Only on the climate change levy.

Q864 David Taylor: When we look at the revenue that the government is raising from green taxes in the first eight years of our presence in this place, it has risen by about 30% in cash terms but, as a proportion of taxation take, it is down from 9.4% to about 7.7%. I am sure you will be familiar with those figures. Why do you feel that we have an avowedly green taxation government? The statements the Chancellor made in one of his first Budgets referred to that. Why, despite that, are we seeing this fall in the proportion of tax taken by the government's definition of "green taxes"?

Mr Timms: I think you are right to characterise the trajectory of the taxes while the government has been in power. They peaked, I believe, in real terms and as a proportion of overall taxes and as a proportion of GDP in about 1999–2000. Quite literally, the only reason for that is the abandonment of the fuel duty escalator in late 1999 and since then the failure to return to it or to significantly upgrade fuel duty above inflation. That literally is the reason why the taxes have dropped. From our point of view, the government came in with a very strong initial statement on environmental taxation in 1997. It was pithy, short and to the point and we liked it very much. There was a flurry of activity and in the 1999 Budget you saw some new taxes, the climate change levy, and the aggregates levy. That was the key for us and we identified it when we did some work recently on Gordon Brown's record as an environmental Chancellor. That was definitely the one Budget that we would identify as being a strong, green Budget.

Q865 David Taylor: And yet it did not withstand blockades at refineries, did it?

Mr Timms: The interesting thing about the fuel duty escalator is that it was dropped before the fuel protests which is contrary to the folk memory of it. That had a chilling effect on government from then and what we saw until this last Budget was a very high level of timidity from the Treasury in terms of facing up to the need to increase environmental taxes on polluting activities.

Q866 Chairman: Therefore, would you recommend the reimposition of the full rate of VAT on electricity and gas?

Mr Timms: For domestic users? No, we would not.

Q867 Chairman: Why not?

Mr Timms: Because we consider that the implications for fuel poverty are untenable at this point in time. Maybe Ed can come in if you want to go on and talk about our green homes agenda and the integration with tax. What you can do is have a massive impact, both on tackling fuel poverty and on tackling carbon emissions by a very positive agenda on home energy efficiency and the use of things like council tax rebates which, from reading the uncorrected proofs of evidence to this Committee, have been raised a number of times. Why would a government that wanted to persuade

the public that climate change is an agenda they want to run with—it will have a positive impact on people's living standards—go to use that when there is an alternative mechanism which can be used?

Q868 David Taylor: You referred to the OECD definition of green taxes in your earlier comments. Do all the taxes which this government classify as green comply with that definition, as far as you are aware?

Mr Timms: I have not been through every example in the ONS report and tested it. I think they do.

Q869 David Taylor: If you need to clarify that at a later date, I am sure you can write to us. Can we move to aviation? The point was made very vigorously in debate within the last two or three days in the chamber that there is no particular link between air passenger duty and carbon emissions from any particular flight. Do you think therefore that invalidates any claim for air passenger duty to be a green tax and reclassifies it as merely £1 billion extra a year or whatever it is that the Chancellor then has access to?

Mr Timms: Friends of the Earth thinks that air passenger duty is a perfectly legitimate tool to use to tackle the rising emissions from aviation. Whether it is the perfect design to do that is another matter. Both the Liberal Democrats and the Conservatives have come up with proposals for changing the nature of aviation taxation, both of which have considerable merits to them. Is APD a good example of a green tax used well? No, it is a very poor example of a green tax being used. The increase in the Pre-Budget Report on short haul flights which are after all 75% of tickets, I believe, only took it back up to the level it was in 2000. It was a very poor piece of planning and was very poorly solved as well in a Pre-Budget Report which did not have anything else in terms of measures to help the public go green. This was a measure which did not show the Treasury being prepared to take the level of courage and action commensurate with the rhetoric which came out of Stern.

Q870 David Taylor: APD is a distant cousin of the family of green taxes, is it? It comes to the family dos but it is not really a fully fledged green tax by your definition?

Mr Timms: I am not sure I would want to pick up on the metaphor but I think it can be used effectively. The most important thing we have to do is raise the cost of aviation to slow the growth in flights. Air passenger duty can be used very effectively to do that. We would like to see an APD escalator but, yes, there are some very good ideas out there for how more effectively to design the instrument.

Q871 David Taylor: If revenue raising taxes are camouflaged under a green cover, do you feel that when the population comes to that conclusion it devalues the whole concept of attempting to change behaviour via genuinely green taxes?

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Mr Vincent: Because we have been focusing very heavily on a tax measure which is imposed on individuals in order to change behaviours, there would be another way of looking at how one might achieve the outcome of low emissions from air travel. I would like to invite my colleague, with your permission, to say a few words about emissions trading as a potential mechanism for putting an obligation on the airlines.

Chairman: Can I restrain you from doing that until we come to it? We will come to it and we would love to hear from you about it. We would be very interested to hear about double counting.

Q872 Lynne Jones: Can I ask Mr Timms to enlighten us on the means by which the instruments could be used to make air tax more acceptable or more effective? Also, going back to the fuel escalator, in the Budget the Chancellor announced small increases in fuel duty and was at pains to point out that even with those increases the price of fuel would be 11% less than it was in 1999. That was actually put in the Red Book. Also, there were other changes in vehicle excise duty to encourage more efficient vehicles. Has the government got it right now in terms of taxation of travel by car or should more be done and what?

Mr Timms: I certainly think that more needs to be done. On air passenger duty, we have not pinned ourselves to any of the particular reforms because there is a debate going on between the two Opposition parties. We think it is worth looking at the idea of a graduated tax whereby somebody would get their first flight tax free and subsequent flights would be much more heavily taxed. Air passenger duty is not a regressive tax but there is certainly a political issue which has to be addressed around the perception that the impact is to price working class people off flights.

Q873 Lynne Jones: One idea is that everybody should have a voucher to allow them the equivalent of one trip to Spain or whatever and then they could be tradable in the same way so that poor people who never travel would sell their vouchers. What do you think of that?

(The Committee suspended from 6.01pm to 6.12pm for a division in the House)

Mr Matthew: We need to take a step back here in terms of transport and taxation and how to deal with that because we know that in the last 10 years or so carbon emissions in the UK have gone up by two%. The fastest growing area of those emissions is transport. Clearly the government has its package of policies wrong on this. This would include taxation as well. The taxation package clearly needs to change. The taxes in terms of air passenger duty and so forth are peanuts compared with what they need to be to incentivise people not to fly. When it comes to aviation, we have to reduce the amount of flights that are being taken. In terms of surface transport, it is worth reflecting on the fact that the cost of motoring has gone down by 8% since 1997. For buses it has gone up by 14%. For rail travel it has

gone up by 5%. In terms of substitution, encouraging people to use alternatives, it is all moving in the wrong direction. Something substantial needs to change here both within the taxation system and also within the regulations and subsidies that we need to put in place to provide real alternatives for people not to use the kinds of transport which are going to lead to high rises in emissions.

Patrick Hall: I am stunned by that last comment. What are the alternative modes of transport for travelling abroad, practically?

Q874 David Lepper: I noticed Tony Juniper in an interview this week bemoaned the fact that he feels he flies too much on Friends of the Earth business and did not seem to be able to come up with any answer to how to get about without doing that.

Mr Matthew: For aviation there are fewer alternatives than there are for domestic surface travel. The reality is that aviation is the fastest growing area of emission rises for transport and we do need to fly less. There are some alternatives for short haul destinations—for instance, via train—but it is a difficult area to find alternatives in. We need the taxation system in place which is going to lead to a reduction in demand for air travel; it is as simple as that.

Q875 Patrick Hall: That was not going to be the focus of my question but that is a very British view about alternatives because we are a small island. On the continental scale other countries do not have that alternative. Can I turn to the question I wanted to put which was to do with air passenger duty being acceptable as a general revenue raising measure because I think that is what has been put forward, that it is acceptable as a normal revenue raising measure because it may incidentally and temporarily deter air travel. It is temporary because once people get used to a level of tax they do not recognise it any more, just like the congestion zone charge in London. Why not though clearly try to link air passenger duty—you can call it something else—with something that we have not yet succeeded in doing which is to seriously research possible non-carbon fuel for air travel. A non-carbon kerosene does not exist. It does not look at the moment as if it is a practical possibility but if we research it strongly enough, not just driven by Rolls Royce and the carriers but with some public subsidy and investment as well, paid for by a duty perhaps people would then understand the purpose of it and it would have greater support. It would lead to what we would all want to see which is the possibility of a carbon free fuel.

Mr Matthew: There is a principle here which is important, which is that if you are increasing a tax in a certain area, if you are saying that you are going to be using some of that revenue to try and provide alternatives, clearly you are going to be selling that tax much more productively than you otherwise would do. It is being used in a positive way to provide that alternative so that can certainly be a good thing. There is research going on now and I

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know that Virgin are involved very much in this in terms of looking for alternative fuels for aircraft. It is important to say that it is very early days. It is in principle a support of sustainable biofuels but we also are very much aware from work we have done around the world that this whole area is fraught with risk both in terms of fuel sources which need a very small amount of emissions through to the problem of some fuel sources like palm oil. If you get it from a place which has been deforested and where there have been forest fires, the emission levels can be 10 times higher than they could be from a conventional litre of fossil fuel. It is an area for development which needs to be looked at but with an extremely cautious approach to ensure that it really is done in a truly sustainable way which also guarantees that it leads to substantial emissions reductions.

Q876 Patrick Hall: Unless we believe that we will never achieve this, surely there is a case for pushing it hard now. Is that not more likely to yield beneficial results than making humanity feel guilty at the thought of using air travel which I see as, frankly, politically naïve and unlikely to be delivered?

Mr Timms: We have to be clear that we are not talking about banning air travel. We are talking about levelling off the growth in flights.

Q877 Patrick Hall: Especially for middle and lower income groups.

Mr Timms: The massive growth in flying has not come from poorer people flying for the first time abroad. It has come from the relatively well off flying multiple times for weekends here, there and all over the place. I see in today's *Guardian* that flights have grown seven% in the last year so we are talking about levelling off the growth.

Q878 Chairman: Is that why Easyjet issued a profit warning?

Mr Timms: I have not seen that. I think it is something to do with competition. There are going to be some journeys that will not be transferable but 75% of tickets are for short haul flights. Many of those are to neighbouring countries. There is no reason, as far as I can see, why people need to fly from London to Manchester in any kind of numbers and similarly to Brussels or further afield within Europe. We have to be clear about what we mean. To come back to Lynne Jones's point, there is a political problem here about how to sell environmental taxes. The aviation one is a useful one but when we look at some of the polling the public are remarkably in favour of this. Looking at populus and MORI polls, you are constantly finding well over 50% of the population are happy to see environmental taxes which increase the cost of flying and stop them having cheap flights. If you add on to that questions which say, "Would you be prepared to see this if you saw the money spent on other environmental projects?" the figures jump up to well over 70%. It is not politically impossible. I do think there are other mechanisms that have been

mentioned which help with the fact that there is a political issue for politicians with this but I do not think it is unable to be sold.

Q879 Patrick Hall: Is Friends of the Earth likely to advocate hypothecation or earmarking for scientific research as I have suggested?

Mr Timms: We are not generally in favour of hypothecation.

Q880 Patrick Hall: Why not?

Mr Timms: Because when you are talking about an environmental tax, the objective of an environmental tax is to change behaviour. It is very difficult to tell what level of tax you are going to end up with. Price elasticity is notoriously difficult to predict. There is no guarantee that you can say, for example, "We want to spend a certain amount of money on providing bus services in a certain area and we are going to raise that through a hypothecated environmental tax." There is no guarantee that the level of tax you are going to raise from the environmental tax is the right amount of money to pay for—

Q881 Chairman: Why does the question of hypothecation or compulsory offset have to be the province of the government to decide? Your analysis says that it is government that decides what to do with the hypothecated money. If you were looking at a model that involved a citizen, you might move to a mechanism similar to the lottery where, with a compulsory offset scheme for the carbon that was incurred for your particular air journey that went into a pot which people could bid against for carbon saving projects. The citizen would see immediately that they were funding a flexible approach to reducing carbon emissions by a variety of perhaps domestic based schemes, but there would be, if you like, a one for one arrangement that would remove the danger of hypothecation about the sustainability of funding because, when the pot ran out, it ran out.

Mr Timms: I have not heard that proposal before so you will forgive me if I do not feel empowered to make up Friends of the Earth's response on the hoof.

Q882 Chairman: You are not intuitively opposed to a mechanism that might involve a citizen in some degree of circularity, where it would be entirely clear that the money that they were offsetting their carbon for the journey was actually going to do something to assist, for example, domestically in achieving your objective of improved energy saving techniques at the domestic level.

Mr Timms: We need to see a very high degree of political linkage in order to win the argument with the public. Whether that is a degree of formal hypothecation or the kind of model you have talked about I could not say now. We need to see the public won over by knowing that government is doing something other than taxing them as a strategy for tackling climate change. The narrative that we wanted to put to Gordon Brown was yes, environmental taxes on polluting activities have to

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rise in order to reduce the demand for these but government will also be doing these things to help make it cheaper and easier for you to go green.

Q883 Lynne Jones: Is that not hypothecation? Why have you just said you are opposed to hypothecation? That is what people want. "If I am paying more for air travel, I want to see it invested in rail travel so I can go to Manchester by train cheaper than I can fly" or, "I can travel to London cheaper than by taking my car."

Mr Timms: I think the problem is there is legal hypothecation where the money has to be spent for that thing and nothing else, and that money clearly has to be spent. I am not arguing that we do not need to spend an enormous amount.

Q884 Lynne Jones: I can understand you saying that that might excuse the Treasury from spending other money, it should not exclude other expenditure to achieve that objective, but I still do not understand your logic in saying that you are not in favour of some kind of hypothecation.

Mr Timms: I think there is a big difference here between saying we want to see a massive investment in these things—buses, rail travel, energy efficiency, grants for microgeneration, *et cetera et cetera*—and we also want to see a raising of the level of environmental taxes on these things, but I think Friends of the Earth is not in favour of saying that there is a legal hypothecation for the money from one to go to the other. There are other places that we can find money to fund energy efficiency schemes—the road-building programme, for example, or Trident—but there are barriers; so the idea that one tax feeds something else in a legalistic sense, I think, is something that we would not go for. Do we have to link in the public's mind and do we have to do these things regardless of whether we are raising environmental taxes? Were it that the resistance for one of the environmental taxes was so high that the Government could not proceed with it any further, therefore that should feed through to limiting the spending on the positive measures that you outlined, I would say probably it should not.

Q885 Chairman: We are going to move on. Mr Wilde, you wanted to come in a little earlier and then Mr Drew.

Mr Wilde: I was just going to say on the offsetting point that you mentioned, in a sense a number of providers are already allowing people to offset their carbon emission with flights and with other products that they buy; and businesses have been thinking about becoming carbon neutral increasingly and they often come to us to advise them on that topic and the advice we give them is quite clear. First, they should focus on reducing their own direct emissions, because they can save money by doing that and become environmentally responsible, then they should look at their indirect emissions, but if they are going to offset they need to do it robustly, and there is a series of tests one needs to go through to check that those offsets that someone can buy are robust. There need to be verified, additional

reductions over and above business as usual, avoid leakage outside the project that they are investing in, they need to create permanent reductions and they need to avoid double counting; and I guess the issue with what you were talking about there is the double counting one. Strictly speaking, to have a gold standard voluntary emissions reduction, you cannot do it within a Kyoto country.

Chairman: I accept that point. The point of double counting I was raising was that if you have aviation in the European Emissions Trading Scheme, that, effectively, is a tax by another name and then to impose upon the user of the service a further tax is an element of double counting, but we will part from that at the moment. Mr Drew.

Q886 Mr Drew: Can we look at the issue of personal carbon allowances and emissions trading. How would you as an organisation rank them as against green taxation? I accept that these are not alternatives, but if you had a one-lever policy to pull is green taxation or emissions trading the most appropriate way forward?

Mr Wilde: I do not feel educated to talk about the domestic market, but I could talk about the business market, if that is useful. If one is looking across the big business sector, about 20% of the business market is large non-energy intensive organisations, the ones I talked about before where energy is not a material component of their cost base (well under one percent), and there the elasticity is very low and so the tax alone will not prompt change. Buildings use is quite a high proportion of their energy use, so building regulations are quite keen for the new stock, one to two% turnover per annum, a key driver. Providing information for businesses—so buildings labelling, asset and operational ratings—is key, but you also find in that part of the market that CSR is a big driver—what investors are thinking about, what employees are driving companies to do and also what consumers are driving companies to do.

Q887 Lynne Jones: You mean corporate social responsibility?

Mr Wilde: Exactly. There is very little transparency of performance across the market place, so the cap and trade scheme there that levers that CSR driver to increase the transparency of performance and overcome the market failure of poor metering within the market can really help to drive change, and that is something that the Government should—

Q888 Mr Drew: Are you saying that should be done at a voluntary level or has this got to be imposed?

Mr Wilde: On a mandatory level.

Q889 Mr Drew: Mandatory, and you think businesses are aware of that?

Mr Wilde: Yes.

Q890 Mr Drew: What about personal? Let us get on to personal carbon allowances.

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Mr Timms: This is not an area where we have done an enormous amount of work, I have to confess. For us this is a solution that will be, at best, maybe a decade in the future. Our concern over the last few years has been the immediate steps that government can make to start to reduce our carbon emissions, and, obviously, that was the message we took from Stern, that carbon emissions need to start to come down very quickly. I am not going to be able to enlighten you enormously about what we think is the right relationship between the policy instruments.

Q891 David Lepper: I think we have already covered, in some respects, some of the things I was going to ask about. You have talked about selling proposals to the public. In the submission from Friends of the Earth, you use a phrase that is often used by politicians “new deal”, “a new deal for households”, and that links in very nicely with our theme of the “Citizen’s Agenda”. You have mentioned in the course of the afternoon a number of schemes both involving taxation and other measures. Could you sum that up for us a bit, give us some idea of what Friends of the Earth’s new deal for the citizen in terms of greening the citizen would consist of?

Mr Matthew: The principle idea behind the new deal that we are proposing is that clearly there are costs in society for the citizen in order to bring down their emissions, for instance in transportation, but it is quite clear for us that in the area of households, which is responsible for 27% of all emissions, there are significant costs associated with bringing down those emissions; less so for energy efficiency, but even for energy efficiency there is a barrier there of cost. We believe that the Government has a responsibility to make it much cheaper and much easier for citizens to be able to reduce their emissions. We know that there is growing concern out there, there is real willingness, I think, for a lot of people to take action, but cost is one of the principal barriers. We wanted to see from government a *quantum* leap, if you like, in incentives coming from them to really help bring down the cost of taking action to reduce domestic emissions. We have only just started this work, so we are having to develop it a lot more over the next year, but some of the key opportunities that we see to do this revolve around the following. We saw that in terms of energy efficiency it would be extremely valuable if a fund was set up round about the amount of 1.4 billion through council tax rebates to help drive forward energy efficiency through insulation—loft insulation, cavity wall insulation and so forth. We know through schemes that have been set up in the country, for instance through Braintree Council, have been very successful in this regard by offering £100 back in terms of a council tax rebate to help incentivise the installation of insulation. Given that that is one of the easiest and most effective ways of cutting down emissions, why is not the Government pumping in a large proportion of money to achieve that? We came to the £1.4 billion figure because we calculated that would be the cost of putting cavity

wall and loft insulation into the remaining households that do not currently have it. One other area was stamp duty rebates.

Q892 Lynne Jones: Would you confine it just to cavity wall, because now British Gas has extended the rebate, I think, up to £400 for solar thermal?

Mr Matthew: We certainly would not confine it to cavity wall—that was just an example—and we definitely see a lot of benefits in extending that out further to microgen and other things.

Q893 Lynne Jones: A lot of people do not pay council tax because they get a 100% rebate.

Mr Matthew: That is absolutely true; so it clearly would not cover everybody. There is a number of different packages that you are going to need to put in place to help bring down domestic emissions; so council tax rebates are going to be one tool in your tool box to help achieve that; stamp duty rebates might well be another. We know from research which has been done at Sheffield University that the six-month period after people move home is one of the most important opportunities for tackling energy efficiency and putting in microgeneration, and so forth. If there was some kind of rebate on stamp duty if you put those measures in place quickly, we think that would be a significant opportunity to help bring down emissions. There are other significant areas as well I think we need to look at: one is about boosting microgeneration as well. We are extremely critical of the Low Carbon Buildings Programme in not being ambitious enough. I think you said in March the grants available for microgeneration in the domestic sector sold out in 75 minutes, and there has been a huge difference in the level of demand out there and the amount of grants available for people to take up and actually install microgeneration, which has been a huge problem. We want to see the Government providing a much bigger incentive, a *quantum* leap in the amount of money they are making available to boost microgeneration in the domestic sector. We are thinking about billions rather than millions at the moment. In the Budget this year the Chancellor, I think, raised the amount available for the domestic sector by six million pounds. From our point of view we think that is feeble; it needs to be much higher than that.

Mr Timms: Can I add something to Lynne Jones’ question about the rebates. I think our initial thinking on this was that the £100 would be best applied to cavity wall and loft insulation. I think there are eight million homes that do not have cavity wall insulation and just over six that do not have loft insulation, and that is the model that has already been used in Braintree and we were very keen to take that model—we are certainly not the only people who are calling for this, I know—and get the Chancellor to pay for it, to roll it out nationwide after it being so successful; and those measures have the quickest pay-back times as well. Obviously you are talking about less than three years for the two measures. I think what was crucial about that was the rapidity with which they paid back and I think,

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interestingly, the Mayor of London's Climate Change Strategy identifies those two particular measures as being the closest things we have to silver bullets in terms of tackling carbon emissions from the home.

Q894 Chairman: Can I analyse a little bit the line of argument: because you have moved away from taxes to carrots; and carrots have to be brought from somewhere. Give me a ball park billions worth of expenditure to achieve the objectives you have just outlined—four, five, six, ten?

Mr Timms: Let us say you offer £100 for cavity wall insulation, £100 rebate for loft insulation for those homes that do not already have it. If there was no overlap between the two, which I am sure there is going to be an overlap, that is £1.4 billion. Then, I think, if you are looking at a roll-out of something like a stamp duty rebate, and I did have a figure and I cannot remember where it is now, an example that has already been worked out for that, I think you are talking about 500—

Q895 Chairman: Half a million.

Mr Timms: Half million. How do you know? There is the Eoin Lees study¹⁰, is there not, which was, I think, just one example that we picked up. You would also be looking at a measure like a cut in the rate of VAT of high environmental level refurbishment as well, and these levels work at different points, so something like the stamp duty rebates would work very well with energy performance certificates when people are selling their houses so that they would see what measures they needed and then the stamp duty rebate would feed in as an incentive on that; whereas the council tax rebate can operate at any time while people are in the property; so they do different jobs. So, adding this stuff up, we are getting near to a kind of two billion level. Why do you ask?

Q896 Chairman: Like everything else with tax, it is easy to spend the money, it is more difficult to decide where you are going to raise it and how you are going to do it. It costs, roughly speaking, four billion pounds to take one penny off the basic rate of tax. Unfortunately, we have abolished halfpennies, but the Chancellor could have halved his reduction in the basic rate of tax and achieved your objective.

Mr Timms: I think the Institute of Fiscal Studies calculated that had the fuel duty escalator been maintained at, I think, 1999 levels, then the Treasury would be something like four billion pounds better off.

Q897 Chairman: I suppose what we are getting at, and I do not want to dwell on it, it comes back to this question of, if you were being bold, you would be the Chancellor from your standpoint who would stand

up and say, "I am putting X on because I want to achieve these objectives, and that is where the money is coming from, end of story." Carbon Trust, you want to come in.

Mr Vincent: I am wondering whether it might be helpful, Chairman, to put this discussion in a wider perspective and draw in, if you like, the other half of this equation in the market place called the "service providers", the people who are actually going to insulate lofts and fill cavities. One of the drivers, I think, relates to an earlier point that you made, Mr Hall, regarding relating the measure to the purpose. When you look at the fungibility of carbon dioxide savings, wherever you save these savings in the economy they still count towards the environmental benefit. So you might argue from an efficient use of resources point of view that you would look around for the cheapest tonne of CO₂ to save, and that could quite easily be in parts of the domestic sector where cavity wall insulation is a well-known measure, so would be loft insulation, and then you would actually start looking at the mapping of the opportunity in relation to cost. Then you might look at a driver that would be required to stimulate market activity, and that driver might be a tax or a grant or some kind of measure. The first thing the business community is going to want to ask, before they tool up and resource up to meet this demand, is for how long is this measure going to be in existence? One of the risks and uncertainties which the business community faces when it is endeavouring to change or increase production—more cavity filled material, more condensing boilers, or whatever—is if this market stimulation is dependent on a Government incentive or policy measure: is it not just too small, is it going to be only for two or three or four years; whereas what might really be required is to tackle the 24 million homes that already exist, and the BRE domestic energy fact file will explain to us whereabouts the level of loft insulation is, whereabouts the five billion infill cavities sit. The business community is going to see that as the prize, but it is dependent upon having a government instrument at play to stimulate the activity. They are going to want assuredness that they are not going to be caught halfway through their expansion programme and find they cannot do it because the grant has been stopped. That is quite a serious consideration for businesses who want to contribute towards that green transformation.

Q898 Lynne Jones: Picking up on that point. There has been an announcement today that under the Low Carbon Building Programme the maximum grant has been reduced to two and a half thousand, which means that at a stroke the photovoltaics industry is going to be affected. Could you comment on that but, also, why should we be putting taxpayer's money into those kinds of schemes? I would also cite, for example, micro wind generators, which, quite frankly, are a waste of space and it is appalling that the Government is giving any money at all for those kinds of schemes? Do they not need to be very careful about how they target these incentives, and what should be the combination of

¹⁰ Note by witness: The 2005 study referred to estimates that a Stamp Duty rebate capped at a maximum of £800 could be taken up by 450,000 householders and would cost the Treasury £350m. The reference for this study is: *Using Stamp Duty to bring about a Step Change in Household Energy Efficiency*. Eoin Lees Energy, 2005.

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an upfront grant and other incentives, for example the feed-in tariff that they have in Germany, which is a 20-year programme? What do we need to do in this country to stimulate energy efficiency and the most effective carbon saving and microgeneration measures?

Mr Wilde: Energy efficiency is the first point of call and the lowest cost of the carbon reduction opportunities. There is still a case for investing in innovation.

Q899 Lynne Jones: There are some things that people will do anyway; so you should not be giving them money to do things that they are going to do?

Mr Wilde: Sure, additionality is key, but in terms of the innovation argument and funding the development of new technologies, a lot of those new technologies need to come down a learning curve. To get to a low carbon economy is going to require a series of options of low carbon technologies, and the UK has a choice of which options it should invest in. I think it is clear; there are two important axes the UK needs to look at when making the choice of which ones to support. The first is the carbon prize for the UK domestically and also the cost-effectiveness of the carbon reductions. Does this technology have an opportunity to get down the learning curve? The second is: what is the economic value for the UK? What is the inherent value of this technology across the supply chain and what is our market share of that value across the supply chain? You can do that mapping for every single technology. So, it is clear, when you look at large-scale technologies, where we have done a lot of work, there are technologies where the UK could have a significant economic benefit by them driving down the innovation curve and have a significant carbon prize in the UK and an export market. Off-shore wind is an example where we have got a lot of expertise around the installation side of the market; wave-tidal, where we have got a lot of IP and the leading technology developers in the market place. I think the first key question is: which technology should we support as the UK versus import once they have got down the learning curve. There are other countries that have taken a very significant lead in technology development and the components in the value chain where there is significant inherent value.

Q900 Chairman: One of the things that comes out of this line of questioning is coming back to the central point of this bit of the inquiry about behavioural change, in terms also of the point, I think, that witnesses were making, which is almost going for the low-hanging fruit. In other words, where you are going to get the biggest hit for whatever amount of resource you use. What should be the pecking order? We have been talking about resistance, because not every home is insulated perhaps as well as it could be, and yet you have advocated as your number one priority good energy efficiency. What are the barriers to progress and what is the best device to remove the barrier?

Mr Wilde: In the business sector, I spoke earlier about the sets of barriers and drivers and how you need an integrated set of policy measures, including building regulations, which force change and product standards, which take poor performing bits of equipment out of the market place. The Energy Performance Commitment that the Government are looking at is a good way of incentivising change as well for the business sector. I think there is a series of policy measures that are required beyond just taxation to really look to overcome the barriers and drivers. One piece of work we are doing that relates to the consumer is really looking at the influence businesses can have. We did an exercise to map UK emissions by consumption in service, and you find that the UK is a net importer of emissions; and so now we are working with companies, not just to look at their own direct emissions, but to look at the carbon embodied in the products that they produce and, therefore, supply chain emissions. We find that two-thirds of consumers want to know what the carbon footprint of the products is that they are buying and two-thirds would also want to buy lower carbon products. We have had a lot of businesses coming to us to say, "We want to look at our supply chain emissions, look for opportunities to reduce them and also inform customers as to what those emissions are."

Q901 Chairman: Mr Timms, your body language and demeanour suggested more enthusiasm for carrots than it did for sticks in terms of moving barriers and getting agendas moving forward. How do we hit the low-hanging fruit then?

Mr Timms: I am not sure if my body was misleading you. I would not say I am more of a carrot man than a stick man. The low-hanging fruit is definitely home energy efficiency, and everybody has recognised this. It is the lowest cost carbon emission reductions that we are really going to get anywhere, apart from voluntary behaviour changes. However, I think there is a danger with a strategy that says: what we do is look at the cost-effectiveness as measures and we do all of the most cost-effective, then we move on as a society to looking at the next most cost-effective and then we move down, because what you will do is you will find yourself getting to 2020 and there are still maybe 500,000 homes that are holding out against a particular energy efficiency measure and you have not got round to developing a renewable energy sector and you do not have homes starting to put in micro-renewables. So, I think there is a risk of having a strategy which just says you move from A to B to C to D and that delivers you 80% cuts in your carbon emissions by 2030. I do not think it will work like that. What that means is that while you do have to have massive investment for a range of mechanisms, and it is not just the incentives for the able-to-pay, it will be the state, in various forms, actually doing this for those that are unable to pay as well, but you do have to start to have mechanisms to roll out, using taxpayers' money, micro-renewables. We see this as being an industry which can play a significant role in the UK. True, some of

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the sectors and technologies have been monopolised by different countries, but there are others where the UK could have a leading role.

Q902 Lynne Jones: Such as?

Mr Timms: Tidal, for a start.

Q903 Lynne Jones: That is not microgeneration.

Mr Timms: No, that is true; you are right there. Certain areas of wind as well, but I think as regards photovoltaics, British industry is really struggling with the Low Carbon Buildings Programme.

Q904 Lynne Jones: Are we giving too much emphasis to domestic installations of microgeneration and not enough on community generation, which would be much more effective? What we saw in Germany is people are willing to bung a bit of money to have the school or the local community building full of photovoltaics, or a community, a village wind-turbine rather than people having little things all over the place. How could we stimulate investment? The Chancellor has asked Ofgem to look at this and to look at ROCs for individuals, but if people invest in microgeneration, they could have it tax exempt so that, instead of putting money into ISAs, people will be putting it into microgeneration.

Mr Timms: I know the Committee has been over to Germany to have a look there, and we have certainly got a colleague in Germany who bought a home which had solar panels on it and sends us emails every now and again saying, "I woke up this morning and my house is making me money", because he is getting 35 pence a kilowatt hour for it, and people here are getting between four and 10 pence a kilowatt hour. We certainly think the Government needs to take the measures necessary. Lynne Jones is absolutely right that we have to do something other than just look at people's individual homes and off-shore wind arrays like the London Array—there are levels in between—and things like the Merton Rule on new developments will start to address that. I have to say, it is not my area of expertise how you are going to roll it out at different levels, but we certainly agree with you that there is a

need for it and we can send you some evidence on how we think that might happen, if that might be useful.

Q905 Chairman: I do not want to this to get to be a re-run of evidence that we have already taken on a multiplicity of other things. I think the message I have got from you all is that there is no one, single policy instrument in any of the things that we have talked about; it is a question of blending all of the policy instruments, some carrots, a bit of stick, some technology, some behavioural change, some corporate social responsibility—all of those mixed together as appropriate to achieve the task—rather than simply saying: silver bullet, green taxation, everything fixed. I think that is the main message that you have put across and, as you are all nodding, I am going to thank you very much indeed for coming before the Committee this afternoon and thank you for your written submissions. It is all down on the record, but, obviously, if there are further thoughts you have that you wanted to give to us, we are at the stage where this is the last piece of the jigsaw puzzle to go into the report before we draw our final conclusions and produce a draft, so time is short, but, nonetheless, thank you very much indeed for your contribution. We really appreciate it.

Mr Vincent: May I come back on that last set of points.

Q906 Chairman: Is it a postscript comment?

Mr Vincent: It is a very brief one. It is to suggest there should be consistency and complementarity and longevity of that package of measures. Otherwise there will not be the confidence, certainly in the business community, to make that transition.

Chairman: If I could respond to that, we have taken evidence on, if you like, the lessons learnt from EEC1, where we are with EEC2 and what is EEC3 going to look like, to coin a phrase about the Energy Efficiency Commitment, and, you are quite right, this question of investment and resources, the training and the skills are points that certainly the Committee have been made aware of. Thank you for emphasising it again.

Written evidence

Memorandum submitted by Peel Holroyd & Associates (CIT 02)

1. This is a clear issue of individual choice.
Yes, Government have promoted its importance but do the general public wish to take responsibility for its inception? A few perhaps yes but the majority no!
2. Is this a hidden route to an additional tax via the Council Tax, could this be the start of house price being based on climate change and not on market value, or is this an opportunity waiting to be evolved?
3. Recognising that every Council in local responsibility areas are of course in a different “climate” area from its neighbour, who defines the minute dividing line or how do you interpret the impact of strong winds, crowded motorways versus the country lanes etc. Every area of the UK is different in so many aspects that this means the only way to go forward is either regulations (not again say the many) or make the UK/local public want a climate that they enjoy and gladly accept full responsibility for its management and evolution!
4. Yes perhaps many more would wish for the out of city/town climate like Newbury as compared to say larger towns like Wolverhampton but often economic reality limits such choices. Risk of population divide is inevitable!
5. Such a picture is real and fully appreciated especially recognising the enormous power of “nature” and its continuing variability of impact, indeed a world of so many components and of different interpretations that the “legal profession” would find it difficult to translate! This leaves the question of “what is climate” in the minuteness of every particular situation and in true reality it prevents any simple definition.
6. The overall complexity of such a local/world-wide situation allows “politics” to lead the debate yet to achieve local interest a more technical and accurate science base would be welcomed!
7. Currently there is a plethora of poor science and the lack of recognition of this fact makes the political debate somewhat nebulous.
8. Locally based high-tech science generates the interest of any community (Newbury vs. Wolverhampton) especially as it can be easily translated to the individual home-owner/industry/planning authorities *et al.*, then translated through local schools/colleges of education/sporting activities/retired associations etc.
9. The community knowledge expands and the ownership opportunity is proudly translated into reality . . . in other words it becomes “my” project and not a necessary expensive response to government regulation. Excitement evolves, time-scales can be introduced, new generations can see the benefit, communities work together and above all the overall objective of “involvement” achieved.
10. Before starting such important projects/joint programme of linking industry/home-owners/education *et al* into science based focus, I believe there is a need for technology to agree clear definitions of interpretation across the massive field, so that techniques of measurement can provide the guarantee of accuracy and UK/world-wide understanding through a system of standard procedures and analysis! Every project therefore has an additive value to the total effort.
11. Action:
 - develop common standards of science/measurement/interpretation
 - clear definitions of each component in the highly complex globe
 - accurate knowledge of each selected area/community/nature
 - define priorities
 - drive through industry/education/local activities + communities eg, I am involved in many R&D programmes at the Royal Agricultural College, Cirencester, Gloucestershire in partnership with Industry.
 - Detailed monitoring to guarantee accuracy of conclusions/data
 - Invite a small group of people/professionals/promoters to keep local/national/global fully informed.
12. Summary:
 - Make the population/communities feel wanted and through their efforts they can enjoy the benefits of understanding and contributing to a positive reaction as and when needed, in the current/future challenge of climate change!

Peel Holroyd Associates

June 2006

Memorandum submitted by Steve Sorrell (CIT 03)

EXECUTIVE SUMMARY

This submission proposes a *hybrid* emissions trading as an attractive alternative to Personal Carbon Allowances (PCAs). It argues that a hybrid scheme provides most of the benefits of PCAs, but is likely to cost much less to implement and is more likely to gain political acceptability. Most importantly, the hybrid allows an effective interface with the EU Emissions Trading Scheme (EU ETS) and the global carbon market.

Given these potential benefits, I recommend that the Government investigate the hybrid scheme as a possible basis for UK climate policy in the medium-term.

INTRODUCTION

1. I am a Senior Fellow in the Sussex Energy Group at SPRU (Science and Technology Policy Research), University of Sussex. I have conducted academic and consultancy research on energy and environmental policy for 16 years, with a particular focus on emissions trading. I have participated in several consultancy projects for DTI, DEFRA and the European Commission, and was involved in the preparation of the UK National Allocation Plan for the EU ETS.

2. The Sussex Energy Group is providing a submission to this inquiry that covers the broader aspects of the Citizens Agenda. The present submission provide a more detailed response to one important question posed by the Committee, namely:

“Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?”

3. Interest in a Personal Carbon Allowance (PCA)¹ scheme has grown in recent years, encouraged through research and advocacy work by Mayer Hillman of the Policy Studies Institute (Hillman, 2004), the Environmental Change Institute at Oxford University (Fawcett, 2005) and the Tyndall Centre for Climate Change Research (Starkey and Anderson, 2005). In a recent speech to the Audit Commission, the Environment Secretary David Miliband (2006) indicated that the Government was seriously considering the idea. However, he acknowledged that PCAs were “not for the short-term” and that “. . . major questions would need to be answered about its impact and feasibility in comparison with other measures”.

4. Given the radical nature of the PCA proposals, it is encouraging that the Government should show interest in the scheme. However, there are serious questions over the cost, practicality and political feasibility of PCAs. In investigating this idea, it is essential to examine whether there are simpler and more practical alternatives that could provide comparable economic and environmental benefits, as well as be introduced within a shorter period of time. I believe that a *hybrid* emissions trading scheme provides such an alternative and deserves serious consideration.

5. This submission describes the basic elements of such a hybrid scheme and compares it with the PCA scheme under five headings: economic efficiency; environmental effectiveness; social equity; administrative costs; and political acceptability. It concludes that, overall, the hybrid scheme provides the more attractive option.

BASIC ELEMENTS OF A HYBRID SCHEME

6. In the design of a carbon trading scheme, there is a basic choice between a *downstream* scheme, in which fossil fuel users surrender allowances for their emissions, and an *upstream* scheme, in which fossil fuel producers (or suppliers) surrender allowances for the carbon content of the fuel they sell. The EU ETS is a downstream scheme confined to the largest emitters, while PCAs are a downstream scheme for all emitters, including households. An upstream scheme places a cap on carbon emissions from the whole economy, while most downstream schemes only cap the emissions of a subset of the economy. What is unusual about the PCA proposal is that it combines a downstream scheme within economy-wide cap.

7. The EU ETS is already in place and is likely to remain in its present form for the foreseeable future. In this context, both an upstream trading scheme and a PCA scheme would face potential problems of:

- *Double regulation*: EU ETS participants could simultaneously face two sets of carbon prices for the fuel they consume (ie the EU ETS price and the PCA/hybrid price), while all electricity consumers could face two sets of carbon prices for the electricity they consume.
- *Double counting*: A single abatement action could lead to two separate carbon allowances being sold—one in each scheme (Sorrell and Sijm, 2003).

¹ Also known as a Domestic Tradable Quota (DTQ) scheme.

8. Proponents of the PCA scheme have not provided adequate proposals for how these problems would be addressed. However, with an upstream scheme these problems could be avoided relatively simply through a *hybrid* approach (Hargrave, 2000; Mazurek, 2002). In this, the EU ETS would operate alongside an upstream scheme that covered all other fossil fuel CO₂ emissions, including those from households, non-domestic buildings and transport.

9. In a hybrid scheme, fossil fuel producers or suppliers would be responsible for the carbon content of fuel sold to downstream consumers that are not participating in the EU ETS. The upstream participants would include oil refineries, oil and gas importers and coal companies and the relatively small number of companies involved should keep the administrative costs low. These companies would need to surrender an allowance for each tonne of carbon contained in the fuel sold to eligible customers, and would pass these allowance prices on in fuel prices. The incentive effect for downstream consumers would be akin to a carbon tax.

10. To avoid double regulation and double counting, the system would need to ensure that the fuel purchased by EU ETS participants did not include the price of carbon allowances in the upstream trading scheme. This would require a “paper trail” to be established to track fossil fuel sales along the supply chain, via wholesalers and intermediaries to final consumption. Upstream producers would require allowances for all the fuel sold, unless they could demonstrate that a participant in the EU ETS ultimately consumed the fuel.

11. The UK could introduce an upstream scheme in parallel with the EU ETS to create a hybrid that covered the majority of CO₂ emissions from the UK economy. This could accommodate the expansion of the EU ETS in Phase 2 and beyond by simply modifying the accounting system for fuel sales (ie extending the exemptions) and adjusting the cap in the upstream scheme. Similarly, non-CO₂ GHG emissions could be included in the overall scheme by expanding the downstream EU ETS.

12. If the upstream scheme used free allocation of allowances, fossil fuel suppliers would receive large windfall profits. These firms will raise fuel prices to reflect the opportunity cost of allowances, while only incurring expenditures for any net allowance shortfalls. This is similar to the current situation in the EU ETS, where free allocation of allowances has allowed UK electricity generators to benefit from windfall profits of the order of £1 billion/year (Sijm, *et al.*, 2006). Hence, in an upstream stream, the great majority of the allowances should be auctioned and the revenues redistributed to fuel consumers to compensate for the higher prices they face. As with carbon tax proposals, the overall scheme would then be revenue neutral.

13. The redistribution of funds could take place through the existing tax and benefit system, or a separate system could be established. A commonly cited model is the Alaska Permanent Fund, which distributes mining and drilling royalties on an equal per capita basis to all Alaskan citizens. An equal per capital allocation has the advantage of simplicity and should minimise administration costs.² However, the rules could be modified to reflect a variety of distributional objectives, including compensating the fuel poor. The impact of the scheme on fuel prices should be identical, whether free allocation or auctioning is employed.

ECONOMIC EFFICIENCY

14. By putting a price on carbon, both schemes encourage economic efficiency in fuel use and emissions reduction. The PCA scheme encourages fuel consumers to engage directly in trading. If a consumer chooses to use more fuel than her PCA allocation allows, she must either purchase additional allowances or pay a premium on the fuel price—thereby foregoing the consumption of other goods and services. Conversely, if she chooses to use less fuel than her PCA allocation allows, she may sell her surplus allowances and use the money in other ways.

15. The incentives in a hybrid scheme are entirely analogous. Fuel is more expensive since it embodies the carbon price, but consumers are allocated a lump sum from the auction revenues with which to compensate. If a consumer chooses to use more fuel than her lump-sum allocation (of money) permits, she must forego the consumption of other goods and services. Conversely, if a consumer chooses to use less fuel than her lump sum allocation permits, she has additional money available to spend.

16. The key point is that if the cap (and hence carbon price) is the same in both schemes and if the rules for allocating PCAs are the same as those for allocating auction revenues, then the economic impact on individual consumers is the same in both schemes. As a result, the economic incentive to reduce fossil fuel consumption should be the same. It should be noted, however, that consumers would need to engage in trading in the PCA scheme if they wished to convert their surplus allowances into money. In a hybrid scheme, consumers would be given the money directly.

17. Business and the public sector face a uniform carbon price in both schemes and would seek to include this in the price of their goods and services. The extent to which they can do so will depend upon the extent to which the relevant goods and services can be imported from outside the UK from companies that do not face a comparable carbon price. Again, if the cap and allocation rules are comparable in both schemes the impact on the price of goods and services should be broadly the same in the two schemes. In practice, the

² Estimates of the total cost of managing a comparable scheme in the US (the “Sky Trust”) have been put at less than .04% of total revenues.

price impact will also depend upon the administrative and transaction costs of the scheme and the manner in which they are distributed between different participants. As argued below, these costs are likely to be higher in the PCA scheme than in the hybrid.

18. The economic efficiency of either the PCA or hybrid scheme could be increased if it allowed scope for trading allowances with the EU ETS and other national schemes. Carbon prices would also be reduced if there were scope for importing credits from JI and the CDM. Such linking would be much less problematic with a hybrid scheme, since it would not involve double counting of emission reductions.

19. Proponents of PCAs have argued that, when faced with a personal carbon allowance individuals may respond by engaging “more fully” in the task of identifying emission reduction opportunities, thereby reducing the cost of carbon abatement (Starkey and Anderson, 2005). Comparable arguments have been made by the Carbon Trust in support of their proposed Consumption-based Emission Trading Scheme for business and the public sector (Carbon Trust, 2005). These contestable propositions deserve further research, since neither the Tyndall Centre nor the Carbon Trust cite any empirical evidence in their favour. Moreover, any efficiency benefits that do result need to be set against the greater administrative cost of the PCA scheme.

ENVIRONMENTAL EFFECTIVENESS

20. The environmental effectiveness of the scheme depends upon the stringency of the overall cap. In principle, this could be the same in both schemes. The PCA proposals typically include a “carbon budget” that gives some long-term (eg 20-year) predictability in carbon targets, and hence indirectly in carbon prices. There are important issues regarding the feasibility of such an approach, the extent to which it is consistent with both Kyoto and EU ETS negotiations, and whether the increased certainty in long-term carbon prices is sufficient. But whatever procedure is used for setting the cap, it could apply equally well to the hybrid scheme.

21. The carbon price will depend upon both the stringency of the cap and the balance of supply and demand. A shortage of allowances could push the carbon price to a high level, which could be politically unpopular. This disadvantage is balanced by the advantage that (unlike with a carbon tax) both schemes could guarantee attainment of a particular CO₂ target. This price/quantity trade-off is central to the choice between taxes and trading within environmental economics (Weitzman, 1974). One way of mitigating the allowance price risk would be to introduce a “safety valve” in the form of a relatively low penalty price for non-compliance (Mckibbin and Wilcoxon, 2002). The penalty price sets a ceiling on compliance costs and allowance prices. If abatement costs are higher than anticipated, and the price of allowances rises above the level of the penalty, participants will prefer to pay the penalty rather than purchase allowances from the market. A “safety valve” could improve the political acceptability of both schemes, with the drawback that it removes the guarantee of meeting a particular emission target. But the key point, again, is that this is issue for both schemes and could be solved in a comparable way.

SOCIAL EQUITY

22. The Tyndall Centre research has paid particular attention to social equity, with a focus on the philosophical rationale for allocating PCAs on an equal per capita basis. A difficulty with this approach is that it could hurt the fuel poor. Research by the Policy Studies Institute has shown that low income households vary widely in their energy consumption, owing largely to wide variations in the energy efficiency of housing (Dresner and Ekins, 2006). As a result, an equal per capita allocation would be regressive. While the impact could be reduced through the allocation of additional allowances to fuel poor households, in practice these are difficult to identify.

23. A hybrid scheme faces similar problems. Dresner and Ekins (2006) have shown how the regressive effect such a scheme could be mitigated through recycling the revenues through the existing tax and benefit system. However, this would not prevent a worsening of fuel poverty for 20% of the poorest households, including those who are already most badly affected.

24. Fuel poverty is therefore a generic obstacle to both types of scheme. The accelerated elimination of fuel poverty, coupled with the development of compensation schemes to protect low-income households is likely to be an essential prerequisite for the introduction of either. However, such compensation may be much simpler to administer with the hybrid scheme, since it would simply involve modifying the existing tax and benefit system. In contrast, the PCA scheme requires allocation rules for a newly created currency of carbon allowances.

25. The Tyndall researchers have also argued that allocating emission rights to individuals gives them additional ‘control’ over those emission rights compared to the lump-sum recycling of auction revenues—including choosing to whom to sell (or not sell) units and choosing to retire units (Starkey and Anderson, 2005). But consumers could also choose to purchase and retire allowances in the hybrid scheme, using their lump-sum allocation. Decision rights over allocated allowances may potentially be valuable for a small group of “ethical” consumers, but is likely to be a marginal concern for most.

ADMINISTRATIVE COSTS

26. The PCA proposals amount to establishing an entirely new currency in which 45 million citizens will be participating, together with all of business and the public sector. Individuals would primarily participate through a new electronic card system, similar to existing credit/debit cards or the proposed ID cards. The Tyndall Centre has argued that this is administratively feasible, but has not been able to estimate the associated costs. It seems reasonable to assume that these will be large. Business and the public sector would participate via auctions. Interestingly, research on PCAs has tended to focus disproportionately on the mechanics of individual participation, and has paid relatively little attention to the implications for energy-using organisations. Initial research into the Carbon Trust proposals for a ‘consumption based emissions trading scheme’ for business and the public sector has suggested that, for smaller sites, the transaction costs can easily exceed the benefits of participation (Radov, *et al.*, 2006).

27. In contrast, the administrative costs associated with a hybrid scheme should be relatively small. The total number of participants should be less than 50, monitoring and verification arrangements would be straightforward and the recycling of auction revenues could be implemented relatively easily through the existing tax and benefit system or some other means. The requirement for a “paper-trail” for fuel sales would impose administrative costs on the fuel supply chain, and would require independent auditing and verification. But while these costs require further examination, there are parallels in the current electricity market with the use of Levy Exemption Certificates. In general, it seems reasonable to conclude that a hybrid scheme would be substantially cheaper to set up and administer than a PCA scheme.

POLITICAL FEASIBILITY

28. Both schemes are likely to attract opposition from both households and business. As argued above, the carbon cap and hence the carbon price could be broadly equivalent in each scheme, together with the mechanisms for compensating badly affected sectors or individuals. Hence, what matters is how the two schemes are likely to be *perceived* by different groups.

29. From the perspective of consumers, a hybrid scheme is similar to a carbon tax. However, instead of a fixed and visible tax rate, the carbon price will be variable and largely hidden within the price of fuel. In some respects, the scheme would resemble the existing Renewables Obligation and Energy Efficiency Commitment. The cost of these is recovered through household electricity and gas bills, but the premium is not explicit and the instruments remain uncontroversial, partly because their implications are poorly understood. However, this may not be the case for a hybrid scheme if the cost implications are much greater. Potential mitigating measures here include the use of a relatively weak cap at the inception of the scheme (gradually tightening over time), the inclusion of a safety valve provision and the scope for reducing carbon prices by linking the scheme to the EU ETS and the international carbon market.

30. For the perspective of consumers, a PCA scheme is similar to rationing—indeed, “carbon rationing” is Mayer Hillman’s (2004) preferred term. Of course, a hybrid scheme also amounts to rationing, but since it is indirect and less visible, it should also be less controversial. With its connotations of wartime austerity, the notion of “carbon rationing” is likely to prove unpopular in many quarters.

31. Proponents of PCAs argue that individual allowances should encourage greater awareness of the threat of climate change, provide a more tangible “share” of a common resource and generate a sense of common purpose in tackling the problem (Starkey and Anderson, 2005). However, it is equally likely that this level of awareness is a *precondition* for the acceptance of PCAs in the first place. While the relative acceptability of the two approaches needs more research, my judgement is that the hybrid approach is likely to be more feasible in the short-term.

SUMMARY

32. While PCAs are an attractive idea, I do not believe their time has come. In my judgement, a combination of high administrative costs, negative interactions with the EU ETS and the political difficulties associated with carbon rationing are likely to scupper the idea in the short-term. However, most of the benefits of PCAs can be achieved through a hybrid scheme, in which an upstream cap on fuel suppliers is combined with the downstream EU ETS. This combines comparatively small administrative costs with (in my judgement) greater political acceptability, while at the same time delivering comparable performance in terms of economic efficiency, environmental effectiveness and social equity. Most importantly, it has the potential to interface effectively with the global carbon market.

33. The Government has recently indicated its interest in including surface transport within the EU ETS. As with aviation, it could be very difficult to do this in a way that is acceptable to all Member States. A hybrid scheme provides an alternative means of capping the emissions from surface transport, as well as from other sectors, while at the same time achieving other policy objectives and avoiding the need for EU-wide agreement. Given these potential benefits, I recommend that the government investigate the hybrid scheme as a possible basis for UK climate policy in the medium-term.

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Supplementary memorandum submitted by Steve Sorrell (CIT 03a)

EXECUTIVE SUMMARY

This submission expands upon the practical challenges associated with implementing a “hybrid emissions trading” scheme as an alternative to a system of personal carbon allowances. The key points are as follows:

- There are relatively few practical obstacles to implementing a hybrid trading scheme and the administrative costs should be relatively small. Instead, the biggest difficulties relate to its potential impact on business competitiveness and income distribution.
- The impact of a hybrid scheme on business competitiveness may easily be overstated. The impacts should be positive for many sectors and with targeted recycling of revenues, most negative impacts could be substantially reduced.
- Revenue recycling may also be used to minimise the impact of the scheme on low income households. However, the scheme could still worsen the position of a significant number of households that are worst affected by fuel poverty. This may make it difficult to introduce the scheme within the next 10 years—and possibly for longer if the elimination of fuel poverty is delayed.
- Introducing a hybrid scheme on top of existing and proposed policy instruments could be economically damaging and politically unrealistic. Current policy proposals could therefore preclude the introduction of a hybrid scheme for as much as 14 years—which may be longer than is required to eliminate fuel poverty.
- A hybrid scheme has many similarities with a programme of environmental tax reform, but at present both business and the general public have a poor grasp of the implications of such reforms. A variety of measures may need to be taken to make such changes more acceptable.

- A personal carbon allowance (PCA) scheme will have very similar impacts on business competitiveness and income distribution. It will also face similar problems of policy interaction and may face greater difficulties with public understanding and acceptance. It is therefore even less likely to be introduced in the near future.
- In addition, the aggregate costs of meeting an emission target are likely to be higher with a PCA scheme; the administrative costs of establishing, introducing and monitoring the scheme will be much higher; and a PCA scheme will not offer the opportunity to link to the EU ETS and the global carbon market.
- While carbon pricing mechanisms such as a hybrid or a PCA scheme are necessary to reduce carbon emissions, they will not be sufficient. A range of supporting policies will also be required.

INTRODUCTION

1. I provided an earlier submission to this inquiry, focusing specifically on the topic of personal carbon allowances (PCAs). In response to a follow-up request from the Committee, this submission looks at some of the practical questions of implementation in more detail.

2. Many of the issues raised are similar to those associated with implementing a programme of environmental tax reform. One advantage of a hybrid emissions trading scheme is that it can provide most of the benefits of such reforms *and* reduce overall abatement costs by interfacing with the global carbon market.

THE NATURE OF A HYBRID SCHEME

3. First, I would like to clarify the terminology. The key element of my proposal is for an *upstream* carbon emissions trading scheme in which fossil fuel producers (or importers) surrender allowances for the carbon content of the fuel they sell. However, a conventional upstream scheme would lead to double regulation or double counting of emissions that are already covered by the EU ETS—an outcome that I consider undesirable. To avoid this, I propose that producers should only be liable for the carbon content of fuel sold to consumers outside the EU ETS. The downstream EU ETS would then operate alongside the upstream scheme to give a hybrid that covered all of the fossil fuel emissions from the UK economy, while avoiding any overlaps between the two schemes. Since this proposal differs somewhat from an upstream scheme as normally understood, I have used the term *hybrid scheme*. While the terms “upstream” and “downstream” are widely used in this context, the term “hybrid scheme” (for a combination of the two) is less well established.

4. A hybrid scheme should avoid *double counting* of emission reductions, since a reduction of fossil fuel emissions anywhere in the economy should “free up” carbon allowances in one scheme or the other, but not in both at the same time. For example, a reduction in household gas consumption will free up allowances in the upstream scheme, while a reduction in household electricity consumption will free up allowances in the downstream scheme (the EU ETS). In contrast, double counting is an unavoidable feature of the current PCA proposals.

5. In principle, the hybrid scheme should also avoid the *double regulation* of fuel consumption. Fuel suppliers will incur additional costs for purchasing allowances in the auction and will seek to pass these on in fuel prices. However, the marginal cost of supplying fuel to EU ETS participants will be lower than that to non EU ETS participants, since the latter includes the cost of allowance purchase. Assuming competitive fuel markets and an adequate system for tracking fuel sales, these differences should be reflected in lower fuel prices to EU ETS participants. Hence, fuel prices for individuals and companies outside the EU ETS should include the price of allowances in the upstream scheme, while fuel prices for EU ETS participants should not. If allowances can be traded between the two schemes (ie if the two schemes are “linked”) the carbon prices in the two schemes should converge, leading to a single price for carbon throughout the UK economy.

THE FEASIBILITY AND COST OF A HYBRID SCHEME

6. All existing carbon emission trading schemes are downstream, in that they regulate emissions from fuel users directly. An upstream scheme that involves fuel suppliers is therefore a significant departure from existing practice. Nevertheless, this approach has been widely discussed within the academic and policy community for a number of years and several well-developed policy proposals include elements of an upstream or hybrid approach.¹

¹ Perhaps the best known is the Climate Stewardship Act, proposed by Senators John McCain and Joseph Lieberman, which would cover more than 70% of US carbon dioxide and industrial greenhouse gas emissions. Large installations in the industrial, public and commercial sectors would participate directly in a similar manner to the EU ETS. However, transport emissions would be covered through the participation of refineries and fuel suppliers, who would surrender allowances for the carbon content of fuel sales. This is therefore a hybrid scheme, since it includes both upstream and downstream elements.

7. The upstream approach is also a less radical departure from existing practice than it first appears, because it has a great deal in common with an upstream carbon/energy tax. This type of tax has been implemented in a number of OECD countries and is subject of a considerable academic literature (Ekins and Barker, 2001; Zhang and Baranzini, 2004). In principle, the macroeconomic impacts of an upstream trading scheme should be broadly similar to those from an upstream carbon tax, as should many of the practical issues associated with implementation. Generally speaking, it is the impacts on industrial competitiveness and income distribution that provide the biggest challenge to implementing such schemes, rather than practical issues such as monitoring and verification. But the experience and analysis accumulated over the last 20 years provides a good basis for the design and implementation of such a scheme.

8. The hybrid scheme does involve some additional design challenges that are not faced by carbon taxes, but again there is a great deal of relevant experience on which to draw. For example, the design of the allowance auction can be informed by the experience with airwave spectrum auctions, as well as by the experience with auctioning emission allowances in the US Acid Rain Programme, the UK Emissions Trading Scheme (UK ETS) and the EU ETS. Similarly, the mechanisms for tracking fuel sales may be informed by UK experience with Levy Exemption Certificates and the Renewable Transport Fuel Obligation (RTFO). In each case, the practical challenges appear significantly less than those associated with creating an entirely new currency of personal carbon allowances.

9. I cannot provide estimates of the administrative costs associated with establishing a hybrid scheme, since the relevant research has yet to be undertaken. As an illustration, the costs of administering the RTFO (which is a tradable obligation on fuel suppliers to supply biofuels) is estimated to be around £1 million/year for the government and £2 million/year for industry. The costs are low because only around 20 companies are involved and because fuel sales are already monitored for the purposes of levying fuel duty (Grayling, *et al*, 2006).

10. The total administrative costs for the hybrid scheme would be greater than this because coal and gas suppliers (who do not pay fuel duty) would also be included, systems for tracking fuel sales would need to be established and mechanisms such as allowance auctions would need to be administered. Nevertheless, the total administrative costs are likely to represent only a small fraction of either the total revenue raised from the scheme, or the turnover of the companies involved. For example, if the clearing price in the allowance auction was £10/tCO₂, (approximately 15€/tCO₂) the revenue raised from the upstream scheme would be of the order of £3 billion.² This compares to approximately £0.8 billion from the existing Climate Change Levy, £24 billion from fuel duties, £134 billion from income taxes and £483 billion from all forms of taxation (in fiscal year 2005–06). A hybrid scheme with a carbon price of 15€/tCO₂ (broadly equivalent to current prices in the EU ETS) would therefore allow income taxes to be reduced by around 2.2%.

11. The biggest obstacles to implementing a hybrid scheme are the potential impacts on business competitiveness and income distribution. Both of these will depend upon how the revenues from the allowance auction are redistributed. As with carbon taxes, the revenue raised from the auction may be used to reduce other taxes that charge for—and thereby discourage—beneficial activities such as employment. As a consequence, a hybrid scheme has the potential to deliver both environmental *and* economic benefits—the so-called “double dividend” (Bovenberg, 1999). However, there is likely to be a trade off between economic efficiency in revenue redistribution and political acceptability. While mechanisms are available to mitigate many of the adverse impacts on business competitiveness and low income groups, it will not be possible to satisfy all the competing claims and attempts to do so could both reduce the efficiency of the scheme and increase administrative costs. The relevant issues are briefly reviewed in the following sections.

THE IMPACT ON BUSINESS COMPETITIVENESS

12. The impact of an upstream scheme on a firm or sector’s competitiveness depends upon a host of factors.³ As a result, the impacts are hard to predict, may be greater in the short term than in the long-term and may easily be overstated by well-organised and influential lobby groups. If auction revenues are recycled to reduce labour taxes, many sectors will gain from the scheme. But energy intensive sectors may lose and may therefore seek additional forms of compensation.

13. Claims regarding the potential impact of carbon pricing on industrial competitiveness frequently lack a sound analytical basis. For example, recent studies by the IEA (Reinaud, 2005) and the Carbon Trust (Carbon Trust, 2005a; b) have suggested that, for carbon prices around €10/tCO₂, the EU ETS is unlikely to reduce the profitability of most industrial sectors and that the anticipated increases in product prices will be insufficient to make non-EU imports profitable on a large-scale. While the impacts on individual companies may be greater, this analysis suggests that the claims made by many industrial groups during the

² Approximately 300MtCO₂ of emissions would be covered by the scheme.

³ Including the stringency and future predictability of the emissions cap, the timeframe for introducing and tightening the scheme (relative to asset lifetimes), the contribution of fuel to total input costs, the carbon intensity of fuel use, the extent to which the relevant product markets are open to international competition, the extent to which competitor companies in other countries face comparable carbon prices, the scope for switching to lower carbon products, the own-price elasticity of the relevant products and the opportunities available for abating emissions through energy efficiency improvements or fuel switching (Barker & Kohler, 1998).

process of negotiating the National Allocation Plans were greatly exaggerated. This, in turn, has contributed to the negotiation of relatively weak targets in Phase 1 and Phase 2 of the EU ETS⁴ and has allowed the electricity generators to enjoy large windfall profits (Sijm, *et al*, 2006).⁵

14. The most energy intensive UK companies are already included in the EU ETS, or are likely to become included at a later stage. This suggests that the majority of companies affected by the proposed upstream scheme will be relatively non-energy intensive. At present, however, a total of 6,000 companies from 54 industrial sectors are signatories to Climate Change Agreements (CCAs) (a total of 14,000 sites). The CCAs provide exemption from 80% of the Climate Change Levy (CCL) in return for meeting negotiated targets to reduce energy consumption or carbon emissions. The rationale for the CCAs was that the full rate of the CCL could damage the competitiveness of these sectors because energy forms a significant proportion of total costs. In practice, however, for many of these sectors, energy accounts for a small fraction (< 2%) of total costs.

15. It seems reasonable to assume that many of the sectors currently signed up to a CCA will either oppose the introduction of an upstream scheme or seek special treatment to compensate for the higher fuel costs that will result. However, there are at least three reasons why the need for special treatment should be less than in the case of the CCL:

- The proposed upstream scheme only affects fuel costs, while the CCL covers both fuel and electricity. Companies are already paying higher electricity prices as a result of the participation of the generators in the EU ETS, but this will be case regardless of whether an upstream scheme is introduced. Fuel costs in turn, are much less than electricity costs for a large number of CCA companies.
- The lack of adequate data on energy intensity meant that the eligibility for CCAs was based upon the coverage of existing regulation, which proved to be poor proxy.⁶ But the CCAs themselves have provided considerable information on energy consumption that may permit a more informed judgment over whether a sector deserves special treatment.
- Exemptions from carbon taxes and trading schemes are commonly justified as a transitional arrangement, to avoid high adjustment costs. However, after a nearly a decade of the CCL the grounds for such exemptions are now weaker.

16. If there is a case for special treatment, the most appropriate mechanism would be to increase the amount of revenue recycled to those sectors and companies that are considered vulnerable. In general, revenue recycling may take place in a variety of ways, with different implications for administrative costs and for the relative burdens imposed upon different sectors. For example, the £0.8 billion of revenues raised by the CCL were primarily recycled through a reduction in employers' national insurance contributions. This meant that sectors that were relatively labour intensive were net winners, while those that were relatively energy intensive were net losers. However, reductions in labour taxes are not the only option available. To compensate vulnerable sectors for the high fuel costs from the upstream scheme, *additional* revenues could be recycled in proportion best practice benchmarks of energy intensity, or some comparable measure. Experience with the CCAs suggests that this type of compensation could be complex to administer, but at the same time the CCAs have provided a mass of data with which to build. However, additional recycling of revenue to energy intensive sectors will reduce the pool of revenues available to compensate non energy intensive sectors and households, as well as increasing overall abatement costs.⁷

THE IMPACT ON INCOME DISTRIBUTION

17. In the absence of revenue recycling, an upstream scheme would be regressive and could have a damaging impact on the "fuel poor" who spend more than 10% of their income on energy. However, there are a wide range of options available to reduce the regressive impact of the scheme, including: increasing income tax thresholds or reducing rates of tax on low incomes; raising welfare payments such as unemployment, disability and child benefit; providing subsidies for energy efficiency improvements in low-income households; increasing winter fuel payments; and returning an equal lump sum to each individual (Clinch, *et al*, 2006).

⁴ The aggregate Phase 1 cap was approximately 3% above baseline emissions and only 1% below official 'business as usual' projections. When verified emission data was released in May 2006 it showed that emissions were a below allocations—leading to a substantial fall in allowance prices. The caps proposed in the National Allocation Plans (NAPs) for Phase 2 were sufficiently weak to create a risk of a zero carbon price in Phase 2 (Rogge, *et al*, 2006). The Commission has recently requested more stringent targets in nine out of the 10 allocation plans it has reviewed (the exception being the UK).

⁵ The primary reason for the large windfall profits (ie beyond what is required for compensation) was that the allowances were allocated for free, rather than being sold in an auction. Windfall profits for UK electricity generators during Phase 1 have been estimated at £0.8 billion/year (IPA Energy Consulting, 2006).

⁶ Eligibility for CCAs was originally based on the coverage of the Integrated Pollution Prevention and Control Directive, but following extensive lobbying the eligibility rules were widened to include other "energy intensive" sectors.

⁷ Another possibility would be to introduce border tax adjustments, with exports receiving a refund while imports are taxed. This would need to use relatively crude methods to estimate the carbon content of imports and must be consistent with World Trade Organisation rules (Ismer and Neuhoﬀ, 2006).

18. Lump-sum redistribution is straightforward and partially corrects for the distributional impacts because low income households will receive a higher amount, relative to their income, than high income households. However, reductions in income taxes or changes in the benefits system are likely to be more effective. While earlier studies have suggested that careful targeting of tax and benefit changes could minimise distributional impacts (Metcalf, 1999), research by the Policy Studies Institute has suggested that this is unlikely to prevent a worsening of fuel poverty for up to a third of the poorest households (ie those in the lowest income decile), including those who are already badly affected by rising fuel prices (Dresner and Ekins, 2006). The reason is that low income households vary widely in energy consumption, owing largely to wide variations in the energy efficiency of housing—and some are very high energy users. Electrically heated homes and those with solid walls present the greatest difficulties, and these have been largely untouched by the Energy Efficiency Commitment (EEC) and Warm Front programmes. Moreover, estimates from the Fuel Poverty Advisory Group suggest that meeting the White Paper target of eliminating fuel poverty by 2016 will require a investment of up to £6.4 billion, which is approximately twice the anticipated expenditure of current government programmes (Fuel Poverty Advisory Group, 2003).

19. These negative impacts on the fuel poor are of critical importance for the political feasibility of either an upstream or PCA scheme. They may make it very difficult to introduce such a scheme for at least the next 10 years—and possibly for longer if additional policy measures are not introduced and the elimination of fuel poverty is delayed. This makes the scaling up of existing energy efficiency measures and the introduction of new measures in this sector an urgent priority. For example, in its submission to the Energy Review, the Fuel Poverty Advisory Group recommended increasing the Warm Front budget by up to 30% over the period to 2010.

20. Concern over distributional impacts has led to household gas and electricity consumption being subsidised through VAT exemptions. It makes little sense to internalise carbon prices in this sector while such large subsidies remain. Similarly, if the government continues to exempt *all* households from carbon pricing in order to protect the fuel poor, emissions in this sector will rise making it more difficult to meet carbon targets in the future. There is therefore a need for a dual approach: to accelerate the elimination of fuel poverty (or at least ensure sufficient investment to meet the 2016 target) while at the same time introducing alternative approaches that encourage improvements in the energy efficiency of non-fuel poor households. The proposed doubling of activity levels for EEC3 is a welcome step forward, but additional measures may also be needed. For example, Dresner and Ekins (2006) have proposed a council tax surcharge for households who fail to implement cost-effective energy efficiency measures within a year of receiving a notification, together with a comparable incentive scheme linked to Stamp Duty.

21. In contrast to energy use in homes, the impact of an upstream trading scheme on energy use for transport should be broadly progressive (Dresner and Ekins, 2004). Nearly two thirds of households in the lowest income quintile do not own a car, compared to only one third of households overall. However, the scheme may be regressive among motorists, with larger impacts for motorists in the rural areas who lack public transport alternatives (Blow and Crawford, 1997). A 30% increase in fuel prices, for example, would reduce the standard of living of the poorest tenth of motorists by around 2%. As with household energy use, there is considerable scope for reducing distributional impacts through measures such as abolishing vehicle excise duty (VED), subsidising public transport and increasing benefits. Dresner and Ekins found that abolishing VED was the best method of compensating low-income motorists, while increasing benefits was the best method of compensating the population overall.

22. It is important to note that increases in petrol and diesel prices that would result from an upstream carbon trading scheme could be relatively small. For example, a carbon price of 15£/tCO₂ would increase petrol prices by less than one pence a litre, which compares with current duty levels of 47 pence per litre, and total taxation (including VAT) of 60 pence per litre. Distributional impacts in this area are therefore a much smaller concern.

PUBLIC UNDERSTANDING AND ACCEPTABILITY

23. Whatever the impact on competitiveness and income distribution, an upstream trading scheme could also face more general problems of public understanding and acceptability. The nature of these was highlighted in a recent European-wide project that used interviews and focus groups to assess social responses to environmental tax reform. This found that:

- People did not *trust* assurances that the revenues will be used in the way promised by government and wanted the use of the revenues to be transparent.
- People did not *understand* the purpose of increasing taxes on energy while lowering taxes on employment, and did not accept the double dividend argument when it was explained to them.
- People were aware of higher energy taxes since they were *visible*, but were not aware of the lowering of income and other taxes since they were less visible.
- People wanted *incentives* as well as penalties and expressed a strong preference for the revenues to be used for encouraging energy efficiency improvements and related measures.

24. These factors will need to be taken into account in the design of a hybrid scheme. For example, the trust issue may potentially be mitigated by devolving decisions about cap setting and revenue distribution to the proposed Carbon Committee (although this raises issues of accountability). The understanding issue may partially be dealt with through a prolonged public information campaign that also raises awareness about the link between energy use and climate change and the opportunities available to reduce energy consumption. The visibility issue may be partially dealt with through the use of regular lump-sum payments to each household that are clearly linked to their “share” of the overall carbon cap. Finally, the incentive issue may be dealt with by using a portion of the revenue to encourage investment in energy efficiency and renewable energy projects. None of these approaches are straightforward and each involves trade-offs with other objectives. The reaction of the UK popular press to a recent leaked memo on environmental tax reform (“a green stealth tax”) suggest that there is much work to be done in improving understanding of such measures and in gaining public support. This again suggests that a lead time may be required before a hybrid scheme can be implemented.

COMPARABLE BARRIERS TO A PCA SCHEME

25. It is important to note that the barriers described above apply equally, or to a greater extent, to a PCA scheme. Moreover, these costs will be *in addition* to the much higher costs of establishing, introducing and monitoring a PCA scheme compared to an upstream scheme.

26. While households will receive allowances for free in a PCA scheme, the distributional impacts and hence political disputes over allocation will be broadly similar. It is also possible that a hybrid scheme may be able to protect low income households more easily than PCAs. This is because it allows straightforward adjustment to existing tax and benefit arrangements without a loss of government revenue. In contrast, a PCA scheme is more likely to address such concerns by changing the number of allowances allocated to different groups (eg giving bonus allowances to pensioners), which could be more costly to implement. Alternatively, if the PCA scheme uses fiscal measures to address such concerns, the government may lose revenue.

27. With a PCA scheme, approximately 60% of allowances would be auctioned to banks and other primary traders who would then sell them on to energy using organisations. The mechanisms for compensating these organisations for their allowance expenditures have not been specified,⁸ but could be broadly similar to those outlined above. As with an upstream scheme, the revenue raised from the PCA allowance auction may be used to reduce “distortionary” taxes—potentially providing a double dividend. However, while the hybrid scheme allows the revenue from 100% of the allowances to be used in this way, the PCA scheme only auctions 60% of the allowances—with the remainder being distributed free. This suggests that the aggregate costs of meeting an emission target could be higher with a PCA scheme since the available revenues are smaller.

28. For organisations, a PCA scheme is analogous to both a hybrid scheme and environmental tax reform, since it involves additional expenditure on fuel and accompanying reductions in other forms of taxation. To that extent, it faces similar problems of understanding and acceptance to those discussed above. For household, a PCA scheme is analogous to rationing, which has a variety of negative connotations. As indicated in my previous submission, it is a matter of judgment whether an explicit form of rationing would be more or less acceptable than a hybrid scheme in which the origin of the fuel price rise is somewhat hidden (and in my judgement, it would be less acceptable).

29. Another key difference between a hybrid and a PCA scheme is that the latter includes the emissions from electricity consumption. But these are already covered by the EU ETS and electricity consumers are already paying higher prices as a result. This suggests that a PCA scheme would have a significantly greater impact on energy costs for *all* consumers. Moreover, these higher costs would have no immediate environmental benefit because any reductions in the emissions from electricity generation that result will simply “free up” allowances in the EU ETS. These will either be sold to other participants or banked, and will therefore be used to cover emissions somewhere in the EU. While it is possible that UK emissions will be reduced, the contribution to EU and global CO₂ emission reductions will nevertheless be zero. The coverage of electricity consumption by the PCA scheme will only lead to real environmental benefits if it contributes to a *subsequent* tightening of the overall EU ETS cap. This important point is frequently overlooked in policy debates.

THE PROBLEM OF POLICY INTERACTION

30. As argued in my earlier submission, I believe that a hybrid scheme is substantially simpler than a PCA scheme and could therefore be introduced within a considerably shorter timescale. It also interfaces much more effectively with the EU ETS and the global carbon market. However, a policy proposal needs time to gain interest and support, needs “windows of opportunity” for implementation (such as when an existing scheme come to an end) and must “fit” within an increasingly crowded policy landscape. This last issue is

⁸ Indeed, the disproportionate focus on the implications for households, rather than organisations, is a weakness of the current PCA proposals.

problematic for both the hybrid scheme and PCAs. Both provide a comprehensive approach that caps the total fossil fuel emissions from the UK economy and the former offers the potential of a uniform carbon price—as recommended by the Stern Review. But both also have the potential to interact negatively with a number of existing policies that target different sectors of the economy in different ways. For example, introducing a hybrid scheme on top of the existing Climate Change Levy (CCL) would create a “double regulation” problem, in that fuel purchases would include the carbon price from the hybrid scheme as well as being eligible for the CCL. In the case of the PCA scheme, this problem would also apply to electricity (indeed, if the CCA was retained, the PCAs would effectively lead to triple regulation of business electricity use—ie PCA, CCL and EU ETS).

31. Such overlaps already exist in the UK policy mix and may sometimes be acceptable (Sorrell and Sijm, 2003). But in many cases, they are likely to increase the cost of meeting UK carbon targets. If a PCA or hybrid scheme were simply to be imposed *on top* of existing instruments, such problems could be made substantially worse. This suggests that the introduction of such a scheme may need to coincide with the *removal* of such instruments. However, the government is currently proposing to introduce two additional instruments that are likely to increase the complexity of the overall policy mix. These are:

- The *Energy Performance Commitment (EPC)*, which is a downstream cap and scheme for large organisations in the public, commercial and industrial sectors that are not eligible for the EU ETS. Allowances are to be distributed throughout revenue neutral auction.
- The post 2011 *Energy Efficiency Commitment (EEC)* which may include a cap and trade scheme for gas and electricity suppliers. The cap could be denominated in either energy or carbon and will relate solely to the energy supplied to households.

32. In addition, the Climate Change Agreements (CCAs) for large industrial sites are expected to continue until 2013. Companies with CCAs will still be allowed to trade carbon allowances as part of the UK ETS, even though the “direct participant” part of that scheme ends in December 2006.

33. If the above two proposals go ahead as planned, the net result will be four different types of carbon allowances (EU ETS, EPC, EEC and CCA), trading within four separate markets at four separate carbon prices. In each case, there will be problems of “double regulation” of electricity, because the electricity generators are already participating in the EU ETS and therefore pass on the carbon price within the price of wholesale electricity. Each UK market will also lead to “double counting” of emission reductions, because two carbon allowances (in two separate markets) will be generated from a single one-tonne reduction in emissions. This, in turn, will make it difficult or impossible to “link” the schemes to allow trading between them. As argued by the Stern Review, linking trading schemes offers great potential to reduce the cost of emission reduction. Taken together, these policies do not provide a comprehensive coverage of UK carbon emissions, while at the same time introducing multiple administrative requirements.

34. I do not want to argue that the above policies are without merit: on the contrary, the EPC proposals, in particular, appear to be the product of much careful analysis. However, introducing a hybrid or PCA scheme *on top* of these instruments is likely to be both economically damaging and politically unrealistic. While the current consultation on the EPC does not define explicit timeframe, it suggests that the scheme could remain in place until 2020. Similarly, the government is committed to some form of supplier obligation until 2020, which could well take the form of a cap and trade scheme. Hence, in combination, current policy proposals could *preclude* the introduction of a hybrid or PCA scheme for the next 14 years.⁹ This timeframe could be longer than is required to eliminate fuel poverty.

35. With a forthcoming Climate Change bill and the proposed establishment of a Carbon Committee, it may be appropriate to ask whether a more comprehensive approach such as a hybrid or PCA scheme provides a better alternative to current policy proposals. In practice, however, such a development appears unlikely. The EPC and EEC proposals have considerable momentum and appear likely to go ahead in some form. This leaves the current discussion on personal carbon allowances in something of a vacuum, as there seems little prospect of introducing such a scheme before 2016 at the earliest.

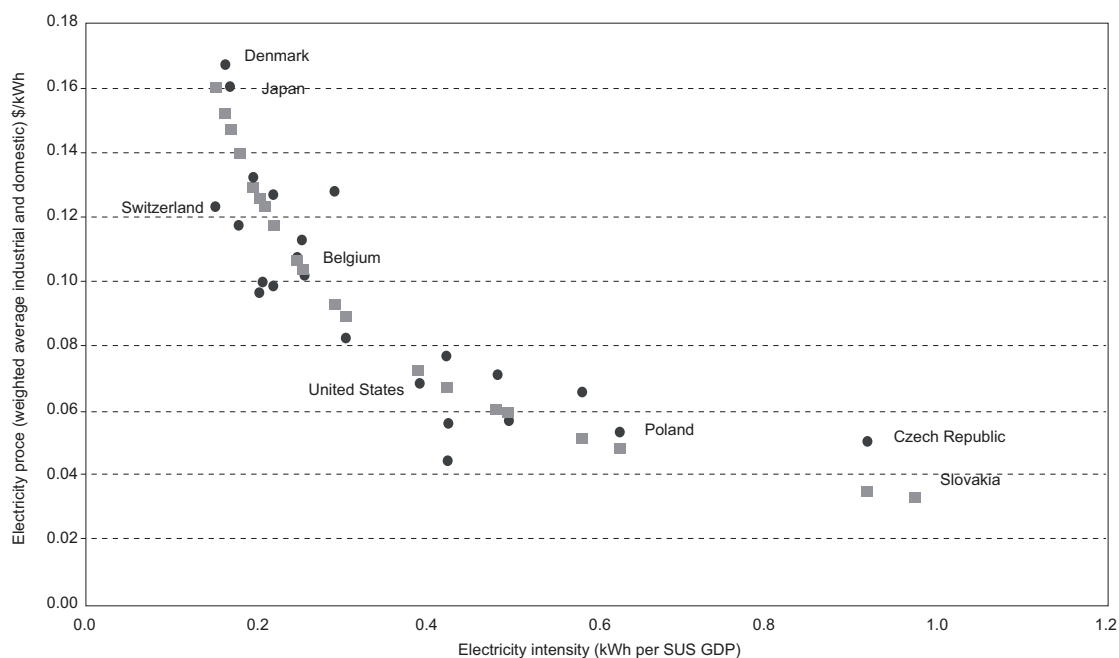
THE NEED FOR A POLICY MIX

36. Carbon pricing is a necessary but not sufficient condition for a transition to a low carbon economy. It is *necessary*, because the theoretical benefits of market-based instruments are strongly supported by empirical evidence. In particular, the inverse relationship between energy (carbon) prices and energy consumption (carbon emissions) that it is predicted by basic economic theory appears confirmed by empirical data (Figure 1).

⁹ The difficulty here is one of inertia. For each instrument, a legislative framework will be established which may be difficult to change; regulatory institutions will be established, or responsibilities assigned to existing institutions; procedures and standards will be established for functions such as monitoring, reporting and verification; a network of private organisations become involved in implementation; and the target groups themselves will invest substantial time and money in gaining familiarity with the policy instruments and putting the appropriate procedures in place. All these activities will cultivate vested interests and encourage resistance to change.

Figure 1

KOKO RELATIONSHIP BETWEEN ELECTRICITY PRICE AND ELECTRICITY INTENSITY IN OECD MEMBER STATES (1998)



Source: Verbruggen (2003).

Notes: The figure shows cross sectional data from 24 OECD countries for 1998. A double log function $\ln(\text{Intensity}) = a + b \cdot \ln(\text{Price})$, gives an R^2 of 82.3 and a residual standard error of 0.2296. The estimated elasticity b equals -1.17 (standard error 0.12 and t -value -10.11), implying that a 1% increase in electricity prices leads to a 1.17% reduction in long-term electricity intensity.

37. Carbon pricing in isolation, however, is *insufficient* because it only addresses the environmental externalities of fossil fuel combustion and does not overcome the variety of reinforcing market failures that inhibit the innovation and diffusion of low carbon technologies (Jaffe, *et al*, 2004; Sorrell, *et al*, 2004). On its own, carbon pricing is likely to provide insufficient support for promising low carbon technologies that are in the early stages of deployment as well as being relatively ineffective in encouraging energy efficiency in sectors with a low energy intensity.

38. This is particularly the case in the household sector, where the adoption of cost effective energy efficiency improvements is hindered by a series of market failures. These include: the presence of hidden costs (including the opportunity cost of time, disruption etc.); limited information (about energy use, cost of measures, benefit of measures); uncertainty about length of tenure at a property and the associated inability to recoup any uncapitalised expenses; split incentives (most notably between landlords and tenants); and difficulties in accessing capital. The net result is that the price elasticity of energy consumption is very low in this sector, which means that carbon prices would need to be very high to have a significant impact on behaviour and emissions. The associated distributional impacts are unlikely to be acceptable. At same time, there is no prospect of curbing emissions in the domestic sector over the longer term without increasing energy prices.

39. This points to the need for a coordinated policy mix that “gets the prices right”, overcomes barriers to the adoption of cost effective technologies and facilitates and encourages the complex processes of technological change. This is not an argument for a “kitchen sink” approach, but does suggest that a range of measures will be required. For example, I would argue that there is a strong case for traditional regulatory measures to eliminate standby power and to impose minimum energy efficiency requirements on electric appliances. Many of these measures are better focused on the supply chain for energy using devices, rather than the consumer, and need to be targeted and differentiated by energy service. The revenue stream from an upstream trading scheme may be used in part to fund R&D, demonstration projects, investment subsidies and other measures to facilitate the diffusion of energy efficient technologies. Hence, it is not a question of *either* a trading scheme or traditional regulatory measures: instead, *both* are likely to be required.

LINKING TRADING SCHEMES AND THE PURCHASE OF OFFSETS

40. The linking of trading schemes to allow allowances to be traded between them is likely to be a central feature of the emerging global carbon market. Such links offer considerable economic benefits and are relatively unhindered by differences in the design of the two schemes. The EU ETS is likely to be the centre of the global carbon market for the foreseeable future and is expected to establish links with other trading schemes both within and outside the Annex I countries of the Kyoto Protocol. It follows that proposals for new trading schemes should take into account the opportunity for links with the EU ETS. Such linking is possible with a hybrid scheme, since double counting of emission reductions is avoided. In contrast, linking is problematic with the PCA proposals owing to the double counting of the emission reductions associated with electricity consumption.

41. A link to the EU ETS offers several important benefits for the hybrid scheme. First, it reduces overall abatement costs by equalising the carbon price throughout the UK economy. Second, it reduces the potential for the exercise of market power by fuel suppliers in the upstream scheme. Third, it reduces the risk of both high allowance prices and price volatility. Finally, it allows access to project credits from Joint Implementation (JI) and the Clean Development Mechanism (CDM).

42. A link between the upstream scheme and the EU ETS will increase the carbon price in one market and reduce it in the other. A low carbon price may reduce the incentive for developing or adopting low carbon technologies, while an excessive reliance on CDM credits could conflict with the Kyoto Protocol requirement that this be “supplemental” to domestic action. There may also be concern about the environmental integrity of the emission reductions achieved by JI/CDM projects and by the dominance of credits from the abatement of non-CO₂ industrial gases. These are important issues for the EU ETS as a whole and may be best addressed at the EU level through harmonised rules. These could include, for example, stringent caps in future phases of the EU ETS, a harmonised limit on the number of JI/CDM credits that can be imported and the greater use of allowance auctioning, including a price floor.

43. While the linking of the upstream trading scheme with JI/CDM should be encouraged, the import of credits from voluntary offset projects may be less desirable. The voluntary market remains largely separate from the regulated market and is much smaller. The main buyers are non-regulated companies and organisations, together with individuals who are concerned to reduce the environmental impact of their activities in a relatively painless way. At present, there is no global standard for the verification and certification of project based voluntary emission reductions and the market is highly differentiated. Given the difficulties in estimating baselines for these projects, establishing whether they are “additional” to business as usual and avoiding “carbon leakage”, the environmental credibility of many offsets may be questionable. This is especially the case for forestry projects, where there are serious methodological difficulties in estimating carbon uptake and concerns about the permanence of this uptake in a rapidly warming world.

44. Given these difficulties, it may be better to confine any links with an upstream scheme to fully regulated carbon markets, and not to allow the import of voluntary carbon offsets. However, this recommendation could change if more standardised and credible verification protocols become established.¹⁰ In any case, these offsets would primarily be purchased by fuel suppliers for compliance purposes. While there would be nothing to stop or to organisations and individuals from purchasing voluntary carbon offsets, the upstream scheme would not encourage this directly—although if a link were to be established, there could potentially be scope for the sale of these offsets into the wider carbon market.

SUMMARY

45. This submission has expanded upon the practical obstacles to implementing a hybrid trading scheme and speculated on the timescales involved. The key points are as follows:

- There are relatively few practical obstacles to implementing a hybrid trading scheme and the administrative costs should be relatively small. Instead, the biggest difficulties relate to its potential impact on business competitiveness and income distribution.
- The impact of a hybrid scheme on business competitiveness may easily be overstated. The impacts should be positive for many sectors and with targeted recycling of revenues, most negative impacts could be substantially reduced.
- Revenue recycling may also be used to minimise the impact of the scheme on low income households. However, the scheme could still worsen the position of a significant number of households that are worst affected by fuel poverty. This may make it difficult to introduce the scheme within the next 10 years—and possibly for longer if the elimination of fuel poverty is delayed.

¹⁰ Such as the Voluntary Carbon Standard recently launched by the International Emissions Trading Association and the Climate Group.

- Introducing a hybrid scheme on top of existing and proposed policy instruments could be economically damaging and politically unrealistic. Current policy proposals could therefore preclude the introduction of a hybrid scheme for as much as 14 years—which may be longer than is required to eliminate fuel poverty.
- A hybrid scheme has many similarities with a programme of environmental tax reform, but at present both business and the general public have a poor grasp of the implications of such reforms. A variety of measures may need to be taken to make such changes more acceptable.
- A personal carbon allowance (PCA) scheme will have very similar impacts on business competitiveness and income distribution. It will also face similar problems of policy interaction and may face greater difficulties with public understanding and acceptance. It is therefore even less likely to be introduced in the near future.
- In addition, the aggregate costs of meeting an emission target are likely to be higher with a PCA scheme; the administrative costs of establishing, introducing and monitoring the scheme will be much higher; and a PCA scheme will not offer the opportunity to link to the EU ETS and the global carbon market.
- While carbon pricing mechanisms such as a hybrid or a PCA scheme are necessary to reduce carbon emissions, they will not be sufficient. A range of supporting policies will also be required.

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Memorandum submitted by Water UK (CIT 05)

EXECUTIVE SUMMARY

The water industry and its customers can make a real contribution to both mitigation of and adaptation to climate change. The collection, treatment and distribution of water and wastewater are energy intensive processes. The industry emitted over four million tonnes of greenhouse gas emissions in 2004–05. In addition, around one-third of the energy used in homes is for heating water and, as homes become more energy efficient, water heating could soon overtake space heating as the main source of domestic energy consumption.

Becoming more water efficient can therefore have significant benefits in terms of reducing energy use. We now use about 150 litres of water per person per day, around 70% more than we each used 40 years ago. As we become richer and change the way we live our lives, water consumption is expected to increase further, unless action is taken by all.

Climate change is likely to result in increased flooding and drought events. We need this reality to be embedded into all areas of planning, design and development. The current drought in the southeast has brought many of the issues relating to the drought planning to the fore, but the issues for flooding are similar. Current investment and planning frameworks take account of the possibility of occasional hosepipe bans or infrequent flooding events which may overwhelm defenses. Changes to the way we plan for droughts and floods, and the amount we subsequently invest, needs to take account of cost, service levels and public expectations.

What is the real scope for individual and local community action to contribute to tackling climate change?

1. There is a lot of work already going on by the industry and others to promote and embed water efficiency, but more can always be done. Specifically, individuals and communities could:

- Install water efficient devices and appliances in homes and buildings.
- Use water wisely in homes and buildings.
- Work with water companies and others to promote water efficiency messages in homes, schools and other community *fora*.
- Encourage the increased use of water meters, particularly in areas of potential water stress.
- Increase the use of micro-generation and smaller scale infrastructure solutions, including rainwater/greywater harvesting systems, sustainable urban drainage systems (suds) and local wastewater treatment.

What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome?

2. Barriers to more water efficient lifestyles include: low levels of metering, lack of information on or availability of water efficiency performance of devices and appliances, perceived or real higher costs or reduced performance of more water efficient devices and appliances. These can be overcome through labeling schemes, changes to Building or Water Fitting Regulations, financial incentives and simplification of the metering process.

How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

3. The Government can:

- Clarify who is responsible for suds and flood risk management generally. The industry is keen on the potential of suds to help reduce flood risk by attenuating flows or even diverting surface water from the sewerage system.
- Encourage the use of recycled sludge or biosolids for agricultural production. This would save the energy costs associated with fertiliser production and deliver essential soil treatment naturally. We should also consider using biosolids to grow energy crops to power sewage treatment plants.
- Encourage more use of engineered reedbeds. This again would cut demand for energy, increase habitat creation and possibly act as a carbon sink. It would support the Water Framework Directive and the concept of multi-barrier protection laid out in water safety plans.
- Work to reduce the amount of impervious surfaces, the spread of which has been a major contributor to increased storm overflows draining into the sewage system and causing local flooding events.

Water UK

August 2006

Memorandum submitted by the Design Innovation Group, The Open University (CIT 09)

EXECUTIVE SUMMARY

1. This paper summarises some results of research by the Open University of the key influences on the adoption—and non-adoption—by mainly environmentally-concerned UK citizens of low and zero carbon (LZC) technologies. These include energy efficiency measures (such as loft insulation, condensing boilers and compact fluorescent lamps covered by the Energy Efficiency Commitment) and micro-generation energy technologies (such as solar water heating, photovoltaics and micro-wind turbines included in the DTI's Clear Skies scheme and Low Carbon Buildings Programme). The research also includes the benefits and problems experienced by the citizens who adopted these LZC technologies, plus ideas and policies for overcoming the barriers to their adoption and their effective use in reducing carbon emissions.

The tables in the paper show that each LZC technology has different drivers, barriers, benefits and problems and hence ideas and policies for improvements, but there are some common factors that affect the different technologies.

2. The main driver for citizen adoption of LZC technologies is reducing fuel bills and/or saving energy in the context of rising fuel prices. Another key driver for adoption of LZC technologies is environmental concern (esp climate change and nature conservation), at least for the mainly “greener” citizens we surveyed.

3. The barriers to adoption vary widely depending on the technology concerned and go beyond the well-known financial issues. Examples of significant barriers to the adoption of energy efficiency measures include peoples' concerns about irritant fibres in loft insulation materials, needing to clear the loft, and loss of loft storage space when installing the recommended thickness of insulation; the reputation of condensing boilers among installers and consumers for unreliability and shorter life; and the size and perceived ugliness of compact fluorescent lamps, and a failure to communicate improvements in CFL design and technology since their introduction. However, even for environmentally concerned citizens, capital cost is a major barrier to adoption of micro-generation technologies, together with the uncertain performance and reliability of innovative technologies.

4. The benefits of insulation are reported (even by non fuel-poor citizens) largely in terms of warmer homes rather than in reduced energy consumption, ie the “rebound effect” of insulation could be higher than the figure assumed for the Energy Efficiency Commitment. In contrast, improved heating controls when

used properly and condensing boilers appear to have little rebound effect and so should help more directly to reduce carbon emissions. Energy efficient lighting appears to involve a relatively small rebound effect, as some users choose to leave CFLs switched on longer and/or may install additional CFL lighting.

5. The micro-generation technologies as well as reducing carbon emissions, offer citizens who can afford to install them (for whom grants were only a relatively minor driver) great pleasure in using renewable energy as well as focusing their attention on saving energy.

6. To encourage the widespread adoption and effective use of these LZC technologies requires different actions and policies tailored to the specific technologies: eg allowing use of eco-friendly materials in subsidised loft insulation schemes; designing and installing user-friendly controls that provide feedback on energy used or saved; energy companies offering financing packages to install micro-generation systems; and regulations and standards guaranteeing the performance, reliability and durability of micro-generation technologies.

INTRODUCTION

1. The Open University, Design Innovation Group (DIG) has surveyed the factors influencing consumer (ie citizen) adoption—and non-adoption—of conventional energy efficiency measures (such as those covered by the Energy Efficiency Commitment) and of innovative micro-generation energy technologies (such as those included in the DTI's Clear Skies scheme and Low Carbon Buildings Programme). In addition, for the citizens who adopted these measures or technologies, we have surveyed their practical experience of installation and use. The research was conducted in three ways:

- (a) in-depth telephone interviews of people who had sought advice between 2004 and 2006 from one of the Energy Efficiency Advisory Centres (EEACs) operated by Milton Keynes Energy Agency, or from the National Energy Foundation (NEF) an organisation that provides information and assistance to the public on renewable energy;
- (b) via on-line questionnaires for the general public posted in Spring/Summer 2006 on the website of the Energy Saving Trust (EST) and on a website linked to the BBC/Open University *Climate Chaos* TV series.
- (c) We also obtained the views of energy professionals, such as local authority housing officers, architects and energy consultants, via an on-line energy newsletter.

2. We have conducted some 90 in-depth telephone interviews of people who adopted, or considered getting, one or more established technologies of loft insulation, heating controls, condensing boilers, energy efficient lighting and solar water heating. The on-line survey produced nearly 400 responses from people who had adopted—or seriously considered but rejected—one or more of the above established technologies and/or innovative micro-generation technologies, including micro-CHP, domestic photovoltaics (PV) and micro-wind turbines, plus biomass (wood-fuelled) stoves.

The sample

3. While the EEAC clients are fairly typical UK citizens, albeit perhaps somewhat “greener” than the general population (eg most recycled their household waste), the clients of the National Energy Foundation and the respondents to the EST/BBC/Open University on-line survey were generally more environmentally concerned and from higher socio-economic groups than the UK population as a whole. This is therefore a “purposive” rather than a representative survey, as is required in order to include the early adopters of innovative products such as micro-generation systems.

4. Our surveys have nevertheless produced useful empirical evidence about the scope for tackling climate change by citizen action through increasing energy efficiency and adopting micro-generation technologies. The results are summarised in Tables 1–4 below. The tables include the drivers, barriers, benefits, problems and improvement ideas and policies that received a third or more of the responses in the EST/BBC/OU on-line survey of some 400 greener citizens. The reasons for non-adoption by these citizens represent significant barriers that need to be addressed before the less environmentally concerned general population are likely to adopt LZC technologies in sufficient numbers to help tackle climate change.

THE SCOPE FOR INCREASING ENERGY EFFICIENCY

5. Table 1 summarises the main drivers for, and barriers to, citizen adoption of established household energy efficiency measures such as those covered by the Energy Efficiency Commitment, together with the main benefits and problems experienced by citizens who adopted the measures.

The information in Table 1 and subsequent tables is classified according to the frequency of responses in the relevant sub-sample from the EST/BBC/OU on-line survey as follows:

Bold italic = more than 66% responses
Normal = more than 33% responses

Italic = more than 50% responses
[Brackets] = Other responses/comments

Table 1:**MAIN DRIVERS FOR, AND BARRIERS TO, CITIZEN ADOPTION OF ENERGY EFFICIENCY MEASURES AND MAIN BENEFITS AND PROBLEMS EXPERIENCED DURING THEIR USE**

	<i>Loft insulation (250 mm or more)</i>	<i>Heating controls (programmers, TRVs)</i>	<i>Condensing boilers</i>	<i>Energy efficient lighting (CFLs)</i>
Drivers for adoption	<i>Saving money and/or energy</i> <i>Wanting a warmer home</i> <i>Environmental concern</i> <i>Rising fuel prices</i>	<i>Saving money and/or energy</i> <i>Environmental concern</i>	<i>Saving money and/or energy</i> <i>Environmental concern</i> <i>An existing boiler needs replacing</i> <i>Wanting a warmer home</i> <i>Having funds to improve heating system</i>	<i>Saving money and/or energy</i> <i>Environmental concern</i>
Barriers to adoption	<i>Concerns about irritant mineral wool insulation fibres</i> <i>Need to clear loft before installation (esp elderly)</i> <i>Loss of loft storage space following 250 mm or more insulation</i>	<i>Unwillingness to replace functioning existing heating controls with modern ones</i>	<i>High cost of replacing a still functioning conventional boiler</i> <i>Reputation of condensing boilers for unreliability/shorter life</i>	<i>Large size and perceived ugliness of CFLs</i> <i>Higher cost</i> <i>Incompatibility with existing light fittings and/or dimmers</i> <i>CFLs that don't reach full brightness instantly</i>
Benefits experienced in use	<i>Warmer home in winter</i> <i>Greater concern about saving energy</i> <i>[Cooler home in summer]</i>	<i>Reduced fuel consumption</i> <i>Greater concern about saving energy</i>	<i>Reduced fuel consumption</i> <i>Greater concern about saving energy</i> <i>Warmer home</i>	<i>Reduced fuel consumption</i> <i>Greater concern about saving energy</i> <i>Long life of CFLs</i>
Problems experienced in use/Rebound effects	<i>Little or no reduction in fuel bills or energy consumption</i>	<i>Minimal rebound effect</i> <i>[Controls difficult to understand esp elderly]</i> <i>[Control buttons and displays too small]</i> <i>[Controls installed in inaccessible places]</i>	<i>Minimal rebound effect</i>	<i>[Leaving CFLs switched on longer]</i> <i>[Installing additional CFL lighting]</i>

6. Table 2 lists technical, organisational and communication ideas and policies that would encourage citizens to adopt energy efficiency measures and address the problems experienced in use.

Table 2:**IDEAS AND POLICIES TO ENCOURAGE CITIZEN ADOPTION AND EFFECTIVE USE OF ESTABLISHED ENERGY EFFICIENCY MEASURES**

	<i>Loft insulation</i>	<i>Heating controls (programmers, TRVs)</i>	<i>Condensing boilers</i>	<i>Energy efficient lighting</i>
Design improvements/technical innovations	<i>DIY or professional systems to provide storage above insulation</i> <i>Thinner less bulky insulation materials</i>	<i>Controls designed for all users (incl. elderly, disabled)</i> <i>Intelligent controls that automatically optimise comfort and energy use</i> <i>Controls that give users feedback on energy costs and consumption</i> <i>Instructions or computer program, to enable users to optimise comfort and energy use taking into account their dwelling, heating system and needs</i>	<i>Boiler that displayed its working efficiency</i> <i>More reliable and durable condensing boilers</i> <i>Easier to service condensing boilers</i>	<i>CFLs compatible with existing fittings (especially halogen spotlights and dimmer switches)</i> <i>Different colour rendering eg less harsh light</i> <i>More powerful CFLs</i>

	<i>Loft insulation</i>	<i>Heating controls (programmers, TRVs)</i>	<i>Condensing boilers</i>	<i>Energy efficient lighting</i>
Organisational changes	Subsidised insulation schemes to include eco-friendly materials	Better training for installers eg on the importance of locating controls in accessible places		Wider availability of CFLs in shops
Improved communications	[Publicise benefit of insulation for keeping homes cooler in summer]			Better publicity about improvements in CFL design and technology Avoid over-optimistic claims of CFL life

THE POTENTIAL FOR, AND BARRIERS TO, MICRO-GENERATION

7. Table 3 summarises the main drivers for, and barriers to, citizen adoption of domestic micro-generation systems, and the main benefits and problems experienced by those who adopted one or more of these technologies. This information came from respondents to the EST/BBC/OU on-line survey for all the micro-generation technologies listed in the Table, supplemented by telephone interviews with actual and potential adopters of solar water heating (by far the most common UK micro-generation technology).

Table 3:

MAIN DRIVERS FOR AND BARRIERS TO CITIZEN ADOPTION OF MICRO-GENERATION TECHNOLOGIES AND MAIN BENEFITS AND PROBLEMS EXPERIENCED DURING THEIR USE

	<i>Solar water heating</i>	<i>micro-CHP</i>	<i>Photovoltaics (PV)</i>	<i>micro-wind turbine</i>	<i>Biomass (wood) stove</i>
Drivers for adoption	<i>Saving money and/or energy</i> <i>Environmental concern</i> Having the funds to invest in a green, money saving technology (esp retired people) Received a special offer or grant	Sub-sample too small	<i>Environmental concern</i> Saving energy Having the funds to invest in a green, money saving technology	Saving energy Environmental concern	<i>Saving money and/or energy</i> <i>Attractive appearance of stove/real fire</i> <i>Access to low cost supply of wood fuel</i> <i>Environmental concern</i> Alternative heating fuel to gas or electricity Having the funds to invest
Barriers to adoption	<i>Capital cost</i> Payback period too long, given uncertain reliability and system life [Unregulated industry with some firms using high pressure sales techniques]	<i>Capital cost</i> Uncertain performance and reliability of new technology Integrating with existing electricity and/or heating systems	<i>Capital cost</i> Payback period too long Uncertain performance and reliability of new technology Integrating with existing electricity systems	<i>Capital cost</i> Uncertain performance and reliability of new technology Planning objections No suitable location for the turbine [Noise and visual intrusion]	Lack of space to store fuel Dust and dirt in the home Capital cost No suitable location for stove or storage for fuel Poor control of heat output; Frequent refuelling
Benefits experienced in use	<i>Pleasure in using solar heated water</i> <i>Reduced fuel consumption</i> Greater concern about saving energy	Sub-sample too small	Greater concern about saving energy Pleasure at using own generated electricity	Sub-sample too small	<i>Pleasure at using renewable fuel</i> Lower fuel bills

	<i>Solar water heating</i>	<i>micro-CHP</i>	<i>Photovoltaics (PV)</i>	<i>micro-wind turbine</i>	<i>Biomass (wood) stove</i>
Problems experienced in use/ Rebound effects	Unable to use solar heated water in dishwasher or washing m/c <i>Using solar hot water when it is available (not necessarily a problem)</i>	Sub-sample too small	None	Sub-sample too small	<i>Rooms heated to higher temperature</i>

8. Table 4 lists technical, organisational and communication ideas and policies for promoting citizen adoption of micro-generation and tackling the problems of installation and use.

Table 4:

IDEAS TO ENCOURAGE CITIZEN ADOPTION AND EFFECTIVE USE OF RENEWABLE/ MICRO-GENERATION TECHNOLOGIES

	<i>Solar water heating</i>	<i>micro-CHP</i>	<i>Photovoltaics (PV)</i>	<i>micro-wind turbine</i>	<i>Biomass (wood) stove</i>
Design improvements/ technical innovations	<i>Lower cost systems, perhaps using simpler technology</i> <i>Roof integrated systems</i> <i>Systems to give feedback on money and energy saved</i> <i>Installation from inside building</i>	Proven reliability and durability Smaller designs of micro-CHP unit Micro-CHP systems to use fuels other than mains gas Reduced noise from unit	<i>Lower cost systems</i> <i>Systems to give feedback on money and energy saved</i> <i>Installation from inside building</i>	<i>Lower cost systems</i> <i>Roof integrated systems</i> <i>Systems to give feedback on money and energy saved</i> <i>Attractive visual appearance</i>	<i>Lower cost systems</i> <i>Less smoke/ pollution</i> <i>More controllable heat output</i> <i>Less dust and dirt</i> <i>Less frequent refuelling</i>
Organisational/ regulatory changes	Packaged systems eg SWH + condensing boiler Standards for reliability and durability [Guaranteed long-term maintenance]	Proven environmental and economic benefits Improved support for installation and maintenance	Standards/ regulations for reliability and durability	Standards/ regulations for reliability and durability	
Financial measures	<i>Systems financed by energy supplier and paid back via fuel bills</i>	Better price for grid exported electricity	<i>Systems financed by energy supplier and paid back via fuel bills</i> <i>Better price for exported electricity</i>	Systems financed by energy supplier and paid back via fuel bills	
Improved communications		<i>Better consumer information about micro-CHP</i>			

CONCLUSIONS

Promoting the widespread citizen adoption and carbon-saving use of energy efficiency measures and micro-generation systems requires a multiple approach that needs to be tailored to the different technologies concerned. Policies and actions need to go beyond addressing the financial barriers to adoption, important as these are. Policies and actions should include improving the design and technology of some existing products and systems; better user-centred training of installers; improved communications about improvements to established energy efficiency measures; detailed practical advice about the installation and use of micro-generation systems and guarantees regarding their performance, reliability and maintenance.

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August 2006

Memorandum submitted by Sustrans (CIT 11)

EXECUTIVE SUMMARY

- This is a response by Sustrans, the UK's main sustainable transport charity.
- We work on "hard" measures such as the National Cycle Network and "soft" ones (such as TravelSmart) to promote sustainable transport and thus reduce carbon emissions.
- We believe that all public spending should be put within the context of a carbon-constrained future—and urge that this is recognised in the current Comprehensive Spending Review.
- Much higher levels of funding for local government and NGOs would enable a step-change in local transport to take place and encourage individual action towards sustainability.
- Schools in particular offer real possibilities for practical action and everyday behaviour change.

ABOUT SUSTRANS

1. We are the charity behind practical and innovative solutions to some of the UK's biggest transport challenges. Our work includes the National Cycle Network, Liveable Neighbourhoods, Healthy Active Travel, Safe Routes to School, TravelSmart and Low Carbon Travel.

2. We work with local and national government, and our aim is to change the UK's transport system and culture so that:

- Transport emissions that cause climate change are significantly reduced.
- People can choose more often to travel in ways that benefit their health.
- Everyone has local access to the services they need to improve their quality of life.
- Local streets and public spaces become places for people to enjoy.

Clearly, such work is of great benefit in empowering the average citizen.

3. We are a member of Stop Climate Chaos, the huge coalition working together on this critical issue. We organised a conference on Transport and Climate Change in Cambridge last year, and the background paper "Driven to Extinction?" is available from us. We are also co-publishers of "Driving Up Carbon Dioxide Emissions From Road Transport" (Steer Davies Gleave, July 2006). This shows how existing Government policies are actually working to increase carbon emissions, rather than reduce them.

4. Our evidence to the recent Environmental Audit Committee inquiry into "Reducing Carbon Emissions From Transport" has now been made public.

5. We have made a detailed submission to HM Treasury on the Comprehensive Spending Review, urging that all public spending be re-assessed within the context of the need to reduce carbon emissions.

6. Sustrans warmly commends the "VIBAT" report to the Committee. This was done as part of the "Horizons programme" for the DfT by Bartlett College and Halcrows, and published in January 2006. It lists 122 ways of reducing carbon emissions from road transport and suggests that a 60% cut by 2030 is possible, if hard work.

WORK BY SUSTRANS

7. Most of our work now contributes directly to the reduction of carbon emissions from Transport, simultaneously offering individuals and communities greater travel choice with a strong linkage to sustainable modes, and to healthy means of travel.

The National Cycle Network

8. The NCN is now over 10,000 miles long, coordinated by Sustrans and built in partnership with local authorities throughout the UK. We publish an annual monitoring report: that for 2005 shows that the Network carried 232 million trips to school, work, the shops, family and friends. 36% of users could have used a car to make their journey but chose not to.

9. In the last six years the Network has carried nearly one billion trips by bike and on foot. These represent a potential carbon saving of 1.3 million tonnes—the same amount to be made by the Government's proposed recent bio-fuels initiative.

Journeys to School

10. Official figures suggest that up to 20% of morning peak hour traffic is escort journeys to school. Our "Safe Routes to Schools" and "Bike It!" programmes have made a major contribution to traffic reduction at this time of day.

11. Our research shows that 45% of children want to cycle to school, but only 4% currently do. Yet at our own selected schools we have quadrupled cycling within a year. Furthermore, our "Links to Schools" programme has taken one million car trips a year off the road in 12 case study schools.

12. Overall our Safe Routes to School programme is now supporting 7,500 schools in development of their Travel Plans. The Government has a target of all schools having such a Plan by 2010, an initiative we commend.

TravelSmart

13. This has been pioneered by Sustrans in the UK following its widespread success at reducing motorised travel worldwide. It is a unique service that gives households the tailor-made information they need to walk, cycle and use public transport more. We only engage with households who request the information, but in this way citizens can have a much wider choice about travel information.

14. TravelSmart costs on average £20 of public funds per household. On average it reduces car travel 10–14%. Our latest work, in the DfT "Sustainable Travel Demonstration Towns" of Peterborough and Worcester, shows similar results. It also shows that TravelSmart could be extended to a city the size of Birmingham (400,000 households) for £8 million—the cost of a third of a mile of motorway.

Q1. What is the real scope for individual and local community action to contribute to tackling climate change?

15. Firstly, we believe it is possible to make considerable reductions in traffic—and by implication, carbon emissions—by information campaigns, such as our TravelSmart (see above).

16. Secondly, modal shift can be encouraged by the creation of new non-motorised infrastructure. Please see our figures above regarding the National Cycle Network.

17. Thirdly, combinations of "hard" and "soft" measures are powerful, as in the case of workplace or school Travel Plans. There is currently a positive DfES consultation on "Sustainable Schools". Clearly these could be a real focus for community action. We have noted above that in some of our Bike It! schools we have quadrupled cycling.

18. Fourthly, "Eco-driving". Individuals should be encouraged to drive smaller-engined more fuel-efficient vehicles. Vehicles fitted with on-board speed limiters will assist in the reduction of carbon emissions. Such reduction can also be achieved by a lowering of speed limits at the top end of the range.

Q2. What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated Vehicle Excise Duty sufficiently strong to affect behaviour?

19. We refer the Committee to the EAC report of 7 August. The main barrier appears to be Government reluctance to offer clear leadership on this issue, which in turn translates into confusion at the individual level.

20. A reliance on voluntary-only agreements with car-makers; an ever-growing expansion of air travel; a hugely expensive planned increase in highway capacity; and a massive under-investment in sustainable modes—these all send "the wrong message" from Government to the individual. Additional to this is that the DfT proposes that its national Road User Charging programme should be targeted only at congestion, and not to be considered as an instrument against climate change. Within a road pricing regime it should be possible to levy higher charges on the more wasteful and polluting cars, as currently being proposed by the Mayor of London for SUVs within congestion charging.

Q3. How can the Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission measures? What is the role of the community projects in schools and other public institutions?

21. In answer to the second question, Sustrans is working on a response to the DfES “Sustainable Schools” consultation. We can make this available to the Committee within four weeks, if required.

Q4. What is the role of NGOs in delivering the “Citizen’s Agenda” on climate change?

22. The membership of NGOs runs into millions in the UK. Many such work in partnership with national and local government, most feel much more could be done.

23. For example, there are supposed to be national “Compacts” between NGOs and central government. These are, however, extremely feeble and of little worth. At local level many NGOs are often viewed as a nuisance by Councils, despite having a valuable expertise to contribute.

24. The position of Sustrans is slightly more favourable, as our Regional Offices are by now long-established and well respected. Nonetheless, in the issue of “winning hearts and minds”, a more positive partnership between NGOs and Government would yield huge benefits.

25. We also believe a step-change in funding for NGOs is needed. Sustrans itself could greatly expand its work given greater Government support.

Q5. Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?

26. Sustrans believes that a system of personal carbon allowances is:

- Equitable;
- Workable; and
- Desirable.

27. Such a system would take place against the background of agreed capped limits for the nation, and of sectors within the nation. It is, of course, outlined by Hillman and Fawcett in “How We Can Save the Planet”, Penguin Books 2004. We have already appraised DEFRA of our intention to pilot such a scheme amongst our staff.

28. Other levers influencing travel behaviour include:

- Pricing and taxation mechanisms;
- Demand management; and
- Information campaigns about climate change and peak oil/energy security issues;

29. Often the provision of information is itself an incentive for change, cf our TravelSmart work. But this can also be incentivised through items such as concessions on public transport tickets or assistance with bicycle purchase or hire.

CONCLUSION

30. This is a most timely enquiry by the Committee, and we hope that our range of practical projects which assist the individual to travel sustainably are of relevance and interest.

Sustrans

August 2006

Memorandum submitted by energywatch (CIT 13)

- Quality information is a necessary precursor to change people’s understanding and use of energy.
- Consumption information currently provided to households is inaccurate, unappealing, arcane and outdated.
- We are all different—understanding the information requirements of all segments of society will allow potential benefits to be realised.
- People should be aware of the obligations they are, and will continue, to pay for.

1. SETTING THE SCENE

1.1 *A consumer's view*

Virtually all 25 million households in Great Britain have access to mains electricity, with approximately 21 million having access to mains gas. Since market liberalisation in the late 1990s licensed energy suppliers have competed for 46 million gas and electricity accounts.

Gas and electricity supplied to the home is so commonplace that most of us take it for granted that a flick of a switch will instantly provide us with energy, without any thought of where it comes from or if it is being used efficiently and effectively.

For the majority of people conscious engagement with their energy needs occurs when they are billed and have to pay for their energy use. For customers who have prepayment meters (PPMs), this engagement is often more frequent. Often these customers have low incomes and prefer to budget on a regular basis, and therefore purchase regular “top-ups”.

1.2 *Note on prices—a blunderbuss?*

Prices rises alone cannot be relied on to deliver the desired change in lifestyle. Since 2003 the average household bill has nearly doubled, yet energy demand continues to increase (although current energy efficiency measures are restraining this rate) and over half of households have never opted to switch away from their incumbent suppliers. Even the most price-sensitive vulnerable households continue to prioritise energy and heating spending (as has been shown by energywatch research)¹ and the number of fuel poor households is now on the increase—by Government estimates, rising prices put an extra 1m households into fuel poverty between 2004 and 2006, bringing the UK total to over 3 million households.²

In short relying on price alone to mitigate climate change impacts would need an increase of a magnitude which would result in unacceptable social and economic detriment.

1.3 *Tariff structure—upside down?*

Indications are that the price of energy will continue to rise over the next few years. Most energy tariffs are structured in a way which runs counter to sustainability ambitions. Unit charges for the initial amount of energy is higher than subsequent units (the exact level depends on each tariff) effectively rewarding higher consumption as the average unit cost will decrease the more energy is used.

2. WHAT IS STOPPING US?

In general consumers do not understand the complexities which underpin energy markets, and it is unfair to expect effective participation to require a detailed knowledge of market mechanics.

2.1 *Bad bills—bad for so many reasons*

Last year energywatch received 62,000 complaints and 160,000 enquiries from energy consumers. Two-thirds of the complaints received were about billing. This problem should not be underestimated: for every consumer who doggedly tries to resolve their billing problems, there are likely to be others—particularly the poor and vulnerable—who may have fallen by the wayside. The problems caused as a result of this are manifold. Bad billing can lead to unexpected debt. This in turn has knock-on effects on peoples willingness to engage with the market and puts pressure on other household expenditure. Any bill which isn't accurate is a bad bill, including estimated bills. In the liberalised energy market consumers rely on price signals to inform them whether or not it would be in their economic interests to switch to another energy supplier or different tariff. energywatch maintains that until consumers receive accurate, timely, well presented information about their household consumption people will be unable to make fully informed (ie not solely on price) decisions about their household energy needs.

Provision of better energy consumption information to households, through the introduction of smart metering systems, will be a significant step towards giving people the necessary information to seek out carbon abatement and energy efficiency opportunities [*see below*].

¹ “Putting Priorities in Order”—qualitative research for energywatch. December 2005.

² Government Fuel Poverty Strategy, Fourth Annual Report. June 2006. <http://www.dti.gov.uk/files/file29688.pdf>

2.2 *Government strategy—when will it become action?*

The Governments' own sustainable development strategy focuses on the need to enable, encourage and engage people and communities in the move toward sustainability; recognising that Government needs to lead by example. While these elements are all necessary for change to take place they may not be sufficient to bring about the changes needed when behaviour is entrenched. In these circumstances, there may be a need to go further and think about how policies can be designed to catalyse people to behave differently.

Therefore when examining how the "ordinary citizen" can change his or her lifestyle to minimise the impact of climate change and to mitigate its effects energywatch argues that one obvious issue to reassess is the relationship between energy consumers and their energy supply. We recognise that providing households with more relevant, accurate, timely, well presented information about their household consumption will not be sufficient to deliver the desired scale of lifestyle change on its own.

Within the context of the liberalised market if other strategies, such as media campaigns, fiscal incentives, community action and Government leading by example through sustainable procurement strategies are to succeed then it is necessary to provide households with a degree of information substantially more useful than is currently provided.

For example households are not sufficiently enabled to make informed decisions about the value of fiscal incentives or grants (the Engagement part of sustainable development strategy) and are presently unable to engage with forums, community action and campaigns in any way which is significant to their personal circumstances. The Government should also make it clear to people their intention to lead by example.

2.3 *Who pays and who knows?*

There is generally very low awareness of the environmental obligations placed on energy companies by Government, such as the Energy Efficiency Commitment and the Renewables Obligation. This lack of awareness stifles moves by the market, consumers and the Government to meet low carbon energy policy goals because it removes the very people (consumers and constituents) who ultimately fund the measures from any meaningful debate on how they, as individuals, can make a difference.

In 2004 it was estimated that these two measures accounted for about 3% of a customer's bill.³ It is likely that the Energy Efficiency Commitment target will double from 2008 (which will double the cost of the programme, and be passed straight through to consumers) and in the same year the Renewable Obligation target will be double that of 2004, and continue to increase until at least 2015. Yet because people are unaware of this, mis-trust of Government and energy companies' intentions is likely to increase.

3. NEW APPROACHES

3.1 *Point of use information—the necessary precursor*

energywatch recently commissioned Ipsos MORI to undertake a review of the latest research on the impact of information provision on behaviour change to find out: why information provision is important; why choosing the effective communication mechanism is important for people to understand and engage with the information and finally why it is also necessary to consider who is doing the communicating.

Unlike measures to promote energy efficiency (such as increasing the thermal efficiency of a dwelling with insulation or installing energy efficient appliances) provision of accurate, timely, well presented consumption information can engage and inform people about their consumption at the point-of-use. Giving people point-of-use feedback information has three main functions:⁴

1. Learning—people can better understand how their behaviour influences the amount of energy they use.
2. Forming habits—people can use their new knowledge to alter their activities which may result in a change in routine.
3. Internalisation of behaviour—new habits can change attitudes to suit the new behaviour.

Therefore substantially improved information is a necessary precursor to enable energy consumers to begin to alter lifestyles and habits to mitigate impacts on climate change.

³ "Public Affairs Committee: Thirteenth Report—Ofgem: The Social Action Plan and the Energy Efficiency Commitment". May 2005. <http://www.publications.parliament.uk/pa/cm200405/cmselect/cmpublic/442/442.pdf>

⁴ "The effect of goal setting and daily electronic feedback on in-home energy use." J T Van Houwelingen, W F Van Raaij, Journal of Consumer Research 16. 1989.

3.2 *Appealing to real people—the importance of presentation*

How this information is presented is the second consideration to ensure that the potential carbon savings from behaviour change can be realised.

Effectiveness is measured by the following factors: consumer relevance (potential for individualised information); raising awareness of an issue; enabling understanding; translating into action (conscious) and sustainable action (unconscious action).

Advertisers and marketers have a wealth of experience in which communication methods are most effective in getting people to buy products or use services. Evidence and experience from this field is relevant when trying to understand how people interpret and react to communications about using energy more efficiently—and in particular, what types of communications lead to behavioural change.

3.3 *No such thing as an “ordinary” citizen—why segmentation is necessary*

Consumers are not homogenous and will react to various methods of presentation differently. energywatch published a paper in January 2006 which summarises the crucial importance of providing energy consumption information in a manner which engages people (there is little point in providing accurate and timely information to consumers if it is presented poorly, uses arcane units such as BTUs and kWhs etc and tries to offer more information than is necessary). Consideration is also given to the needs of vulnerable members of society.⁵

Segmenting energy consumers is important because consumers have different characteristics which affect the way we should communicate with them. While it would be unfeasible and possibly ineffective, in most cases, to communicate with each consumer on a one-to-one basis, segmentation enables an organisation to cluster groups of consumers with similar characteristics. The clusters need to be specific and of interest to the organisation as a target market, as well as realistic communication targets—ie the organisation can reach them and provide a valid product/service/idea. As a result, the organisation is then able to:

- Understand and differentiate between the characteristics of each segment.
- Target them with tailored products or services that best meet their needs.
- Communicate with them in the most relevant way according to their different characteristics (demographics, lifestyle, attitudes and behaviour).
- Build loyalty and engagement (eg Customer Relationship Management).

Experience shows that unlike private sector campaigns—and also many well-known social marketing campaigns such as encouraging people to stop smoking—campaigns to encourage sustainability face the additional challenge of striking a balance between having a compelling call to action while simultaneously not encouraging energy saving to the detriment of the health and well-being of at-risk groups. For example, some vulnerable groups who may already be efficient in their use of energy may still feel obliged to cut their usage with potentially detrimental impact on the living conditions in their homes.

Additional challenges faced by those developing social marketing strategies—in the energy sector and beyond—include:

- the knowledge that traditional marketing methods appear to be increasingly ineffective: evaluation of traditional mass media campaigns suggests that in general, whilst these have raised awareness, this awareness is rarely translated into action; and
- evidence shows that the general public find it difficult to understand and relate to concepts of energy efficiency and sustainable development: it is argued that this is at least partially because they have limited understanding of how these concepts relate to them as individuals.⁶

3.4 *Who to trust . . .*

To encourage the greatest number of people to alter their lifestyle the issue of who delivers complementary information and advice on how new found knowledge can be utilised to mitigate their impact on climate change.

A number of studies conclude that people are generally mistrustful of environmental messages communicated by Government and energy suppliers. In 2003 the Audit Commission commissioned Ipsos MORI to quantify the levels of trust people have in public institutions.⁷ Of the 16 institutions people were asked to consider the three which were least trusted were “big companies”, the press and political parties.

⁵ “Getting Smarter: Improved energy information for consumers.” January 2006. energywatch http://www.energywatch.org.uk/uploads/Getting_Smarter_Improved_energy_information_for_consumers.pdf

⁶ “Energy Efficiency: Public Attitude, Private Action”. LogicaCMG. May 2006. http://www.logicacmg.com/pSecured/admin/countries/assets/serve_asset.asp?id=4424

⁷ “Trust In Public Institutions.” Audit Commission/Ipsos MORI. 2003. <http://www.ipsos-mori.com/publications/rd/trust.shtml>

The Powergen Energy Monitor 2004⁸ concluded that consumers were least likely to trust energy efficiency advice given by in store sales staff, whilst energy suppliers and Government agencies were mid table, with energywatch and independent consumer organisations topping the list of trusted advice providers.

Therefore it is essential to accept that people's perceptions of various institutions' intentions may differ from actual intentions. Instead, future strategies should identify and support those agencies and people who are most trusted.

4. ACTIONS

Until people become more energy literate by substantially improving the information they receive about their personal energy consumption all other measures, policies and strategies will cost more have their objectives frustrated—as can be seen from today's energy lifestyles.

4.1 *Potential for “smart metering”*

energywatch believes that smarter metering systems are a means to many ends. Most importantly they will end estimated bills and the damaging impact these have on consumers' finances. An industry that can effectively bill its customers will enjoy a better and more trusting relationship.

They will also enable consumers to access the information necessary to understand their household energy needs and make energy efficiency more visible, relevant and attainable. They may also be the ideal mode for communicating the most relevant, bespoke message to the private household. Other possibilities from such technologies are the introduction of time of day tariffs or utilisation of dynamic demand appliances.

Updating metering infrastructure for the 21st century will undoubtedly have a cost. However consideration should be given to the wider social, economic and environmental costs if the present metering infrastructure remains in-situ for the foreseeable future—given that replacing the current stock with smarter systems could reasonably take a decade. In 2003 Ofgem stated that metering installation, servicing and reading costs were £800 million a year.⁹

The forthcoming smart meter pilot is an ideal opportunity for lessons to be learned which can be used to improve energy literacy to ensure that the potential carbon savings from behaviour change can be realised.

4.2 *The Energy Efficiency Commitment (EEC)*

Energy suppliers have successfully met their EEC obligations in the past and are likely to meet their targets for the current round. However consumer awareness of this scheme is nil. This in practice means that consumers are passive bystanders who have energy efficiency done to them, and often equate such measures as improvements to household fabric rather than improvements in energy efficiency.

If we assume that the target for EEC3 will be double that of EEC2 then the level of money raised from consumers bills will be in the order of £500 million–£750 million a year between 2008 and 2011. This can be justifiably seen as a stealth tax without representation—compounding consumers' negative perceptions of energy companies and Government intentions.

4.3 *The potential for, and barriers to, microgeneration*

When considering lifestyle change perhaps the most significant potential that microgeneration offers is how it can engage a household with their own energy needs. The fact that consumers also become generators has been shown to engender enthusiasm in their energy needs. Installations have the potential to become desirable and increase the value of a property.

energywatch represents consumers in work to develop a framework by which “export” tariffs are made available and understandable. Parallel work to make the planning system more sympathetic to microgeneration and resolving contractual issues between consumers, suppliers and distribution network operators should enable such technologies to become easy to adopt and therefore prevalent in the near future.

⁸ “Powergen Energy Monitor 2004.” Powergen/UEA Norwich, 2004, pg 23. http://www.eon-uk.com/libraries/uk/downloads/whoweare/Powergen_Energy_Monitor_2004.pdf?search=%22Powergen%20Energy%20Monitor%202004%20%22

⁹ “Introducing competition in metering”. Ofgem fact sheet, 2003. http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/2638_factsheet26_meteringmarch03.pdf

4.4 Domestic Tradable Quotas

Introducing personal carbon allowances may be a viable market measure to encourage behavioural change if sufficiently accurate information was available concerning individuals' "carbon footprint". Until such information can be obtained though it is difficult to see how such a measure could begin or be administered. Smarter metering systems appear to be the obvious route to quantify the gas and electricity fraction for an individual's carbon allowance.

5. CONCLUSIONS AND RECOMMENDATIONS

Affecting lifestyle change is a complex issue which needs further research, but is obviously something which cannot be realistically or solely achieved by increasing prices. However, price signals, and more importantly energy consumption information, needs to be greatly improved in order for consumers to engage with, trust and understand the liberalised market within which many energy efficiency measures are and will continue to be delivered.

Such action will drastically increase the success of climate change campaigns, fiscal incentives and provide the opportunity for "social influencers" or "catalysers" to break habits and create new lasting behaviours.

energywatch

August 2006

Memorandum submitted by Dr David Fleming, The Lean Economy Connection (CIT 14)

EXECUTIVE SUMMARY

This short paper explains how Tradable Energy Quotas (aka Domestic Tradable Quotas) work, and argues that they are a viable and well-understood option. However, that requires them to be set up for the economy as a whole, and not just for individuals.

The submission is in reply to Q5: "Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?"

1. CONTEXT OF THIS SUBMISSION

I first described Domestic Tradable Quotas in 1996, and have been publishing the scheme in the academic literature and elsewhere since then. It has been the subject of a European Union Workshop and numerous workshops and conferences in the UK. The fullest and most accessible description is contained in my short book, *Energy and the Common Purpose* (2005, London: The Lean Economy Connection, ISBN 0-9550849-1-1); the revised second edition will be published this autumn. It can also be read at www.teqs.net.

2. THE NAME OF THE INSTRUMENT

The instrument has several names:

2.1 Domestic Tradable Quotas. The original name was "Tradable Quotas". However, these were confused with international trading systems such as Contraction and Convergence. "Domestic" was therefore added to indicate that they applied to the domestic (national) economy, rather than on a global scale. They are designed to enable governments, within their domestic economies, to deliver commitments made in an international context such as that of the Kyoto process. However, "domestic" has proved ambiguous, since it may be taken to mean that the instrument applies only to individuals.

2.2 Personal Carbon Allowances. This has been used on the assumption that the instrument applies only to individuals. However, it is misleading, because they are an economy-wide instrument, covering all energy users.

2.3 Tradable Energy Quotas. This name is now widely received and I submit that it is the best name because it does not imply a limited focus on individuals, and it lends itself to application in the event of the need in the future for explicit energy rationing: eg "Tradable Oil Quotas", "Tradable Gas Quotas". It also lends itself to a useful abbreviation (pronounced "tex"): "TEQs", "TEQs units".

3. DESCRIPTION OF THE INSTRUMENT

3.1 TEQs are an electronic rationing system to reduce dependency on oil, gas and coal, in order (a) to cut the carbon emissions that cause climate change, and (b) to distribute access to these fuels equitably in the event of energy shortages. All adults have an equal (electronic) ration of “carbon units” or “energy units” which are tradable; non-domestic users buy units on the market, onto which they are placed by weekly Tender. A year’s supply of units is in the market at all times, topped up each week. The “Carbon Budget” determines (subject to revisions) how many units will be released each year over the next twenty years. The scheme applies to all purchases of energy, and it enables all energy users to plan ahead to reduce their dependency on fossil fuels, to take part in bringing forward the needed structural change in the whole political economy, and to develop renewable sources of energy.

3.2. Each scheme is set up as a national scheme, with its own Carbon Budget, but each national scheme could be set in a wider multinational or EU framework.

4. NOT AN EMISSIONS SYSTEM

The TEQs model is not based on monitoring emissions from users. On the contrary, the scheme is based on a carbon rating system for fuels; carbon ratings are measured in units, which are bought and sold by energy suppliers as a routine part of their accounting procedures.

5. A SCHEME FOR ALL ENERGY USERS

5.1 TEQs are a scheme for all users, including firms, institutions and Government itself. Modifications of the principle which limit it just to individuals would be unworkable, for many reasons, including the following:

- (a) If the energy-loop from original producer to final user were broken, the rating system (which sets the quantity of carbon units in the energy that is purchased) would break down.
- (b) The existence of two markets—one for individuals based on unit prices, and one for everyone else using some other mechanism—would produce two prices with black market brokering between them.
- (c) The need to distinguish between individual users and commercial users (eg midwives’ or part-time window-cleaners who use their family car to travel to their clients) would lead to arbitrary decisions and encourage fraud.
- (d) A scheme designed for individuals only would fail to take into account the energy embodied in goods and services—that is, well over half the energy used.

5.2 In contrast with this, an integrated scheme covering the whole economy is self-regulating, and largely automated, requiring minimal administrative action by participants, or intervention by regulatory agencies.

6. APPLICATION OF TRIED AND TESTED SYSTEMS

If set up on an economy-wide scale, TEQs are feasible and could be quickly set up. One of their key strengths is that they are based on institutions and procedures that already exist. A key design criterion has been: “Invent nothing. Use the systems we already have”. For example:

6.1 They are designed around the principle of Value Added Tax. Each process in the fuel cycle involves some additional consumption of fuel, and this “carbon added” is recorded by default, as part of existing accounting procedures, with the purchase and sale of units.

6.2 The Tender is identical to the Government’s routine Tender for debt instruments such as Treasury Bills. It is proposed that TEQs should simply be added to the instruments issued in the existing procedure.

6.3 The Registry is the same in concept as the registrar used for units in a collective investment fund.

6.4 The Energy Policy Committee is designed on the model of the Monetary Policy Committee.

6.5 Purchases and sales of units may be done with a credit card or direct debit, both of which are well-established technologies.

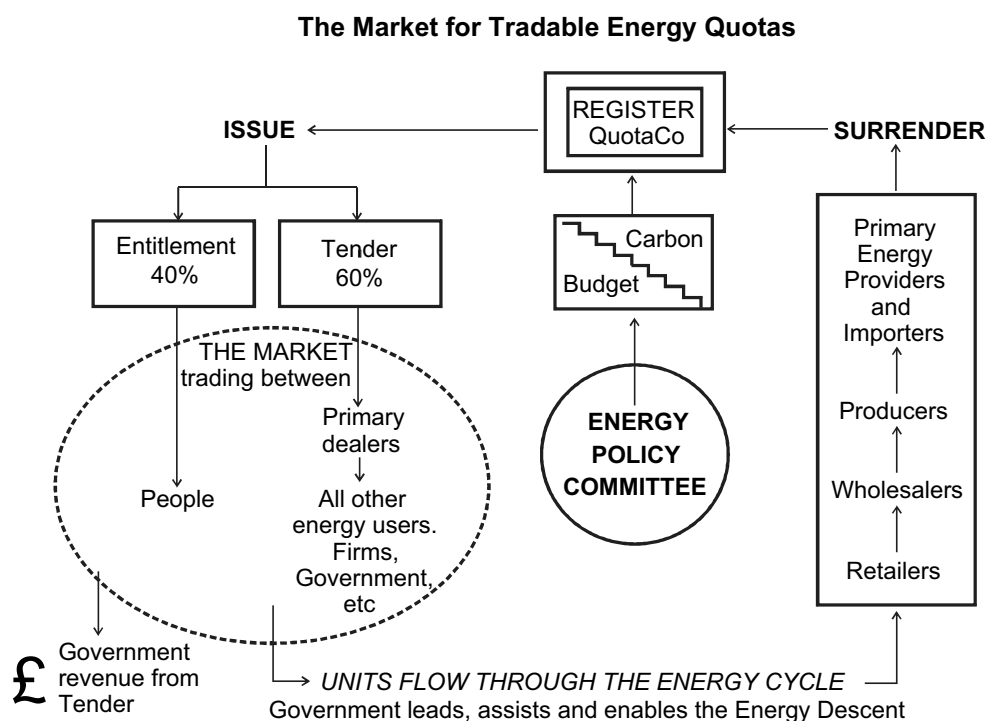
7. CARBON BUDGET

The Carbon Budget’s long (20-year) time-horizon is necessary because the massive changes in energy use and in the economic systems of the economy will require long-term planning on that timescale. The three periods of the budget are: the Commitment (years 1–5); the Intention (years 6–10); and the Forecast (years 11–20). The Energy Policy Committee (or Carbon Policy Committee) in each participating nation will set the Budget according to the particular circumstances applying to their respective nation at the time. TEQs are complementary with international schemes such as Contraction and Convergence and the Depletion

Protocol, bringing down national carbon emissions from whatever point they have reached. In the early years, therefore, the Carbon Budgets in different nations would undoubtedly be sharply different from one another.

8. THE MARKET FOR TEQS

The model for the market is illustrated. Units are issued by the Registrar, by a combination of Entitlement (to individuals) and Tender (to all other users, through primary dealers). They pass through the energy cycle back to primary energy providers and importers, who surrender them back to the Registrar.



9. TEQS AND PRICES

TEQs are “quantity-constrained”, not “price-constrained”. That is, it is the limit set by the Carbon Budget—not high prices—that does the work of reducing energy demand. There are no intrinsic reasons why the price of carbon units should be high; in a successful scheme, the demand for fuel would be reduced (tending to keep down the price of fuel) and the economy would be well-adapted to the Carbon Budget (tending to keep down the price of units); the total energy price (the price of the fuel plus the price of units) could well be lower than without a TEQs scheme. An expectation of lower energy prices applies especially at times of oil and gas scarcities, when TEQs-rationing will be the essential condition for fair and affordable access to fuel.

10. TEQS BY DEFAULT

There is now widely-shared concern that energy shortages affecting oil and/or gas will develop in the medium-term future. In these circumstances, the Government will have to establish a rationing scheme. The two alternatives are:

- (a) a paper rationing system of the kind last used during the Second World War; and
- (b) an electronic rationing system.

If it is an electronic system, it will have to be modelled closely, if not exactly, on TEQs. TEQs are not a “radical idea”; they are a generic scheme describing the form that rationing would have to take in the age of electronics. There would be a strong case for developing TEQs as an essential back-up system in the event of energy shortages, even if climate change were not a problem.

11. THE DIFFICULT PART

11.1 TEQs themselves are the easy part of the task ahead. The difficult part will be to enable the whole political economy to achieve the necessary steep reductions in the use of fossil fuels. The scale of the reductions in prospect is sobering: figures are being quoted such as “a 50% reduction in 20 years”, or “a 90% reduction in 50 years.” Achieving these reductions will require a reordering of all uses of energy, including food, land-use and energy provision.

11.2 If such a transformation is to take place, citizens, firms and the Government will need to work together to achieve it. That will require leadership. What we ought to be focusing on is that Energy Descent, not on the technical framework within which it would have to take place. Let us by all means think it through and set it up quickly, but remember that, by comparison with the transformation in energy use which lies ahead, the institutional framework to reduce demand is trivial. It is the Energy Descent itself which should command our attention.

11.3 At the same time, we should remember that it is only the existence of workable scheme that makes it possible to consider an Energy Descent on the scale that may be needed. There is a lot of rhetoric about the need to achieve massive reductions in energy dependency. TEQs make it possible to take that rhetoric literally—and to deliver.

12. A FRAMEWORK FOR A CREATIVE RESPONSE

If it is to be successful, the Energy Descent will need to be able to call on that committed, inventive response from citizens firms and the Government. It cannot be done by regulation, still less by the divisive and systems-defective policy of green taxation. TEQs provide a framework and timescale which makes it possible to stimulate the creative talent that will be needed, and to work for the common purpose.

Dr David Fleming

Director, The Lean Economy Connection

September 2006

Memorandum submitted by National Energy Action (CIT 16)

SUMMARY

In considering action to tackle climate change account must be taken of the impact of policy proposals on the poorest households which experience the most difficulty in maintaining health and comfort at an affordable price

The potential of emerging technologies such as microgeneration and smart metering is acknowledged but the first priority must be to install proven technologies, notably insulation measures and low energy lights, in all UK properties.

The multiplicity and complexity of existing energy efficiency programmes are a significant barrier to progress and they should be replaced by a single national programme

This programme should be comprehensive, both in the improvement measures it offers and its availability to all. Costs should be met in full for low-income households and in part for those who are more affluent

The objective of the programme should be to make homes as energy efficient as possible using technically feasible and cost effective measures to achieve a target energy rating

The portfolio of measures should include more expensive measures such as solid wall insulation and new technologies such as heat pumps, micro chp and roof mounted wind turbines and solar panels.

The potential of tradeable carbon allowances needs to be investigated further to examine the distributional impacts on low income families, particularly those reliant on coal, oil or electricity for home heating.

1. INTRODUCTION

1.1 National Energy Action (NEA) welcomes the opportunity to submit evidence to the EFRA Committee inquiry into the contribution that UK citizens can make to minimise the impact of climate change. For more than 20 years NEA has been actively involved in the campaign to eradicate fuel poverty in the UK. Throughout this period the emphasis of our practical demonstration programmes, and the campaigning activity which advocates their wider replication, has been on improving standards of insulation and heating in properties occupied by those most at risk and providing advice on the means by which health and comfort can be assured whilst using energy in the most efficient manner. We consider this to be the most cost-effective and environmentally sustainable means of ensuring that all homes are adequately and affordably heated.

1.2 In considering action to tackle climate change we believe it is essential to take account of the effect of policy proposals on the poorest households which experience the most difficulty in maintaining health and comfort at an affordable price. We also consider that the experience we have developed in promoting energy efficiency to low-income households has important lessons for the domestic sector as a whole.

2. What is the real scope for individual and local community action to contribute to tackling climate change?

2.1 The Government's recent Energy Review reiterated that improvements in energy efficiency represent the most cost-effective way of delivering the policy objectives identified in the 2003 White Paper. NEA agrees that making energy efficiency the first priority of energy policy is the best way to secure both social and environmental objectives.

2.2 The theoretical potential for carbon reductions in the residential sector was the subject of detailed analysis in Energy Efficiency: The Government's Plan for Action (Defra, April 2004). This clearly demonstrated the scope for making extensive carbon reductions simply by focusing on the simple and straightforward installation of cavity wall insulation and efficient replacement boilers. However, we believe the real challenge will be in realising this potential given widespread public indifference. We are aware that even in the experimental Warm Zones, where systematic marketing techniques are deployed, including street by street approaches, and offers of free or substantially discounted improvements are made, as many as 20% of householders either refuse these offers or cannot be helped by the suite of improvement measures currently available.

2.3 NEA notes the interest expressed by the Committee in microgeneration, which we refer to in what follows, and smart metering. We acknowledge the potential for emerging technologies to contribute to enhanced energy efficiency but we would emphasise that the first priority must be to ensure that existing technologies with proven capacity to save energy, notably insulation measures and low energy lights, are installed in all UK properties where feasible.

3. What are the barriers to the uptake of climate change mitigation strategies at the level of the individual and how can they be overcome?

How can government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures?

What is the role of NGOs in delivering the citizens agenda on climate change?

3.1 We have no reason to doubt the efficacy of the research undertaken by Government itself into the barriers to improving energy efficiency in the domestic sector and spelt out in both the Defra energy efficiency implementation plan and HM Treasury's consultation on fiscal incentives to improve energy efficiency, as well as the more recent energy efficiency innovation review. These identify lack of information, apathy, the cost of improvements and disruption and inconvenience as the primary factors inhibiting action on the part of householders. We also acknowledge that, until the recent reversal of the trend, a decade of progressively declining fuel prices has also acted as a disincentive.

3.2 Against this background NEA takes the view that the current institutional arrangements affecting energy efficiency programmes represent a further obstacle to be negotiated in promoting domestic energy efficiency. The complexity and multiplicity of different energy efficiency programmes seems to be a recipe for sustaining consumer inertia and/or delivering sub-optimal services. Many of these programmes duplicate each other to a greater or lesser extent in terms of the measures they provide, and compete with each other in terms of the consumer groups who are the intended beneficiaries. EEC schemes run by fuel supply companies can open and close, or switch geographical location, at short notice. Some schemes are limited to owner-occupiers, others to tenants. Householders can be alerted to the availability of these different schemes by central government agencies, local authorities, housing associations, contractors, health authorities, voluntary organisations with concerns about social welfare or the environment, fuel suppliers and consumer groups.

3.3 It is scarcely surprising that individual householders should be confused. Even people with a professional interest in improving the energy efficiency of the housing stock complain that it is almost impossible to have a complete and up-to-date picture of what is available. This in turn makes advising householders, insofar as their interest can be engaged, unduly difficult.

3.4 NEA favours simplifying these arrangements by creating a single national programme. We consider that this would help to overcome barriers to take up of assistance and help to communicate a clear and straightforward message about the importance of saving energy. We see this as entirely consistent with the statement in the energy efficiency implementation plan that strong Government action is needed embracing leadership, awareness raising and education, coupled with strong support programmes.

3.5 The national programme we envisage could be constructed by combining the resources from existing programmes, although we accept that additional money will have to be allocated to meet more challenging targets both for tackling fuel poverty, in the light of recent price increases, and CO₂ reduction, given slower progress than anticipated in the Energy White Paper.

3.6 NEA takes the view that a national programme should be funded by direct taxation. This is more equitable, being based on ability to pay, but also provides a clear indication of an important national priority. The current EEC programme meets neither of these criteria. It is also beset by problems that are a consequence of attempting to use a competitive market to deliver social and environmental objectives, including suspicion and scepticism amongst consumers about the motivation of fuel suppliers. We also note that some suppliers have scaled back, or temporarily suspended, their current activities because they have already met the targets ascribed to them. Whilst we accept that taking action now to establish new, and more challenging, targets for the post-2008 period is a possible remedy, our preference is to release fuel suppliers, and therefore their customers, from their current financial obligations. This does not preclude suppliers from being involved in both marketing and recruitment for a national programme, making use of their existing relationship with customers, nor the establishment of targets by Government or the industry regulator to optimise such participation.

3.7 The reservations consistently and commonly expressed about the current EEC arrangements focus on the funding mechanism and the use of an energy saving target as the measure of performance. The cost of delivering EEC programmes is recouped via the prices charged to consumers by suppliers. Although commonly expressed as an average £18 per year for a dual fuel customer, this is not a fixed charge appearing on consumers' bills. The consequence of linking these costs to consumption charges is that a disproportionate share of the burden falls on those living in older, less well insulated properties (often with solid walls) with older and less efficient heating systems, predominantly the poorer sections of the community. To compound this inequitable arrangement, the establishment of an energy saving target means that suppliers operating in a competitive market have an incentive to deliver energy efficiency measures which yield the maximum savings at lowest cost. Whilst the requirement to achieve 50% of the savings in the homes of vulnerable groups provides some compensation it nonetheless leaves many of those at greatest disadvantage, living in exactly the kind of properties just described, effectively ineligible for any assistance other than some free low-energy lightbulbs.

3.8 In the event that EEC is retained as a long-term contributor to fuel poverty and climate change programmes NEA believes that it will need radical adjustment if it is to accomplish either task efficiently and fairly. In particular if there is an expectation that EEC has a social objective it will be essential to establish more appropriate targets against which to measure its performance in this regard.

3.9 A national energy efficiency programme should be comprehensive in form, both with regard to the measures it provides and its availability to all. Following the precedent of the Homes Insulation Scheme (the original domestic energy efficiency programme) it should offer grants to all households that can benefit. Costs should be met in full for those on low incomes with a taper being applied to determine the level of household contribution expected from those who are more affluent. NEA believes that universal entitlement is likely to maximise take-up and avoid some of the difficulties in marketing programmes exclusively for households in receipt of welfare benefits. One of the additional advantages of this approach is that, in addition to the financial incentive available, it helps to overcome the time, risk or nuisance costs commonly identified as barriers to take up. All householders get ready access to approved contractors working to industry standards of best practice and whose work is subject to independent monitoring and inspection, as currently applies in the case of the Warm Front scheme.

3.10 The objective of the programme should be to make homes as energy efficient as possible using technically feasible and cost-effective measures and setting a target energy rating. NEA welcomed the introduction of a SAP 65 target in the most recent revisions to the Warm Front programme, accepting that it would offer a guarantee against fuel poverty for all bar those on the very lowest incomes. That said we note that recent price increases will have diminished the degree of reassurance a figure of SAP 65 offers. The programme we envisage would provide a comprehensive package of improvement measures in all properties, regardless of tenure. However, we accept that economies of scale could and should be exploited in the social rented sector by devolving responsibility to landlords. However, it will be important to ensure that there is equivalence between programmes for owner-occupiers and tenants. For example it would not be satisfactory to retain the current Decent Homes standard as the benchmark for the thermal performance of dwellings in the social sector.

3.11 We believe that it is desirable to focus on properties with the lowest SAP ratings in the initial marketing of the scheme since this will go some way to identifying those households at greatest risk of fuel poverty. We also believe that the programme should be able to explore the potential benefits of renewable sources of energy, domestic CHP and other measures to solve the particular problems of homes that are hard to heat economically because they are not connected to the mains gas network or because the construction type precludes the most common and cost-effective insulation measures.

3.12 The measures available via domestic sector schemes will provide substantial benefits to those households living in homes with cavity walls, accessible lofts and gas-fired central heating. Those living in older, less energy efficient properties, disproportionately the poorest individuals and families, and those without access to gas will be disadvantaged by this approach. Almost half of those in fuel poverty in England live in homes without cavity walls. 36% have no gas boiler to upgrade and almost 20% have no central heating at all. In this last instance we acknowledge recent efforts to provide at least some assistance to all pensioner households without central heating, whilst regretting that it fails to match the provisions of the Scottish Executive Central Heating Initiative. However, in our view, some action will need to be taken to tackle hard to heat/expensive to treat properties at some point if fuel poverty and climate change targets are to be met. We see no justification for fuel-poor households in particular being placed at the back of the queue, behind their more affluent counterparts in more modern properties. It is particularly disappointing that the implementation plan acknowledges these deficiencies but effectively postpones any decisions, declaring these to be issues to be tackled post-2010. Since these concerns have been evident for some considerable time, and were acknowledged in the 2001 UK Fuel Poverty Strategy, we believe that policy should be going further and faster to provide remedies than is evidently the case.

3.13 Accordingly NEA believes that the anticipated portfolio of energy efficiency measures in the implementation plan should be extended, embracing both existing, albeit expensive, measures such as solid wall insulation and new technologies such as heat pumps, micro CHP and roof mounted wind turbines and solar panels. We note that the implementation plan refers to current small-scale programmes to support some of these renewable options, but without indicating any intention to make any of these measures mainstream. Whilst the need to pilot those which are new and experimental in the domestic sector is not in doubt, we believe that those which subsequently achieve the status of tried and tested technologies should be on the menu of energy efficiency improvements available via schemes such as Warm Front and EEC.

3.14 We believe that a national programme of this type will be much more straightforward to promote and explain. All agencies, whether private, public or voluntary sector, would be able to refer householders to a single scheme. We would expect this to stimulate take up, but we also recognise the value of engaging those agencies who are known to, and trusted by, local communities in proactively promoting applications. We also acknowledge the value of the area based approach adopted by warm Zones in recruiting households who live in areas of greatest deprivation to such a programme.

4. Are Domestic Tradeable Quotas a viable option? What other economic and other incentives for behavioural change might also be considered?

4.1 NEA notes the growing interest in the concept of personal carbon allowances. We are aware of the suggestions that this represents an equitable solution to household carbon reduction because those on low incomes are more likely to be low energy users because they live in smaller homes and own fewer cars. However we believe the distributional effects of DTQs need further investigation. We note that any such system will have the same drawbacks as the current EEC programme in that the burden will fall disproportionately on those living in older properties with poor standards of insulation and inefficient heating systems, predominantly poorer families. They will effectively subsidise others living in modern properties with high SAP ratings. Similarly, homes not connected to the gas network will be disadvantaged, as will anyone who for whatever reason uses coal, oil or electricity for home heating. Low-income households in rural areas, where car ownership and use will also be more of a necessity, could be severely penalised. Incentivising fuel switching in this way, particularly to renewables, has obvious advantages in reducing carbon emissions but account will need to be taken of the impact on those unable to afford the capital costs of doing so.

4.2 We also have some concerns about possible unintended consequences. Tradeable allowances create incentives to reduce consumption which may provoke some of the poorest households to sacrifice health and comfort for the purchase of other goods and services. If those people already struggling to pay energy bills react by limiting the number of rooms they heat or lowering temperatures it seems to us that carbon is being valued more highly than quality of life.

4.3 As regards other economic incentives, NEA is aware of arguments in favour of both stamp duty and Council Tax rebates. We have outlined above our vision of a universal grant scheme which we consider to be a simpler arrangement, less bureaucratic and costly than administering rebates and likely to stimulate a better response.

National Energy Action

August 2006

Memorandum submitted by the Commission for Rural Communities (CRC) (CIT 17)

INTRODUCTION

1. This paper outlines the CRC's views on how individuals can be encouraged to help tackle climate change, within the context of the Commission's developing ideas on improving the sustainability of rural communities.

THE COMMISSION FOR RURAL COMMUNITIES

2. The Commission for Rural Communities was established in March 2005, initially as an operating division of the Countryside Agency. It will be formally vested as an independent agency from October 2006.

3. The Commission provides independent advice to government and others and works to ensure that policies reflect the real needs of people living and working in rural England, with a particular focus on tackling disadvantage.

4. We have three key functions:

- Rural advocate: the voice for rural people, businesses and communities
- Expert adviser: giving objective advice to Government and others
- Independent watchdog: monitoring and reporting on the delivery of policies

THE CRC AND SUSTAINABLE DEVELOPMENT

5. The Commission has been given statutory responsibilities to pursue the goals of sustainable development by the Natural Environment and Rural Communities Act 2006, and will report annually to Defra on progress. To this end we are currently in the process of preparing a position statement defining what constitutes a sustainable rural community and what needs to be done to achieve or improve the sustainability of rural communities.

6. We have recently published a discussion paper entitled "*What is meant by 'sustainable rural communities'?*" "*How can we achieve them?*" This presents the key findings of five "thinkpieces" commissioned last October as the beginning of a broader discussion to address this question. These papers highlight and explore a diversity of issues. These papers are available at www.ruralcommunities.gov.uk.

THE SCOPE FOR CITIZEN ACTION: TRANSPORT

7. Clearly transport is central to any discussion of the ways in which individuals and communities can minimise carbon emissions and the impact of climate change. Cheap motoring has in many ways facilitated the movement of people from towns and cities to rural areas, together with increased commuting and longer journeys to shops, services, and recreation. Limited and poorly integrated rural transport has also served as a major disincentive to reduce private transport for more environmentally friendly alternatives.

8. It is clear from many of our commissioned "thinkpieces" that local community action to tackle climate change must include robust measures for reducing the growing dependence on private transport in rural areas. However, while many communities have made considerable efforts to maintain local transport services, for example by supporting community transport initiatives of various kinds, these have remained under funded and fall short of the comprehensive, cheap and convenient services that rural communities need to dissuade current levels of car use.

9. How can individuals tackle this problem? Several options could be postulated:

- Incentives/encouragement to purchase low-emission vehicles—noting that this option may be out of reach for poorer rural people, (who often rely on private transport for their livelihoods)
- More support for community-based transport linking homes to shops, schools, hospitals, recreation and entertainment
- Incentives and encouragement to walk and cycle—for example, the journey to school, local shops etc.

10. However, such measures to encourage and support individual behaviour must, in our view, be backed up by greater investment in a more comprehensive and integrated transport system which provides convenient and affordable access for rural dwellers to meet their needs for shopping, education, health, services, recreation and entertainment.

11. Whilst this is clearly a major challenge in terms of financial viability, we believe that more efforts need to be made to explore the feasibility of new and innovative ways of providing such systems, for example through community-based dial-ride taxis and mini-buses which link rural communities to towns and service centres, and to regional and national rail and bus systems. Examples of such schemes elsewhere in Europe can be drawn upon.

12. For citizens to make lifestyle changes which can impact on climate change they need to be presented with choices. The current dearth of realistic public transport options in many rural areas precludes any meaningful reduction in private car use.

THE SCOPE FOR CITIZEN ACTION: COMMUNITY-LED PLANNING

13. Within rural areas there is considerable scope for communities and individuals to pursue the agenda for tackling climate change through locally based action. For example, Parish Plans offer one way in which local rural communities can survey local problems and issues, and put forward solutions—both for the community themselves to implement and for external agencies. Increasingly such plans are addressing issues of sustainability, and putting forward practical proposals for local recycling, composting, energy saving etc. as well as plans for footpaths, cycleways etc.

14. A well-known example of this type of approach is the commitment of the community in Ashton Hayes in Cheshire to become (the first) carbon neutral village in England (see: <http://www.goingcarbonneutral.co.uk/>).

15. Parish planning has been very successful in engaging all sections of rural communities, and they have been particularly successful in identifying the social and economic requirements of communities. As the rural agenda increasingly focuses on meeting the requirements of the wider sustainability agenda so there is a strong role for parish plan type community action.

16. One of the CRC research “think pieces” (Professor Stephen Owen, University of Gloucestershire) sets out a useful example of how a community’s vision and strategic objectives can correspond with national sustainability indicators. The national list of sustainability indicators specify numerical measures that require the deployment of technical expertise, probably by people from outside of communities, for example the measurement of carbon dioxide emissions, or the percentage of river length assessed as having good chemical quality. These are necessary indicators for measuring progress towards greater sustainability. But local communities can have difficulties in engaging with such indicators.

17. Parish Plan type processes can provide a more *holistic* and less atomized, and also a more place-specific, approach towards defining and practical planning for more environmentally sustainable rural communities. They can present a view of the future of a community that local people can visualize, understand and *own*.

18. By presenting in a tangible and practical way the potential of community action to meet environmental objectives, Parish Plans can serve to make real headway in engaging ordinary citizens in efforts to minimize climate change and its effects.

CONCLUSIONS

19. The most obvious way in which citizens in rural communities can contribute to reductions in carbon emissions and mitigate the effects of climate change is in the reduction of private vehicle use. However, alternative transport solutions for rural communities remain limited, despite many initiatives to introduce flexible innovative solutions, as represented by a variety community transport initiatives.

20. For citizens in rural communities to exercise environmentally friendly choices, policy needs to address the failure to introduce a fully integrated transport system, which is an incentive to reducing use of private vehicles.

21. However, there is considerable potential for community-led planning (such as Parish Plans) to engage citizens and provide a sense of ownership within their communities in respect of environmental goals relating to climate change. Much could be done to encourage this further, for example through advice and guidance via websites, good practice guides and “show and tell” exercises.

22. The experience of community-led planning indicates that there is considerable awareness of climate change and a willingness by individuals and communities to “play their part”.

23. But the extent to which rural people will be willing to forgo consumption to reduce carbon emissions, in order to achieve a “virtuous circle” of reduced consumption along with a less stressed lifestyle (as articulated in the CRC thinkpiece by Levett-Therival), is more difficult to estimate.

24. What would surely help individuals and communities to go down that path would be positive supporting action from government at all levels—“if you will, I will”.

Commission for Rural Communities

August 2006

Memorandum submitted by the National Farmers' Union (CIT 18)

EXECUTIVE SUMMARY

The NFU believes that there is significant potential for the individual and the community to contribute to tackling climate change. Farmers and growers are in a particularly good position to tackle greenhouse gas emissions, both personally and for communities, from the following three points:

ENERGY EFFICIENCY

Farmers and growers are already focused on energy efficiency, particularly with the inclusion of the Climate Change Levy. There is further potential to develop this energy efficiency through a number of methods:

- Precision farming.
- Increased communications about energy efficiency and cost-efficient technologies.
- Increased guidance and support about installation and use of these technologies.
- Economic incentives to invest in energy efficiency.

MICROGENERATION

Microgeneration has significant potential within communities. Current barriers include:

- A lack of understanding about how projects work, and a lack of clear help and advice.
- Regulatory constraints such as current planning policy.
- Financial constraints on the individual to invest in new technologies.

AWARENESS

Increased awareness of climate change has been proven to increase the action taken by individuals. Farmers and growers who are better informed about climate change were planning for change much sooner than those who were less well informed.

In our following response, we concentrate on the issues in which we believe we have the most policy expertise.

Question 1. *What is the real scope for individual and local community action to contribute to tackling climate change? Some areas for possible consideration include:*

- *increasing energy efficiency, in particular the delivery of the Energy Efficiency Commitment (EEC);*
- *reducing energy consumption—not only electricity, but also energy used in heating and transportation;*
- *the provision of desirable low carbon alternatives, such as energy saving lightbulbs or using public transport;*
- *the potential for, and barriers to, microgeneration;*
- *the potential for “smart metering”;*
- *awareness of climate change and availability of information about the role of the individual in tackling the problem.*

1.1 Energy Efficiency

On an individual basis, farmers and growers are in a good position to tackle climate change. They can reduce their own greenhouse gas footprint, but also reduce others contribution by practices such as growing biofuels or carbon sequestration in their soils and vegetation. Energy efficiency is also an area where individuals in the agricultural sector can make a contribution to tackling climate change. Over the period 2000–03, the total energy use in agriculture decreased by 10%.¹

Farmers and growers from the energy intensive sectors of poultry meat, eggs, pigs and horticulture are already well placed to tackle energy efficiency with the Climate Change Levy (CCL). As a result of this, many farmers are already focused on reducing their energy consumption. Both pigs and poultry meat and eggs have greatly exceeded their targets, by up to 22% overachievement on baseline figures compared to the

¹ Agriculture in the United Kingdom 2004.

targets in milestones 1 and 2. The CCL as a whole is estimated to reduce energy demand by 2.9% a year² with intensive farming sectors being part of that reduction. This is an important part of energy efficiency in the intensive livestock sectors, with investments in energy efficient equipments. There is a great potential for further energy efficiency within the farming industry given the correct market conditions. There is however a need for greater education, to increase this uptake of energy saving technologies.

Precision farming also encourages energy efficiency, for example, with techniques which reduce the number of times a field needs to be ploughed. This reduces diesel use, encouraging energy efficiency and reducing carbon emissions. With such a win-win situation for farmers, these types of technologies should be encouraged, starting with increasing the knowledge of these techniques within agriculture. The encouragement of efficient working practices on farm fit in well with precision agriculture. Concepts such as the redesigning of individual farms to maximise energy efficiency is one which may become more viable in the future. And environmental audit can ensure that farm diversity is maintained whilst adapting margins and corners for this efficiency.

Energy efficiency is the most cost-efficient solution to the challenges of energy security, fuel poverty and climate change. We need a stable package of measures that will actually deliver a significant reduction in energy consumption growth trends.

Barriers to energy efficiency amongst the agriculture and horticulture sectors include a lack of clear guidance about what measures must be carried out. Clearer and more obtainable advice regarding energy saving measures needs to be promoted, working with organisations such as the Carbon Trust. Work into raising awareness of, and providing support and advice about energy efficiency is key to developing uptake of new or lesser known technologies, such as microgeneration or combined heat and power. Continued encouragement of these technologies is needed, to ensure there is a significant demand pull. One problem which may be experienced by the farming sector when they are looking to reduce their individual energy usage is that much of the advice available is to the residential sector, or larger scale businesses. There is perhaps a lack of information focused at the specific needs of this specialised sector. We look to the Government to review its support for energy conservation assistance aimed at the micro and SME sector with the aim of re-launching such services.

There may also be a lack of capital to invest in energy saving technologies. The Government needs to put into place incentives which encourage the use of energy efficient technologies, whilst not increasing regulatory burden on the industry. By focusing on energy efficiency, dual goals of increased competitiveness in the marketplace and environmental sustainability can be achieved.

1.2 Microgeneration

Microgeneration has significant potential within communities. Within the farming community, microgeneration using methods such as combined heat and power (CHP) offers particularly great potential owing to the farming community having home-grown feedstuffs for use in generation. A report suggests that with the appropriate support, microgeneration technologies could reduce domestic sector CO₂ emissions by 3%.³ In the short term, these technologies need to be supported until such time as they are commercially and economically viable. A DTI report suggests that a capital grant of 25-50% could be enough to support these technologies until this time.⁴

This is a key measure which could lower greenhouse gas emissions and provide secure energy for homes and businesses. It could also reduce the load on national gas and electricity networks.

Current barriers to microgeneration include a lack of understanding of how such projects would work, and where to go to get advice. Another barrier is the ease of connection to and selling electricity to the national grid. The Government needs to review procedures and costs for connection and supply in order to simplify the current approach, and reduce the current disproportionate costs of connection. Current planning policy also hinders microgeneration development. The installation of microgeneration technologies with existing buildings is a particular problem. There are also issues with incorporating microgeneration strategies into new developments, particularly those in the public sector. The use of small scale CHP is of particular interest to farmers. If these regulatory constraints can be overcome, then the potential for microgeneration will be enhanced.

The woodfuel strategy, being undertaken by the Forestry Commission in response to the Government's response to the Biomass Task Force in April 2006, will help to understand and increase this underused resource. The strategy is looking into how to deliver an additional 2 million tonnes of woodfuel per annum from existing woodlands. This is likely to save 0.4Mt carbon. This type of initiative allows the individual landowner to contribute to mitigating climate change, potentially with only small changes to their business and lifestyle.

² Climate Change, The UK Programme 2006, HM Government.

³ DTI, (2005) Potential for Microgeneration Study and Analysis.

⁴ DTI, (2005) Potential for Microgeneration Study and Analysis.

Code for Sustainable Homes could also increase the use of biomass and CHP, by setting out voluntary standards beyond those required by Building Regulations to decrease environmental impacts of new homes. Minimum standards on sustainable energy generation are key to developing use of biomass and microgeneration, with particular focus on the use of microgeneration obtaining additional code points.

Notwithstanding these comments, we are convinced that investment in decentralised energy systems such as local CHP and district heating schemes and microgeneration offer many benefits, including surety of supply, sustainability and cost-effective heating. Provision of incentives for consumers, installers and network operators, by using planning standards, regulatory and fiscal measures to stimulate the renewable energy market, especially with local production and consumption in mind.

1.3 Awareness

Increased awareness of climate change has been proven to increase the action taken by individuals. This can be seen with the ADAS Farmers Voice survey, in April 2005. It found that farmers and growers who were better informed about climate change were planning for change much sooner than those who were less well informed.⁵ As a result of this the NFU believes that awareness raising among farmers is a key concern to allow them to increase their personal contribution to tackling climate change. Farmers and growers are in a unique situation to both help adaptation and mitigation of climate change, and their important role in this must be championed.

Question 2. What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

2.1 The NFU believes that at the level of the individual farmer, many of the barriers to uptake of mitigation strategies lies with a lack of understanding or knowledge of the possible strategies to employ. Often, climate change mitigation strategies go hand in hand with sound economics, often saving money or resources. Farmers, whilst often being individuals, also have business concerns where the bottom financial line is often where decisions have to be made at. We believe that if this link between climate change mitigation strategies and financial savings can be advertised to farmers there is likely to be greater uptake of mitigation strategies. This lack of understanding and ignorance of technologies which employ biomass was listed as a key barrier to their greater use in the biomass task force.⁶

2.2 The uptake of biofuels in vehicles has a considerable number of barriers to its use by the individual. The most significant of these is the lack of supply infrastructure. Long-term market stability and strategic planning is required in order to gain the investment in infrastructure needed in a new industry. The introduction of the RTFO provided a great boost to the biofuels industry and some of the stability that the market has been searching for. This must be reinforced with long-term commitments announced as soon as possible. A clear long-term biofuels strategy that sets out the fiscal policy for at least five years and shows how the UK will progress onwards from 5% renewable fuel in 2010 is needed. Failure to provide a long term vision will increase the risk for investors and reduce the chance of a domestic biofuels industry developing. With the development of this industry the individual will have the supportive infrastructure to employ biofuels in their vehicles, and the individual farmer will have an alternative market for their crops.

2.3 Current incentives such as the graduated vehicle excise duty are designed to reduce carbon emissions, but from an agricultural perspective, larger engine vehicles are often essential for everyday use. Increasing tax on these cars, whilst adding additional financial pressures to our members, is unlikely to make a significant difference to their choice of vehicles. Reduced VED should be determined not only on tail pipe emissions but also on life cycle carbon emissions, this could provide further, much needed, incentive to use high blend biofuel vehicles.

2.4 The current duty reduction of 20p/litre for biofuels is important to cover the higher production costs currently associated with renewable fuels. As the industry develops and technological advances are made the duty differential may decrease, however it is important that it runs alongside the RTFO in the first years of its inception to help stimulate the market and provide investor confidence. This duty reduction is an important incentive to encourage the uptake of biofuels, although is not enough to change behaviour alone. The buyout price (set at 15p/litre) means that combined with the duty reduction, there will be a support package of 35p until 2009–10 and then 30p by 2010–11. This package of measures may not be sufficient to encourage take-up, and there is a danger that the 15p buy-out price might be sufficiently low for oil companies to opt out of the obligation. It is important that this tax policy is constantly reviewed to ensure that it is having the desired affect, and adapted if it is not.

⁵ ADAS (2005) Farmers' Voice Survey, unpublished summary report of postal survey.

⁶ Biomass Task Force Report, October 2005.

Question 3. *How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?*

3.1 Community projects, such as those in schools offer a significant education opportunity for biomass heating systems and microgeneration technologies. These types of projects have an important part to play in “leading by example” with carbon-saving technologies, and to help overcome the ignorance of using biomass to generate energy. English Rural Development Agencies and the Devolved Governments have an important role to play in developing holistic regional renewable energy strategies, identifying suitable bioenergy sites and helping foster markets through planning regulations and public procurement projects.

Question 4. *What is the role of NGOs in delivering the “citizen’s agenda” on climate change?*

No comment.

Question 5. *Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?*

No comment

National Farmers’ Union

September 2006

Memorandum submitted by the Environmental Change Institute, University of Oxford (CIT 20)

EXECUTIVE SUMMARY

- Reducing the impact on climate change requires action by all sectors of society. As industry and the commercial sector are increasingly involved, for instance through the EU Emissions Trading Scheme, it becomes more important to involve individuals.
- This is not only equitable, but also in recognition that neither group can act independently: manufacturers have to have a market for more efficient products and services. Consumers cannot continue to be profligate in the expectation that industry or government can solve the problem. Collective action is needed.
- It is probable that the most beneficial approach would be for action to occur at both the community and the individual level. The synergies are not well understood, but could be powerful. For instance, a strong community may well begin to persuade the doubters in their midst and thus prepare them to be positive about the need for personal responsibility.
- Personal carbon allowances are a viable option. There are two main ways to restrict carbon emissions: price (ie taxation) or quantity (ie PCAs).
- Feedback to consumers through clear displays and informative bills could save more than 2MtC per year.

1. Throughout this response, we use “residential” for the household sector to differentiate it from “domestic” (ie UK), as in domestic tradable quotas.

Q1. *What is the scope for individual and local community action to contribute to tackling climate change?*

INCREASING ENERGY EFFICIENCY, IN PARTICULAR THE DELIVERY OF THE EEC

2. We welcome the EEC initiative, as it has resulted in considerable investment in the energy efficiency of people’s homes, particularly those on low incomes. However, it has not achieved its original objective of persuading the utilities of the value of demand reduction. They do not do more than they have to. As a result, the main ethos of the companies appears to have stayed the same—to sell more gas and electricity. This is exactly what has been happening: for instance electricity consumption in the residential sector increased by 6% in the third quarter of 2005 over the same period in the previous year. Part of the explanation is the demand by consumers for ever-higher services, but part of the answer undoubtedly rests with the companies’ marketing departments. This demonstrates to us the need to ensure that from 2012, the EEC is framed as a company-wide target, not just an energy efficiency add-on. Our suggestion is that each company must reduce the average carbon emissions from its customers, year on year: what we have called AUCH—Average Utility Carbon per Household (Fawcett *et al*, 2000).

3. We are sympathetic to the utilities' perspective that they could not be expected to undertake an obligation such as AUCH without there being a concomitant responsibility on consumers, for instance personal carbon allowances. If both requirements were in place, there would be a useful synergy between the objectives of the company, the responsibilities of the householder and the needs of the climate.

4. Efficient products and services are only one step towards reducing people's carbon impact. Without behaviour change, other trends can over-ride efficiency gains. For example, gains from energy-efficient fridges can be undone by trends towards larger fridges.

REDUCING CONSUMPTION: ELECTRICITY, HEATING AND TRANSPORT

5. The *40% house* report, produced by the ECI, identified the scale of changes required if there is to be a 60% reduction in the carbon emissions from all energy use in the whole housing stock by 2050 (Boardman *et al* 2005). Two-thirds of the reduction, in this scenario, is achieved through reducing demand in electricity use in lights and appliances and heating in the home. The other third of the reduction comes from the introduction of micro-generation technologies into the home or locality, for instance combined heat and power, photovoltaics, solar hot water systems and wood stoves. The scale of the reductions proposed would be sufficient to eliminate the perceived need for new nuclear power stations during this period.

6. Through the UK Energy Research Centre, the Demand Reduction team are investigating the opportunities for comparable levels of carbon reductions, for instance in road transport and aviation. A summary of current UK research will be published shortly. Banister and Hickman have demonstrated the actions needed to achieve a 60% reduction in carbon emissions from cars by 2030 (VIBAT, 2005). With passenger flights there is not yet an acceptance of the need for constraint (Cairns and Newson, 2006). In reality, every sector will have to achieve a considerable reduction, as there is no sector, not even residential, where there are easy or cheap additional savings to be had beyond the 60%.

THE PROVISION OF DESIRABLE LOW CARBON ALTERNATIVES SUCH AS ENERGY-SAVING LIGHTBULBS OR PUBLIC TRANSPORT

7. In all cases, action by consumers needs to be supported by the provision of low-energy products by manufacturers. One of the problems with the present situation is that industry can continue to produce and sell energy-profligate equipment to unwitting consumers, with the penalty being further carbon emissions. Government has an obligation to work closely with the European Commission to bring forward strong product standards and labels, much more quickly than has been achieved in recent years (Hinnells, 2006). In addition, the Government needs to develop a comprehensive method of making sure that consumers can understand the efficiency of all energy-using equipment that they buy, for instance by making sure that each product has an energy label (Boardman 2006). Implementing the 1Watt initiative agreed by G8 at Gleneagles would also be helpful.

8. If more conscious consumption is to occur, less choice and more information is needed. The Sustainable Development Commission's concepts of "choice editing" along with "permission to manufacture" are required.

BARRIERS TO MICRO-GENERATION

9. Two of the main obstacles are financial: ensuring that householders obtain a fair price for the electricity that they export (eg a feed-in tariff) and funding the installation of the equipment in the first place (which may require the development of energy service companies).

10. The benefits of generating electricity in the house (CHP, PV and wind) are enhanced if the householder has an attractive, informative display. This encourages them to use their own supply more carefully (Keirstead, 2006). There are therefore considerable synergies between the encouragement of micro-generation and the design of smart meters and clear monitors.

THE POTENTIAL FOR "SMART METERING"

11. Most gas and electricity meters in use today are based on a design that is at least 20 years old, with a display that is usually hidden from view and often means little to the consumer (energywatch 2005).

12. The description "smart" covers a wide range of meter types, but it basically refers to metering that provides a level of service over and above simple measurement of consumption. A smart meter can measure consumption over representative periods, store data for multiple time periods and allow ready access to the data by consumers as well as suppliers.

13. The main interest in smart meters from a carbon reduction point of view is the extent to which they can support improved feedback to the energy user:

- (a) Directly, through connection with a display panel. Savings have been shown in the range 5–15% for electricity and for heating, (provided that the heating is shown separately from other end-uses). The benefits will be most fully realised when customers have really clear, well-presented

information on their consumption and can learn how to control their usage by experimenting. (Darby 2006). But display panels do not have to be connected with smart meters: they are already being used with old-style meters.

- (b) Indirectly, by enabling more accurate bills that can give credible feedback on consumption compared with previous billing periods. Savings of 0–10% have been achieved this way. The requirement for accurate bills in Sweden was the main driver behind the introduction of “smarter” meters which could be read automatically. More accurate bills are the best option for gas at present, with displays some way down the road.

14. The estimate in the July 2006 Energy Review of 0.1MtC annual savings in 2020 from improved billing looks modest. A 5% saving in fossil-fuel-based energy in residential buildings as a result of improved direct and indirect feedback would give an annual saving of around 2MtC, based on annual emissions of 38MtC from the residential sector (DTI 2006 Annex C).

- 15. Smart meters may also be important for maximising the benefit from microgeneration.

AWARENESS OF CLIMATE CHANGE AND AVAILABILITY OF INFORMATION ABOUT THE ROLE OF THE INDIVIDUAL IN TACKLING THE PROBLEM

16. There is evidence that people are concerned about climate change: the proportion of “worried” or “very worried” people in opinion polls continues to rise. There is considerable ignorance of the exact causes of climate change but this is not necessarily a barrier to action. In the UK, we have not found the appropriate policy tools or practical interventions that would make activity easy or inevitable for householders.

17. There seems to be a public perception that industry and government are responsible for reducing our carbon emissions. A Tyndall survey of nearly 1,500 people found that most people believed the main responsibility for change lay at the national and global level, not with the individual (Poortinga *et al* 2005). This can be reinforced by the press who can demonise industry—for example a recent *Guardian* article “New figures reveal scale of industry’s impact on climate” (16/05/06) pointed an accusatory finger at four power companies for being the worst polluters in Britain. It did not occur to the authors that these power companies are responding to demand. More publicity is required on what industry is currently doing to reduce its carbon emissions.

18. Carbon calculators: an information tool is needed at the household level that would help people understand the connection between fossil fuel energy use and carbon emissions. This could be an accurate personalised carbon calculator. The ECI are doing research in this area.

19. The current remit for the “Citizens Agenda”, as laid out in the Press Notice, does not include general consumption. Yet fossil-fuel-derived energy is used to create goods and services, with some being more carbon intensive than others. Food, recreation, clothing and footwear are estimated to account for 40% of the UK’s carbon emissions (Carbon Trust 2006). How people choose to consume has a carbon consequence and therefore needs to be incorporated into the Citizens Agenda.

Q2. What are the barriers to uptake of CC mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the EEC or graduated VED sufficiently strong to affect behaviour?

20. Sustained behaviour change requires feedback on the effects of change. Using climate change as the sole “hook” for behaviour change risks disheartening people, as the benefits of their actions will not be seen in their lifetime. Therefore it is important that climate change mitigation strategies focus on a healthy, sociable, low-carbon society that offers employment, security and enjoyment and that is well-integrated internationally, not fighting for access to fuel supplies. Such a vision is likely to gain more support from individuals and communities.

21. VED should be differentiated more widely, so there is a real financial penalty to owning an energy-inefficient car.

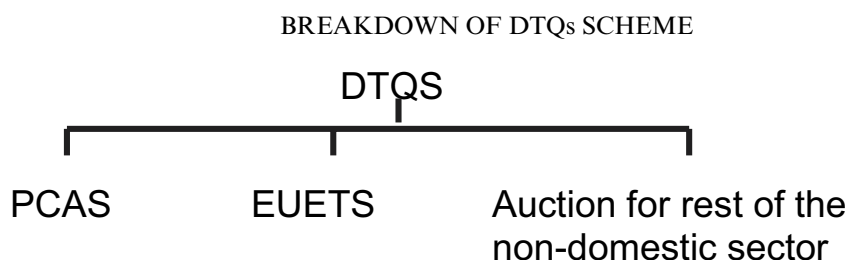
Q3. How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

22. There may well be a role for communities in contributing to tackling climate change. However, we would argue that many people do not have a “local community” in the traditional sense—especially in cities. Instead, an individual’s work community may be important. Seeing wholesale buy-in by one’s employers and subsequent change in the work place will make this issue seem important, immediate and a priority. The best place to start this would be in the public sector—not only does this employ an estimated one in five people, it is also under government jurisdiction and would have a huge impact on encouraging innovation and lowering costs.

Q5. *Are DTQs/PCAs a viable option? What other economic and other incentives for behavioural change might also be considered?*

23. Domestic Tradable Quotas (DTQs) is the umbrella phrase for a trading scheme that includes all UK carbon emissions. Some trading would be by non-residential users, as has already started with the EUETS. Other trading would be for the residential sector, known as personal carbon allowances (PCAs). The combined effect could be to deliver 60% or more carbon reductions across the UK economy within the next three to four decades, thereby ensuring that UK's carbon emissions approach a sustainable level. This gives everyone an explicit role in the transition to a low carbon economy.

Figure 1



24. One of the main attractions of a PCA scheme is that it provides the framework to motivate people to act to reduce their carbon emissions and, therefore, to both change behaviour and invest in energy efficiency improvements. PCAs combine messages about the way we emit carbon as a result of energy-using activities, with a clear indicator of what society deems to be an acceptable carbon reduction target. At the moment, householders are left ignorant about the ways in which they are impacting on the climate and what constitutes a profligate lifestyle. The main message is that if you can afford it, you can have it. A PCA scheme will create a demand pull from consumers for zero- and low-carbon energy sources, technologies, products and services.

25. There are two important attributes of personal carbon allowances: they are equitable and provide certainty. By the latter, we mean that the Government will know that emissions are reducing at the rate required by international agreements, because that is the amount of carbon permits that have been issued. The equity comes from giving equal emissions to all recipients. This will mean that below-average carbon emitters will both spend less on energy and have carbon permits to sell into the market, resulting in a direct money transfer from the rich to the poor.

26. There are a number of steps that can be taken to pre-empt some of the concerns about living with a personal carbon allowance. For example, visible energy monitors in the home, informative energy billing and labelling and an accurate carbon calculator (paragraph 18).

27. A pilot of the actual scheme could be a valuable precursor for testing how PCAs would work in practice as well as helping to increase public acceptability. It could also help reduce uncertainty about the extent to which having an “allowance” would be more psychologically influential than a price rise in motivating people to live within their allowance.

28. A part of the UK Energy Research Centre's focus on PCAs has been to investigate some of the options in the design of the scheme. An example of recent research is on whether PCAs should cover ground public transportation or not. Our research suggests it should be excluded and be covered further upstream because:

- (a) It is only 4% of individuals' total transport emissions.
- (b) It is difficult to calculate the emissions associated with an individual's travel on different modes of public transport accurately.
- (c) Inclusion would increase the number of transactions by as much as 80% per year, with little impact on emissions.
- (d) Inclusion would require the development of an extensive IT administration infrastructure.
- (e) Exclusion would create an incentive for individuals to switch from private vehicle use and transport operators, who are in the best position to make investment decisions to improve the energy efficiency of their fleet, would have responsibility for the emissions.
- (f) Exclusion would reduce the hassle factor, making it easier for individuals to understand the scheme and manage their carbon budget.

29. Many operational questions are outstanding as the PCA concept is still in its infancy. For instance:

- (a) How should allowances be allocated—adults only? Partial allowance for children? Different age bands?
- (b) Is it correct that rural residents will not be penalised, because they drive more but fly less than their urban neighbours?
- (c) An interim judgement is that individuals can save up their allowances but cannot borrow from the future.

30. Seven key areas for DTQ and PCA research are: philosophical justification, policy design, administration, information technology and infrastructure, the carbon market, public acceptability, and implementation.

31. There may be other examples of policies that provide individuals with the stimulus to action, but they must include:

- (a) a clear incentive (eg extra carbon expenditure will cost money);
- (b) a regular reminder or prompt that a response is needed;
- (c) a target or indicator of what constitutes acceptable consumption;
- (d) the opportunity to be flexible and make your own, personal choices (to fly or to drive); and
- (e) if possible, an easy route to taking action.

The last condition is perhaps the most difficult. A problem for policy is, therefore, to provide appropriate support systems so that consumers can exercise choice, but through informed decision-making—PCAs may provide that impetus.

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Environmental Change Institute
University of Oxford

September 2006

Memorandum submitted by the Consumer Council for Water (CIT 21)

INTRODUCTION

1. The Consumer Council for Water (CCWater) welcomes the opportunity to submit evidence on how people, as consumers, can be encouraged to help tackle climate change.

About the Consumer Council for Water

2. CCWater is a non-departmental public body representing water and sewerage consumers in England and Wales. CCWater operates through nine committees in England and a committee in Wales. Its duties include representation of current and future consumers.

3. CCWater is independent of both the water industry and the regulator. Details of our planned activities and what we are seeking to achieve are set out in our Forward Work Programme 2006–07 to 2008–09 which is available on our website. This sets out how CCWater proposes to meet its duty to contribute to the achievement of sustainable development. CCWater intends to be active in educating consumers on the wise use of water and in securing a sustainable water industry.

SUMMARY

Using Water Wisely

4. One of CCWater's key work areas is "using water wisely". Consumer research consistently tells us that water consumers want to turn on the tap at any time and receive a constant supply of good quality water to meet their household needs. This must be balanced with the recognition that water is a precious resource that is valued and used wisely by all.

5. "Using water wisely" is complemented by our role within the Water Saving Group (WSG) which was set up by Defra in 2005 to encourage the efficient use of water in homes and to help reduce water use. CCWater has the specific task to develop the understanding of how people think about water and the way they use it, and from this propose ways of making people more aware of their water use and water resources. To fulfil this we have commissioned research, with the support of the WSG, to help us understand people's views and raise awareness about water use and saving water.

6. The research will use qualitative and quantitative approaches. The qualitative research took the form of a deliberative forum which was held on 22 July—we are now considering the top line findings from this. The quantitative research is a survey of 2000 consumers, the top line findings will be available towards the end of September.

7. The results of the research will be published in November 2006. We will use them to develop a programme to highlight the value of water as a resource and the need to use it wisely. This will require a shift in awareness for many people, and in the longer term, an element of behavioural change—for example, turning the tap off when brushing teeth. We will explore the use of social marketing techniques to develop campaigns and messages to engage individuals and communities. Consumer segmentation is key in targeting messages that will have an impact. One message will not fit all. We will send the committee a copy of our research when it is available.

Energy requirements of the water industry

8. Water treatment and transport is an energy intensive process. In 2004–05 the amount of energy needed to deliver 1Ml of water was 663kWh, and the same was used again to treat 1Ml of sewage.¹ In terms of emissions, the industry emitted just over 4 million tonnes of greenhouse gases in 2004–05.¹ Water, gas and electricity industries combined are the main contributors of greenhouse gas emissions in the UK.²

9. As noted above, the processes of the water industry and the activities of water consumers have a significant impact on the energy requirements of the UK and the level of greenhouse gas emissions. If we as citizens can use water more efficiently, and reduce our per capita consumption then our demand for water resources and the treatment processes that go with the production of potable water will fall.

10. The primary focus of the EFRA inquiry is on the potential for lifestyle change to minimise the impact of climate change and mitigate its effects. We have considered this in the wider context of the water industry, and in light of our experience in looking at how increasing awareness may lead to behavioural change, and some of the barriers to this. We have focussed our evidence on the inquiry questions most relevant to this. We have also considered the wider implications of per capita water consumption and the environmental impacts of the water industry.

¹ Water UK "Towards sustainability 2004–05".

² Briefing on Environmental Accounts 23 May 2006.

Q1: *What is the real scope for individual and local community action to contribute to tackling climate change?*

11. There is undoubtedly scope for individuals and communities to contribute to tackling climate change, but we think that the effectiveness of this will be closely related to the approach used to engage both individuals and communities.

12. Passive technologies such as low energy light bulbs are effective in reducing energy use with little or no behaviour change required. But we think that sustainable reductions in energy (and water) consumption will ultimately require some degree of behaviour change over the longer term. For example, improved public transport services will only be effective in reducing car-use and traffic levels if more people choose to use them. This hinges on effective communication and the development of mechanisms to support behavioural change. To be most effective, the introduction of alternative approaches, policies and technologies to reduce energy consumption should be supported by a sophisticated communications strategy which may, for example, use social marketing techniques to reach a diverse range of consumers and recognise that one size does not fit all.

The potential for “smart” metering

13. We think that smart metering has a role to play in encouraging consumers to consider how much energy and water they use. The current barriers to smart metering in the water industry are cost and the fact that across England and Wales, only 28% of properties are metered. In the energy industry, issues include customer churn and lack of guidance on the standards for smart meters.

14. Smart meters can provide people with accessible information to show how much energy/water they are consuming and how much it is costing them. They also provide the opportunity to use sophisticated pricing signals such as rising block tariffs where consumers pay more once they have used more than a threshold amount, or less if their consumption remains under the threshold.

15. They would also lead to more accurate bills as the numbers of estimated meter readings would fall as smart meters can be read remotely. Smart meters could also allow for customers to see their water usage more frequently—weekly, fortnightly or monthly rather than quarterly or six-monthly—at the click of a mouse. This could influence their behaviour or encourage them to investigate abnormally high readings caused by, for example, a leak on their water supply pipe. It would also help consumers budget and, for those signing up to the online service, reduce paper production. Those not online would continue to receive bills by post at the current frequency.

16. We acknowledge that there are cost implications. In the water industry we have called for research to establish robust evidence on the cost and effectiveness of smart meters in promoting responsible consumption.

Awareness of climate change and availability of information about the role of the individual in tackling the problem

17. Climate change has gained greater prominence in the media over the past few years. The focus has been on the growing frequency of extreme weather events such as the Boscastle and Carlisle floods and drought in the south-east of England. These events are often reported as being an indication of global warming or climate change and in this context, public awareness of climate change is we think likely to be very high.

18. Although plenty of information about climate change is available in the media, it sends out a whole range of messages to the public. These range from rational and enabling messages—for example, the need for responsible consumption to reduce greenhouse emissions, to the irrational blaming of politicians and big business for “failing to act”. This is the context for any information/awareness raising campaign. Many people will already have strongly held views on climate change based largely on what they see or read in the media.

19. The deliberative forum element of our research highlighted the importance of not attributing blame to consumers. They are prepared to play their part as long as they see those asking for their help delivering their share and setting a positive example. In the case of the water industry, this may be by explaining how money collected through bills is being spent, in particular to address water management, leakage etc, and by demonstrating improvement.

20. Early findings from the forum are that those consumers willing to take action in terms of considering their water use have a pragmatic view which takes in the bigger picture of climate change. We must ensure that these consumers are enabled to act by access to the relevant information and other support mechanisms. The majority of consumers at the forum showed a lack of willingness to take action. This is the result of anger, blame and refusal to acknowledge changing conditions. For example, some consumers do not believe there is a water shortage. They think that the current water restrictions are caused by the mismanagement of water companies. Others do not consider water resources because they are not directly affected by the current restrictions.

21. For the most vulnerable in society and low income households in particular, it is a question of making change easy by providing support to effect change. There is little point running a campaign asking people to participate if the tools to aid their participation are not available or easily accessible.

22. Academics have highlighted some of the difficulties in constructing enabling messages to increase public awareness about the consequences of climate change.³ For example, climate change and global warming happens on such a large scale that the individual can feel that anything they do is ineffective and there is no point in changing their behaviour. The idea of “individuals” making an effective contribution to tackling the problem of climate change is therefore difficult to comprehend.

Q3: How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

23. The water industry has developed many resources for use in schools to assist in Key Stage 2 and Key Stage 3 geography lessons on the water cycle and the water environment. Many of the water companies have devised further projects for schools which look at saving water, and school liaison schemes.

24. We would highlight one example of many, which is Severn Trent Water’s “Be Smart” campaign. This allows schools to sign up to a project at the end of which they receive a Be Smart award. The schools are provided with a resources pack and a mentor from Severn Trent Water. The schools and students are assessed on:

- (a) An audit of the schools water use.
- (b) Promotion of water conservation.
- (c) Promotion of the health benefits of drinking water.
- (d) Understanding of water issues locally and globally.

25. Schemes like this have an important role in educating our future citizens about the sustainability of resources. The students take these messages home with them and we have anecdotal evidence of parents being advised to turn the taps off when they brush their teeth! We think this is one way of reaching people who may have little interest in environmental issues as it can bring some of these messages into the home via children of school age.

The water industry perspective

Reducing Per Capita Consumption

26. The current drought conditions in the South and East of England have generated a number of water saving ideas and several of these have energy implications. CCWater’s five fast fixes to aid water efficiency are:

- *Fix any leaks.* A dripping tap losing one drop a second will waste 15 litres of water a day.
- *Use water efficient appliances in the home.* A typical family of four uses the equivalent of two baths of water every day; fit a Save-a-Flush device (you may see it called a “hippo” or even a “bog hog”) and you could save a litre each time you flush.
- *Save water when washing*—take a shower rather than a bath, don’t leave the tap on when brushing your teeth and use the plug in the washbasin when shaving.
- *Save water in the kitchen*—use a bowl instead of leaving the tap on when washing up, boil only the amount of water you need in the kettle, and keep cool water in the fridge rather than running the tap to get a cold drink. And don’t use dishwashers or washing machines half full.
- *Save water in the garden*—collect rainwater from the roof in a water butt, and give your plants a soaking once a week rather than watering daily. Water your plants in the early mornings or evenings, reducing the amount lost through evaporation.

27. Taken together (and with other water saving actions) we could reduce per capita consumption leading to:

- Reduced need for energy intensive desalination plants.
- Reduced need to abstract water from the environment (energy use in pumping water from borehole or river or lake to water treatment works is proportionately reduced).
- Reduced need to build new reservoirs—think of all the energy used at planning inquiries, digging out the soil and transporting it off site, concrete production etc.
- Reduced need to treat water with chemicals/salts/UV disinfection (thus saving the energy costs involved in transporting chemicals/salts to water treatment works, or in powering up UV disinfection).

³ “Water efficiency and the public, who, what, why” Christine Sefton, Water in sustainable communities conference April 2005.

- Reduction in amount of water pumped from water treatment works to service reservoirs, thus saving energy.
- Reduction in the amount of wastewater collected and pumped to sewage treatment works.
- Reduction in the amount of sludge produced at sewage treatment works which then have to be transported to agriculture land or landfill, or which are incinerated or pelletised (the latter two processes usually use renewable energy but still generate carbon emissions).

28. Over the next 20 years the Water Framework Directive (WFD) will become an increasingly important aspect of water companies' investment plans. The WFD requires that best endeavours are made to ensure that all lakes, streams, rivers, estuaries and coastal waters meet Good Ecological Status by 2015 (or if not practical then by 2021, or at the latest by 2027).

29. The WFD seeks to promote a holistic, integrated, even-handed and sustainable approach to water management. Yet implementation could lead to greater overall environmental degradation if high energy intensive processes, leading to more residuals and CO₂ emissions, are required of the water industry to meet arbitrary targets. Sustainability should be at the heart of the WFD, but as with implementation of other EU Directives, notably the Urban Waste Water Treatment Directive, it could be subject to ill-advised deadlines and targets that inadvertently have a net negative impact on the environment.

Phosphates in detergents

30. Phosphates, whether applied to land in the form of soil fertiliser or added as a “builder” in detergents, have the potential to pollute the environment. The most obvious impact is the eutrophication of rivers, lakes and seas, ie the creation of green-blue algae blooms which de-oxygenate the affected waters leading to the loss of incumbent plants, the insects that breed and feed on them, and fish kills.

31. It also has energy implications in that to lessen the impact of their discharges on the environment sewerage companies are increasingly being required to install energy intensive phosphate stripping plants at their sewage treatment works. This will intensify once the Water Framework Directive begins to bite.

32. Several EU Member States, the latest being the Czech Republic, have banned the use of phosphates in detergents. Instead, manufacturers have to use zeolites which are more environmentally friendly but do have the “disadvantage” of not bulking up the detergent (customer perception might be that they are being short-changed in that they are now having to pay the same amount of money for a smaller package).

33. Banning phosphates would obviate the need to build more phosphate stripping plans, and should, over time lead to some decommissioning; phosphates in trade effluent will continue to need treatment for the foreseeable future.

Drink tap water rather than mineral water

34. Quite apart from the cost differential and the fact that tap water is more stringently tested than bottled water, the energy costs associated with bottled water are greater than for tap water.

- The production of plastic bottles uses energy.
- The disposal of plastic bottles uses energy. Even if recycled, local authorities have to collect and process the plastic. If not recycled then these have to be (safely) burned with the residue disposed of to landfill, sent directly to landfill, or used as a base material in some construction projects.
- Transportation of bottled water by (invariably) road leads to carbon emissions. In-vogue Fiji water is air freighted from the South Pacific. Some waters from France and Italy are also air freighted.

Consumer Council for Water

August 2006

Memorandum submitted by the Chartered Institute of Housing (CIH) (CIT 26)

1. INTRODUCTION

1.1 The Chartered Institute of Housing (CIH) is the only professional body for individuals working in housing. Its primary aim is to maximise the contribution that housing professionals make to the well being of communities. Membership status is dependent on completion of a professional qualification and a track record of professional achievement.

1.2 CIH has over 19,000 individual members working for local authorities, housing associations, Government bodies, educational establishments and the private sector.

1.3 CIH welcomes this inquiry and the opportunity it provides for deeper consideration of how individuals can reduce their carbon footprint. We are aware that there are specialist agencies who are better placed to provide more technical answers to some of the questions posed. In our submission we would like to raise some general points relating to tackling climate change.

2. EXECUTIVE SUMMARY

2.1 Climate change is one of the biggest threats facing the international community. Urgent action is needed to cut down on man-made greenhouse gas emissions as the main contributor to global warming.

2.2 Although the responsibility for this lies with all of us, it is government who has to take on a clear leadership role in combating climate change by setting the appropriate policy framework.

2.3 We would like to see government make some categorical policy decisions, with all policies subject to climate change proofing. Although recent government announcements are a step in the right direction, we would like to see further and sustained commitment to tackling climate change.

2.4 The scale of the threat means that we have to radically change our current behaviour. Current initiatives are not sufficient to bring about the behavioural changes necessary in the face of the impending crisis. More needs to be done to ensure that environmental thinking will become firmly embedded in mainstream society. The education system has a crucial part to play in making this happen.

2.5 The CIH is committed to working with the housing profession to contribute towards lasting solutions in combating climate change, particularly where these relate to existing, new housing and communities.

3. SUBMISSION FROM THE CIH

3.1 The seriousness of climate change has now been acknowledged by the majority of the scientific community. Climate change is a real threat and will, in one way or another, affect us all. The recent “heat wave” was only a taster of things to come. Average temperatures during the peak summer months are expected to have increased dramatically by the end of the century. Climate change is no longer some kind of abstract concept, as we see its effects throughout the world. Urgent action is needed to stop the atmosphere warming up to the level predicted, by drastically cutting down on greenhouse gas emissions.

3.2 Reducing emissions needs to be a shared responsibility between government, businesses, communities and individuals. However, it is important that government takes on a clear leadership role in combating climate change. In order for individuals to change their current behavioural patterns, it is necessary that they see that government is taking the issue seriously. This means setting the framework for action, which clearly reflects the severity of the issue, and adopting a range of practical measures which address the scale and urgency of the problem.

3.3 It also means sending out unambiguous messages when it comes to climate change and environmental sustainability. Proposing a *voluntary* code for sustainable homes for example, does undoubtedly send out the wrong signal in face of the threat climate change poses.

3.4 Government needs to send a clear signal that climate change is not a party political issue. It is important to build a broad consensus which includes all the major parties as well as the devolved administrations. This might take the form of a joint statement from the three party leaders and those in the devolved administrations on climate change, together with a clear explanation of what might happen if no action is taken.

3.5 Compliance with and enforcement of regulations intended to combat climate change is another area where government can show its commitment to the issue. A recent study by the Energy Efficiency Partnership for Homes¹ amongst Building Control Officers on the compliance with Part L1 of the 2002 Building Regulations (conservation of fuel and power) revealed that on the whole officers will not enforce or refuse completion certificates or prosecute on a Part L issue. Part L was given low priority as it was seen as being not “life threatening”. This practice has to change. Given that housing accounts for around 27% of all CO₂ emissions in the UK, energy efficiency requirements need to be enforced rigorously. The fact that since the introduction of energy conservation legislation 21 years ago, not a single builder has been prosecuted for non-compliance² is a reminder that environmental awareness has yet to become mainstream.

3.6 It is time for government to make some categorical policy decisions, with all policies subject to climate change proofing in order to indicate its seriousness. Climate change would then become a key test for *every* government policy, in the same way as compliance with (say) race relations requirements or the government’s efficiency agenda permeates the whole of government policy. It should be impossible for government to publish (for example) a housing development programme, roads programme or airports expansion proposals without including a rigorous assessment of their impact on global warming.

¹ Energy Efficiency Partnership for Homes, 2006, *Compliance with Part L1 of the 2002 Building Regulations: an investigation on the reasons for poor compliance*.

² Monbiot G, 2006, *Strange but true: shoddy building work in Exeter kills people in Ethiopia*, available at: <http://environment.guardian.co.uk/climatechange/story/0,,1828830,00.html>

3.7 Although we welcome recent announcements by Ruth Kelly to explore the scope to make the Thames Gateway a low carbon development and to move towards carbon neutrality, we strongly support the Green Alliance³ call for a *carbon neutral* Thames Gateway. Anything less will be a missed opportunity. The technology to build carbon neutral housing is readily available. Housing built using *Passivhaus*⁴ or *Super E*⁵ methods for example does not require any heating or cooling system.

3.8 We would also like to see a greater emphasis on the environmental performance of Britain's existing housing stock. This is of particular importance as construction accounts for only 2% of the housing stock in the UK. A staggering 3.7 million homes in the private sector fail the Decent Homes Standard on thermal comfort alone, while a total of five million fail on range of criteria. These homes are insufficiently insulated and often cost owners or tenants a great deal to heat. Although the Decent Homes programme is due to be completed in 2010, a longer view should be taken of getting all homes in the UK up to a good energy efficient standard. The CIH would like to see the eco-homes standard rolled out beyond new public sector housing and applied to all UK homes by 2050. More attention also needs to be given to vulnerable households in existing private sector housing, those who can least afford to go "green" but who suffer most from high fuel costs in cold and damp houses. We therefore eagerly await the results of DCLG's current review of the sustainability of existing buildings and how government will be moving forward on this important issue.

3.9 Serious considerations should also be given to introducing a taxation policy on carbon-intensive activities, such as the ecological tax adopted in Germany. As fossil energy becomes more expensive it is envisaged that businesses and individuals will start to invest in energy efficiency measures and cut down on their energy use. Revenue raised through the tax helps to lower employers' pension and national insurance contributions. According to a leading German think-tank it is expected that in this way up to 250,000 new jobs will be created. Some of the revenue is also used to fund renewable energy grant programmes.

3.10 A further area where more vigorous action could be taken, both by government and by citizens, is in the protection of the remaining forested areas of the world which act as carbon sinks and as crucial regulators of climate change. Only 12% of the world's forests are in protected areas, and the remainder could be destroyed by unsustainable felling of timber or clearance for farming before the end of this century, on present trends. Action can be taken by consumers and by government to ensure that timber comes from properly managed forests (certified by the Forest Stewardship Council) and that food products (such as Soya from Brazil) are not harvested on land illegally cleared of forest. Already several UK firms (such as B&Q) have responded to customer concerns by using certified timber. Ways could be explored of ensuring that, by a target date, *all* timber used in furniture or construction or paper manufacture comes from certified sources. If a target date were set, this would give enough time for producers to adapt their supply sources and for the Forest Stewardship Council to respond to demand for more certified forests. Government could pressurise the major supermarkets to take action (as some have started to do) on food sources which come from cleared forest land.

3.11 Fairly simple, and fairly modest, measures that government could also adopt to help combat global warming include the following:

- Requirement for all lighting to be energy efficient.
- Taxing the use of plastic bags, as done in Ireland.
- Imposing energy efficiency requirements on manufacturers of domestic equipment, including energy use when on stand-by.
- Encouraging the use of more congestion charging schemes.
- Requirement for local authorities to extend their existing recycling schemes to include plastics and Tetra Pak.
- Imposing requirements on manufacturers to cut down on packaging.
- Introduction of a deposit scheme for all bottled and canned drinks.

3.12 The seriousness of climate change means that we have to radically change our current behaviour. To achieve this, environmental thinking needs to be firmly embedded in society. Environmental sustainability should not be seen as a tag-on but rather as a guide to all decision-making. The education system has to play a major part in bringing about the cultural shift needed to make this happen. The national curriculum needs to reflect the importance of environmental sustainability in our global society. As the threats linked to climate change will only increase over the coming decades, it is vital to equip our children with the knowledge and tools to deal with this impending crisis. The earlier we engage with young people about these issues, the more likely that they will become second nature and lead to a change not only in individual but in collective behaviour.

3.13 Making "green" choices is also still very costly. Especially for those on low incomes, more environmentally-friendly products are simply out of reach. The green agenda has generally attracted the middle classes. Those living in disadvantaged areas have largely been left behind by the environmental movement. Research amongst disadvantaged groups has shown that the quality of the local environment

³ Green Alliance, 2006, *Housing a low carbon society: an ODPM leadership agenda on climate change*.

⁴ <http://www.passiv.de/>

⁵ www.super-e.com

and the associated impacts on health and well-being are of most concern.⁶ Local environmental issues can act as a catalyst for raising environmental awareness. The local environment becomes the place where the principle *think globally, act locally* can be put into practice. A study, examining local sustainable development projects in deprived neighbourhoods supports this argument.⁷ It concluded that apart from socio-economic benefits, projects of this kind are an important vehicle to engage individuals and communities in environmental action, who would otherwise not have been interested in these issues.

3.14 Current initiatives such as the Energy Efficiency Commitment (EEC) are not sufficient to alter behaviour in favour of more environmentally-friendly actions. In the recent energy review, the government admitted,⁸ that the EEC itself does not address consumer behaviour, ie making people think about the amount of energy they use or how to save energy. The current rate of vehicle excise duty for cars with greater emissions for example is not nearly high enough to deter someone from purchasing such a car. We therefore would like the committee to consider how those policies could be improved to address the issue of consumer behaviour.

3.15 For its part, the Chartered Institute of Housing, as the professional body, has expressed its own commitment to the seriousness of climate change by signing the Green Alliance “agenda” already mentioned and by publishing a range of good practice material aimed at housing professionals and their work with tenants and the wider public. We remain committed to treating climate change very seriously and to help to inform and equip our members to tackle these issues.

Chartered Institute of Housing

September 2006

Memorandum submitted by Dr Mayer Hillman (CIT 27)

This short Memorandum challenges the view that the extent of change needed to prevent climate catastrophe can be achieved on a voluntary basis. It argues that success can only be assured by the setting of mandatory targets based on a system of personal carbon rationing. This radical transition to far less energy-intensive lifestyles than at present requires a major commitment from government. Its intervention to achieve substantial carbon dioxide reductions across society, with everyone making their fair contribution, is not only essential but it stands to reason that that approach will also lead to a far greater and faster take-up of energy-saving practices than would otherwise occur.

1. This Inquiry focuses on the actions which individuals can take in their daily lives to help tackle climate change by moving to a low-carbon economy, and the identification of the barriers standing in the way of their adoption. Its purpose is presumably to reveal the considerable opportunities for reducing carbon emissions that are not being exploited. The key question posed at the end of the background statement for the Inquiry is “How can Government make these choices easier?” Implicit in this question is the view that individuals’ take-up of the proposals listed under the bullet points under 1) of the Committee’s *Terms of Reference* can, in combination, be sufficient to achieve the degree of reduction of fossil fuel use needed to prevent catastrophic climate change and that the population can be motivated to do so voluntarily.

2. A major reason why so little action is being taken on climate change in almost every walk of life, both at an individual and collective level, is the failure of government, relevant institutions and the media to alert the public to its awesome reality for the future of life on earth. Society has been led to expect at best an ever-rising improvement in material standards of living and, if not that, then at the least, that present standards will be able to be maintained into the foreseeable future. Grounds for optimism that this is so are reflected in the Committee’s bullet points which give a strong impression that such a future will be possible without the need for major behavioural changes by, for instance, increasing the efficiency with which fossil fuels are used and the rate at which micro-generation is introduced.

3. Government is rightly seen by most people to have the prime responsibility in this area. It alone has the authority to reach decisions based on how grave is the situation and, in light of this, what new policies must be introduced. Given the fact that the public is increasingly addicted to energy-intensive lifestyles way in excess of what the planet can support without serious climate destabilisation and given the evidence that, at present, it is not prepared of its own volition to give these up to the degree that is obviously essential, only government has the powers to intervene sufficiently effectively. It is totally unrealistic to expect individuals, households and communities to act unilaterally when others are not doing so.

⁶ Burningham K and Thrush D, 2001, *The Environmental concerns of disadvantaged groups*, Joseph Rowntree Foundation.

⁷ Church C and Elster J, 2002, *Lessons from local action for national policy on sustainable development*, Joseph Rowntree Foundation.

⁸ DTI, 2006, *The Energy Challenge*.

CONTRACTION AND CONVERGENCE

4. Clearly, climate change is a global problem the solution to which requires signing up to an international binding agreement to assure success by involving everyone. The framework for such an agreement—*C&C (Contraction & Convergence)*—has been put forward by the Global Commons Institute. The Committee is no doubt familiar with this proposal. It is founded on the fundamental principles that “safe” atmospheric concentrations of carbon dioxide must not be exceeded and that global governance must be based on justice and fairness. Its phrase “equity is survival” encapsulates the point that there can be no global security unless climate change is restricted to a manageable level, and this cannot be achieved without all countries of the world sharing this common objective. (There is however nothing to stop a national government from introducing such a system in advance of an international agreement covering countries in both the developing and developed world. Indeed, the sooner this happens, the easier will be the transition to the inevitable low-carbon future.) *C&C* consists of:

- Contraction: an international agreement is reached on how much further the level of carbon dioxide can be allowed to rise before the changes in the climate it produces become totally unacceptable. Once this limit has been agreed, it is possible to work out the rate at which current global emissions must be cut back to ensure that it is not exceeded.
- Convergence: global convergence to equal per capita shares of the agreed contraction is phased towards the contraction target by an agreed year.

5. *C&C* is a set of principles which simplifies climate negotiations in a remarkable way. Only two questions need to be answered. First, what is the maximum level of carbon dioxide that can be permitted in the atmosphere? Second, by what date should global per capita shares converge to that level? Applying *C&C* does not entail a particular concentration of carbon dioxide emissions as being the safe limit, nor a timescale for reductions. It requires a national scheme to share out the country’s allocation of carbon dioxide emissions.

6. The issue of the fair distribution of a commodity to which it would be difficult to argue that everyone does not have an equal claim cannot be ignored. An analogy could be drawn with rationing in the UK during and after the Second World War. In recognition of the prospect of the UK’s sea routes for food imports being closed off and therefore of food being in short supply, Neville Chamberlain did not appeal to people to eat less in order to avoid shortages and no one suggested that price and market forces should determine who should eat and who should not. It was widely recognised that there could be no approach other than one based on equity for sharing out a basic commodity which was relatively finite in availability. This solution was introduced, providing equal access to what was available by the use of an identical ration for everyone. The same logic must apply for the world’s population sharing the atmospheric sink for the safe absorption of greenhouse gas emissions. The only way whereby this can happen is within the global *C&C* framework, with its national manifestation in the form of rationing.

PERSONAL CARBON ALLOWANCES

7. Based on this same equity principle embodied in the *Contraction and Convergence* framework, everyone will be given a PCA (Personal Carbon Allowance)—in effect, an equal “right of emissions”. In general, people will be strongly encouraged to reduce their need for energy, to improve the efficiency with which they use it and, where possible, to use energy derived from renewable sources in order to live more easily within their carbon allowance. Carbon allowances will have to decrease steadily year-on-year in line with negotiated international reductions. By giving due warning of the annual reduction in the future allowance, people will be able to make changes to their homes, their transport arrangements and to their general lifestyles at the least cost and in the way that suits them best.

8. A key feature of the proposal for a Personal Carbon allowance (PCA)—or Domestic Tradable Quota (DTQ) as it is sometimes called—is buying and selling, with carbon allowances acting as a parallel currency to real money as well as creating an ecologically-virtuous circle. Those who lead less energy-intensive lives and who invest in energy efficiency and renewable energy are unlikely to use all their allowance. They will then not only be spending less on fuel but will also add to their income by selling their surplus units. Those who maintain high energy use will have to buy these units at the market rate at the time. But the cost of doing so will rise steadily in line with the reduction of the allowance for it will be determined by the availability of the surplus set against the demand for it. In effect, a “conservation gains principle” will complement the conventional “polluter pays principle”. The process will act as a driver towards minimising the awesome impact of climate change far more effectively than by attempting to encourage individuals to adopt green practices. Indeed, it is essential to acknowledge that the changes cannot conceivably be brought about on a voluntary basis—by exhortation, better information, offers of grants, and so on. Only Government can do so by requiring everyone to be equally involved in the process.

9. Nevertheless, climate change is too important a problem to be left solely to government even though it has the major responsibility for dealing with it. Given the urgency with which change must occur, the active engagement of all sectors of society—politicians, the business and professional community and, of course, individuals—is required to put pressure on government to take climate change seriously. In a democracy, the necessary intervention of government cannot take place without the consent and co-operation of the majority. There is no reason why individuals cannot be in the vanguard of the essential change by immediately starting to lead their lives as if they were already subject to carbon rationing. Such voluntary action would add pressure on government by showing it to be both feasible and acceptable.

CONCLUSION

10. The Government statement that “individuals, households and communities have a crucial role to play in tackling climate change”, cited in the Committee’s background to this Inquiry, only holds true if these groups are subject to a mandatory requirement to fulfill that role. Without Government intervention, by the imposition of carbon rationing, the essential radical shift to a sufficiently low carbon lifestyle will be only partially made. All the actions listed in the bullet points of the Committee’s *Terms of Reference* will logically and far more effectively be pursued under such a regime.

11. Responding to climate change is ultimately a moral choice. The implications of failure to limit our emissions to a fair share dictated by the planet’s capacity to safely absorb greenhouse gas emissions are dire. We can no longer proceed as if we have an inalienable right to ignore the damage we are causing to the planet. Nor can we keep irresponsibly passing the buck between individuals, industry and government.

Many of the themes of this Memorandum are drawn from the contents of *How we can save the planet*, by Mayer Hillman (with Tina Fawcett), Penguin Books, 2004.

Mayer Hillman

Senior Fellow Emeritus, Policy Studies Institute

September 2006

Memorandum submitted by the Sussex Energy Group, SPRU, University of Sussex (CIT 28)

INTRODUCTION

(i) The Sussex Energy Group (SEG) at SPRU (Science & Technology Policy Research), University of Sussex is a team of 15 researchers dedicated to understanding the challenges and opportunities for transitions to a sustainable energy economy. We undertake inter-disciplinary social science research that aims to be centrally relevant to the needs of policy-makers and practitioners. We pursue sustainability research questions in close interaction with a diverse group of those who will need to make the changes happen. Core funding is provided by the Economic and Social Research Council. This response draws upon research experience from past and current projects undertaken by members of SEG.

ENVIRONMENTAL CITIZENSHIP: A BROADER AGENDA

(ii) Before addressing the important questions specifically raised in the Committee’s call for evidence, we would like to put the question of environmental citizenship into context. We believe a broad conceptualisation of the citizen’s agenda is warranted and would encourage the Committee to consider how that broader agenda can be covered by their inquiry. Much of our response provides evidence on the consumption behaviour of individuals. Considerable research and policy around climate change and the individual adopts a consumer/consumption perspective. It is notable how nine out of 12 issues raised by this inquiry are about consumption.

(iii) Whilst consumption is an important and dominant concern, focusing the citizen’s agenda so narrowly risks missing important insights and opportunities for change. Consumer behaviour relates individuals to the market. Citizenship, by contrast, relates individuals to government, politics and the civic realm. In addition to purchasing decisions and lifestyle habits, the citizens’ agenda must embrace the formation and practice of a set of rights and responsibilities that individuals have towards a community. The Committee might consider what a programme for climate citizenship would involve in terms of encouraging and supporting people a) to engage in political activity related to climate change, and b) to understand and practise a set of climate rights and responsibilities as part of the community. This broader citizen’s agenda would see individual consumption habits in their proper political setting, embedding consumption within citizenship.

(iv) Currently, there is a lively academic debate in the UK about the merits and possibilities for environmental citizenship.¹ Much of this debate centres upon what an environmental citizen would be like: the kind of values she would hold, ideas about how to live a “sustainable” life, relationships to the

¹ See for example, the April 2006 special issue of the journal *Environmental Politics* (Vol 14, No 2).

community and the environment, the kinds of practices all this entails, and existing arenas where environmental citizenship is being nurtured. However, much work remains to be done in grounding these ideas and developing them further, particularly in formulating practical programmes for creating and supporting climate citizenship.

(v) Also policy-makers are beginning to see environmental citizenship as the bedrock for sustainability. The 2005 Citizenship Survey from the Home Office, for example, notes that people who do volunteering and civic activities were more likely to think that the environment was everyone's responsibility. Consequently, citizens' activity beyond the market—in the civic and political realms—can come to influence their consumer behaviour within the market. The Environment Secretary David Miliband spoke recently of the need for society to form an “environment contract” equivalent to the 20th century social contract that “resulted in a different balance of power between the citizen and the state, a different balance of rights and responsibilities, and a new set of norms and expectations”.² The challenge is to generate the social and political spaces and processes for negotiating a new contract, and for involving citizens in the attribution of rights and responsibilities.

(vi) There are a number of government initiatives that seek to reinvigorate citizenship and civic activity in the UK. We encourage the inquiry to consider in particular initiatives that address dimensions of environmental citizenship (eg the civic renewal work of the Department for Communities and Local Government; the cross-departmental *Together We Can* initiative; Defra's Every Action Counts initiative, Community Renewables Initiative and schemes under LA21) and ways of reinforcing climate citizenship through them.

(vii) However, our political system must go beyond community self-help initiatives and also develop mechanisms for the political dimension of environmental/climate citizenship to facilitate citizen participation in the creation of low carbon rights and responsibilities. The citizen's agenda for climate change brings a low-carbon dimension to initiatives aimed at engaging citizens in areas such as technology policy, allowing them to shape the innovation priorities for business and society by moving public deliberation “upstream” (to the R&D stage cf. downstream at the product launch stage). A climate dimension could be added to citizen engagement in other policy areas too, such as trade policy, infrastructure provision, and regional economic development.

(viii) The potential change in the citizen's role can be explored in the provision of utility services and more specifically in the provision of energy. Privatisation and liberalisation made it possible for citizens to engage actively and responsibly in the energy sector. An individual can now define herself in different ways in relation to utility services: as an economically “rational” consumer who chooses between different suppliers on cost and service grounds, as a citizen-consumer interested in socially and environmentally responsible utility services, or as a co-provider of sustainable energy through household level microgeneration.³ In this latter role, the citizen is no longer merely a passive consumer, but becomes instead an active energy provider—a shift that blurs the traditional boundaries between supply and demand. Policy and regulation need to encourage such “energy citizenship” and thereby enhance the transition towards a more sustainable energy system.

COMMITTEE ISSUES

Having made this general plea, we now turn to the detailed substance of the inquiry's call for evidence. In the remainder of the document we address the issues of concern.

1. *What is the real scope for individual and local community action to contribute to tackling climate change?*

The Energy Efficiency Commitment

(i) Domestic energy use accounts for approximately 28% of the UK's carbon emissions. The Energy Efficiency Commitment⁴ (EEC) is the main policy measure for reducing carbon dioxide emissions from the household sector in the UK, requiring gas and electricity suppliers to achieve targets for the promotion of improvements in domestic energy efficiency.

(ii) EEC has proved successful in delivering technical energy efficiency measures, such as A-rated white goods, condensing boilers and improved insulation. As a top-down policy measure, EEC has helped households to benefit from energy saving measures, but many of the measures remain largely invisible, and consumer awareness of both energy use and energy-saving opportunities remains low. The challenge for the

² Annual Lecture of the Audit Commission, 19 July 2006.

³ Microgeneration is the small-scale production of heat and/or electricity from a low-carbon source, including technologies such as solar photovoltaics (PV), solar thermal, micro-wind turbines, micro-hydro, heat pumps, biomass, micro combined heat and power (micro CHP) and small-scale fuel cells.

⁴ The current phase of the EEC runs from April 2005 to March 2008 and requires electricity and gas suppliers to deliver a total of 122 TWh of “fuel standardised lifetime discounted energy benefits” to domestic consumers through qualifying energy efficiency measures.

next stage of EEC is to raise householders' awareness of their energy use and its climate impact, and measures available for householders to become a part of the solution. Technologies such as microgeneration and smart meters could help in this.

(iii) So far, EEC⁵ has not concentrated on measures aimed at awareness-raising and/or changing consumer behaviour. Under the "environmental citizenship" agenda, EEC would require actions from both suppliers and householders. EEC should include all microgeneration technologies and measures to change behaviour, as well as allowing suppliers to allocate shares of their obligation to experiment with such new approaches to carbon savings in the domestic sector.⁶ Since energy consumption generally increases with income levels, any measures within EEC to induce behavioural change should be directed at all income groups, and not just low income households.

Reducing energy consumption

(iv) Given that approximately 30% of UK energy consumption is related to transport, and that people increasingly rely on cars for their personal mobility, increasing the energy efficiency of private vehicles is an important challenge. Increasing the viability and attractiveness of walking and cycling can address multiple environmental, health and tourism objectives, as a recent SEG case study on the National Cycle Network found. The Network was voted the most popular Millennium project partly because it allowed people to express their environmental concerns in real tangible ways that benefited them *in their communities*. In other words, it provided infrastructure that helped people to work sustainability, health, danger reduction (eg taking children to school) and fun into their everyday lives.

(v) SEG is currently undertaking work commissioned by Defra that examines some of the barriers to transferring low-carbon technology to developing countries. Part of this work focuses on the transfer of hybrid vehicle technology. Consultation carried out to date has highlighted the need for more clearly differentiated, technology-neutral tax incentives for low carbon emitting vehicles. This would involve setting vehicle excise duty for both private and corporate consumers at much higher levels for high-carbon-emitting vehicles. Technology-neutral taxation allows manufacturers to meet carbon targets via the least cost route. For example, small diesel engine cars might currently be a cheaper route than hybrid vehicles for manufacturers to meet certain carbon-emissions targets.

(vi) In the absence of any significant differentiation in private vehicle excise duty between high and low carbon emitting vehicles, corporate vehicle fleet managers hesitate to invest in any less well known low-carbon technology, such as hybrid vehicles. The tax incentives to corporate vehicle consumers are not passed on to private consumers when cars are sold on. This means there is little demand for ex-fleet hybrid cars, which is a major consideration for fleet managers.

(vii) The difference in excise duty between lower-emission and high-emission cars is currently so small (only £105 per year difference between a car emitting 145 g/km CO₂ and another that emits 249 g/km CO₂; based on VCA data), that it is highly unlikely to impact on consumers' choice of vehicle. Two options warrant empirical study in this area. Firstly, the impacts of increasing the relative difference in excise duty between vehicles based on CO₂ emissions. Secondly, the possibility of integrating other strategic policy objectives (eg passenger and pedestrian safety objectives) into excise duty calculations.

(viii) Through their consumption decisions, citizens can have a role in halting the growth of CO emissions also from freight transport, on the condition that they have access to a) the necessary information about the consequences of their consumption choices, and b) real, economically viable options among which to choose. At present, neither of these conditions is satisfactorily fulfilled.

(ix) Food transport is a typical example of a sector whose environmental impacts are growing rapidly—total CO₂ emissions from food transport increased by 12% between 1992 and 2002. In the UK, food transport is responsible for 25% of heavy-vehicle kilometres, and food transport by air is growing particularly quickly (140% increase between 1992 and 2002).

(x) Moving towards supply and distribution systems entirely based around localised markets may not be justified even on carbon-reduction grounds, given the often higher efficiency that a highly centralised warehousing and wide-area sourcing can in many cases offer. However, reducing overseas imports within a regionally focused approach to sourcing and distribution could help foster a lower-carbon food system. Innovative solutions that could be applied within such a system include home-delivery services, which could significantly reduce emissions, unless consumers require delivery at a specific time slot. The use of password-secured delivery boxes that can be left outside the home at any time of the day would allow drivers more flexibility to choose the most efficient routes.

(xi) Beyond these technical issues, the more indirect impacts of food systems are crucial for the citizens' agenda. For instance, increased shopping by car, in part stimulated by the construction of out-of-town superstores, has not only cancelled out a lot of the efficiency gains in freight logistics, but also diminished social cohesion and individuals' awareness about the consequences of their food choices.

⁵ DTI (2006), The Energy Challenge—Energy Review, A Report, July 2006.

⁶ Defra (2005), Energy Use in Homes, A series of reports on domestic energy use in England.

(xii) Price signals, for example through carbon taxes or allowances, can provide significant incentives for businesses and individuals to seek less transport-intensive and less polluting alternatives. Yet market-based instruments have their limits. Consumer decisions are not guided solely by price, as the rising interest in “local food” demonstrates. Notwithstanding the complexities and trade-offs between different environmental, social and economic objectives, promoting initiatives within the approaches of “local food” and “food miles” entails significant possibilities to strengthen “environmental citizenship”. By providing consumers with better information about the environmental consequences of their food consumption choices, such information may foster behavioural change and encourage citizens to engage for instance in community-level action to combat climate change.

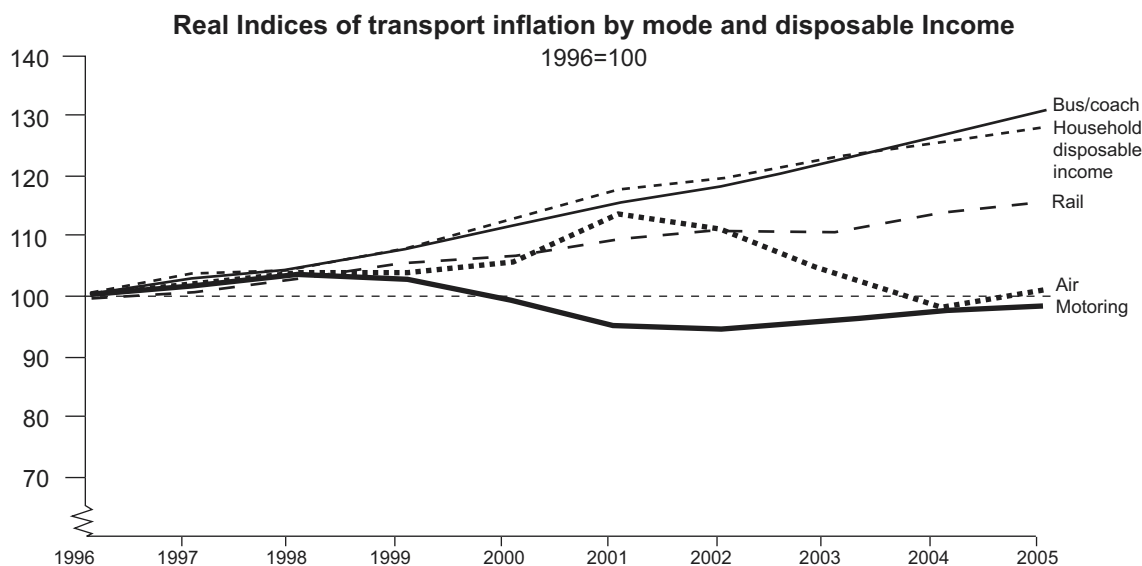
Providing low-carbon alternatives

(xiii) Amongst the wide range of issues that affect the likelihood that an individual opts for low-carbon transport, the Committee should consider the rising cost of public transport relative to other forms of transport. As Figure 1 (taken from the latest report of the House of Commons Environmental Audit Committee) illustrates, higher-carbon modes of transport have become cheaper than lower-carbon modes. Essentially, as disposable income has increased, motoring costs have remained stable while public transport fares (rail and bus) have risen. The problem is best illustrated by some real examples.

(xiv) Henfield is a rural village north of Brighton. A return bus fare from the village to Brighton costs £6.00. The equivalent cost of petrol and parking if travelling by car is also approximately £6.00 (£2.00 for petrol and £4.00 for parking). If two people are travelling this makes car travel half as expensive as using the bus. Together with the time savings and the independence from often highly restrictive time-tables (the last bus from Brighton to Henfield leaves at 7pm), this cost advantage provides a strong incentive to private car use. Once greater travelling distances are involved the high relative cost of public transport becomes further exacerbated. A round trip from Brighton to Bristol costs approximately £50.00 in petrol, whereas a return train fare costs £59, making train uneconomical even if only one person travels. The wide availability of low-cost air fares makes this situation even worse, as for example a rail ticket for a round trip from Brighton to Edinburgh costs more than twice the price of a flight ticket—the train to and from the airport included.⁷

Figure 1

HIGHER CARBON MODES OF TRANSPORT HAVE BECOME CHEAPER THAN LOWER CARBON MODES



Source: ONS time series data WWW.statistics.gov.uk

Note: “Motoring” is our name for what the ONS categorises as “ersonal travel”. In addition to the generalised costs of car use, it includes the costs of motorbike and bicycle purchase and repair, and all fuel.

Source: House of Commons Environmental Audit Committee. *Reducing Carbon Emissions from Transport*. Ninth Report of Session 2005–6, Session 1.

⁷ As a technical aside, most of these new flights are on planes that use jet engines, which use substantially more fuel than the propeller engines that used to be the norm on short-haul flights.

(xv) One answer to this problem is to reflect the environmental cost of different transport options within their price (eg through carbon pricing). Whilst this is certainly a good idea for reducing air travel, a great deal of caution must be exercised in relation to bus, rail and car travel. At present, the price of public transport is prohibitively expensive, making further price increases particularly problematic in rural areas, where transport is essential for accessing essential services such as healthcare, schools and supermarkets. Apart from policies that better integrate climate and environmental considerations into land use and transport planning, the Committee should therefore consider the need to reduce the actual rather than relative cost of public transport as opposed to making alternative forms of transport equally, or more, unaffordable.

Micro-generation—potential and barriers

(xvi) Domestic microgeneration could generate up to 30–40% of UK's energy demand by 2050.⁸ Microgeneration technologies are not only low carbon technologies, but they also improve security of supply, because generation takes place close to the point of use. They can create a more competitive and consumer-friendly energy market by the introduction of new energy service contracts for households. To realise this potential, substantial policy and regulatory changes are necessary.

(xvii) Better information and understanding of microgeneration technologies and how they can help to tackle dangerous climate change is a prerequisite for citizens' engagement. The existing network of Energy Efficiency Advice Centres (EEAC) advising on energy efficiency issues could for example be extended to cover microgeneration. They could therefore advise citizens on the basis of a holistic approach to domestic energy issues.

(xviii) Some barriers to microgeneration (eg planning, a reward scheme for electricity exports to the grid) are being addressed by government on the basis of DTI's Microgeneration Strategy and the Climate Change and Sustainable Energy Bill. Yet, more widely, the fiscal regime remains heavily biased towards business investment in central power stations,⁹ despite the recognition in the Energy Review of "the principle that fiscal measures can play a part in achieving our environmental goals".¹⁰

(xix) The existing tax treatment puts investment in microgeneration in domestic dwellings at a disadvantage, because while companies can offset their investment costs against their taxes by the use of capital allowances, citizens cannot. Furthermore, businesses investing on the demand side in low-carbon technologies have access to Enhanced Capital Allowances (ECA), which allow them to offset 100% of their investment costs against taxes in the year of investment. This reduces the upfront costs by 30% for a medium-sized company with a profit tax rate of 30%. However, if a company invests in microgeneration in a domestic dwelling within an energy service contract, it cannot claim any capital allowances. Similarly, microgeneration is not included in the Landlords' Energy Savings Allowances (LESA).

(xx) Given that high upfront costs are an important barrier for households and that future income is generally valued very low, upfront tax measures would be a powerful instrument to encourage citizens to become "co-providers" in the existing energy infrastructure. Different fiscal incentives could be used. While rebates on council tax or stamp duty land tax have been suggested,¹¹ our analysis shows that ECA access for investments in domestic microgeneration would improve economic attractiveness considerably. It would allow individual taxpayers to offset 22% or 40% of their investment costs in the first year. Within this "level playing field", businesses offering domestic energy services for microgeneration could also offset their investments against their profits. Providing investors in microgeneration with access to ECA and market-based export/generation rewards could halve payback times as compared to the current investment situation.¹²

Potential for smart metering

(xxi) Several studies¹³ show that measures such as better billing, smart metering and feedback on energy consumption could encourage domestic energy saving behaviour. Technologies such as smart meters provide householders detailed information on their energy consumption, which may encourage people to become more energy efficient or shift their consumption from peak to off-peak times. Furthermore, smart metering could allow microgenerating householders to receive information on the timing and amount of both their energy consumption and production. This would enable long-term flexibility in support policies for microgeneration—whether export rewards or access to real-time electricity tariffs. Including smart

⁸ Energy Saving Trust (2005). *Potential for Microgeneration. Study and Analysis*, Energy Saving Trust.

⁹ Sauter, R, J Watson, et al (2006). *New Deployment Models for Microgeneration: Economic, Regulatory and Policy Issues in the UK*. Paper to be presented at the 6th BIEE Academic Conference, September 2006, Oxford.

¹⁰ DTI (2006) "The Energy Challenge", p 131.

¹¹ EST (2005): Changing climate, changing behaviour. Delivering household energy saving through fiscal incentives.

¹² For more details see the following paper prepared for the BIEE conference "Energy Policies in a Global context", 20–21 September 2006, Oxford: Sauter, R, J Watson et al (2006). *New Deployment Models for Micro-Generation: Economic, Regulatory and Policy Issues for the UK*.

¹³ See for example Abrahamse W, Steg L, Vlek C & Rothengatter T (2005), A review of intervention studies aimed at household energy conservation. *Journal of Environmental Psychology* 25: 273–291 and Darby S (2006), The Effectiveness of Feedback on Energy Consumption—A Review for Defra of the Literature on Metering, Billing and Direct Displays. Environmental Change Institute, Oxford University.

meters under the EEC could provide a rounded policy measure aimed at energy supply, consumption and generation. The current policy and regulatory framework does not, however, provide enough incentives for market participants to invest in smart meters.¹⁴ One solution could be to re-bundle meter ownership to the Distribution Network Operator (DNO). This could reduce the risk of stranded investments as currently faced by suppliers and provide a clear economic incentive to them. A first step would be to require that all new or replacement meters are smart meters.

Individual awareness and information

(xxii) The environment is a “public good” meaning that people can obtain benefits from it without contributing to maintaining it, thus raising the possibility of “free-riding”. This can give rise to what are known as “collective action problems”, where the benefits to an individual of acting to preserve the environment are negligible if only they act compared to the costs to that individual. This represents a key barrier to encouraging climate change mitigation activities at the individual level. It also underscores our opening point about the importance of a broad perspective on citizenship that goes beyond individual consumption behaviour.

(xxiii) For example, an individual is more likely to opt to install some form of domestic microgeneration if he can be sure that other members of his community will do the same. This is because the individual is assured that the personal costs they incur will contribute to broader environmental benefits as part of the collective action of their community. Individuals do go about in their day-to-day decisions guided not only by “rational” calculations based on self-interest, but also by knowledge concerning the wider consequences of their actions and about available alternatives; their behaviour is conditioned by the broader institutional and social setting. This involves more than just citizens being made aware of available measures to reduce domestic energy consumption, eg energy efficiency or microgeneration. Likewise, an individual may do her utmost to save energy at home, but may be unable to influence for instance the heating and lighting choices at the workplace.¹⁵

2. What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

(i) SEG’s Defra commissioned research on technology transfer to developing countries as part of the G8 Gleneagles dialogue has highlighted the inadequacy of current differentiation in vehicles excise duty for low- and high-carbon emissions vehicles. There is a real need to increase the difference in vehicle excise duty for low- and high-carbon emitting vehicles. This taxation should be technology neutral leaving vehicle manufacturers to respond with least cost solutions. Please refer to the response to question 1 for a more detailed outline of this issue.

3. How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

(i) Government at every level plays an important role in influencing and providing opportunities for domestic emission-reduction measures, whether through the planning framework, economic development, infrastructures, providing public services, or diffusing good practices and initiatives. Low-carbon governance is about the networks of actors committed to making low-carbon changes. It includes governments, but also other actors with key resources and capabilities to make change happen. So, for example, at European and international level, governments can seek partnerships with standards setting bodies and multinational businesses in order to see low carbon requirements in all new products. This international level helps domestic emission reduction in every home.

(ii) An advantage with local government is that networks form much closer to citizens and are thereby more accessible to them in principle. These can not only develop initiatives tailored to a locality, but they can also act as conduits of information, innovation and support arising in regional or national networks. Empowered local governance networks can also be a source of policy innovation and initiatives aimed at domestic carbon emissions. The widely-cited Merton initiative is a good example. Central government was indifferent (even discouraging) of Merton Borough Council’s *requirement* for 10% on site renewable generating capacity for housing (and business) developments over a certain size. However, the model spread to other pioneering local authorities and is beginning to be adopted in regional spatial strategies. Top-down or horizontal diffusion of good practice is important in reaching the mediocre and indifferent at the local

¹⁴ Owen, G and J Ward (2006). Smart Meters : Commercial, Policy and Regulatory Drivers, Sustainability First.

¹⁵ The “I will if you will” report by the Sustainable Consumption Roundtable provides insights on overcoming this barrier to individual action on climate change.

level, and maximising the benefits from the innovativeness of the best. Central government recently decided to rewrite planning guidance to include the Merton requirement across all local authority plans. Bottom-up policy innovation is therefore now becoming a top-down requirement.¹⁶

(iii) However, one has to be careful in drawing lessons from such examples, because an initiative that works in one setting does not always transmit easily to other settings via bottom-up/top-down process between governance levels. Success may depend on unique characteristics, such as the presence of dynamic and entrepreneurial individuals who champion the initiative, or locally elected leaderships committed to climate policy.

(iv) SEG research in relation to multi-level governance and renewable energy (focusing on the regional level) identifies the potential for creative tensions between levels. The most basic tension is between a desire by central government to direct and steer lower levels along the lines of national climate policy, on the one hand, and the advantages of permitting space for bottom-up initiatives and policy innovation, on the other hand. Current central government reviews into local governance must not only consider the scope for local level low-carbon citizenship, but has to reflect on how central government can reform, and be a better facilitator, user and diffuser of policy innovation at lower levels.

4. *What is the role of NGOs in delivering the “citizen’s agenda” on climate change?*

(i) This is an important area, but we have no insights to provide at this stage. NGOs will be a topic of future research activity at the Sussex Energy Group under a research project titled “civil society and sustainable energy”.

5. *Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?*

(i) See the separate submission by Steve Sorrell from SEG (CIT 03).

Sussex Energy Group

September 2006

Memorandum submitted by the Soil Association (CIT 29)

EXECUTIVE SUMMARY

- the contribution of agriculture to the UK’s total greenhouse gas emissions is much more than the official figure of 8%;
- citizen’s can have a major impact on this through simple choices about the type of food they buy;
- people should be encouraged to buy seasonal, local, organic food;
- organic farming is the low carbon system of food production which is twice as energy efficient as non-organic farming;
- this is mainly because it avoids the large greenhouse gas emissions from the manufacture of nitrogen fertiliser and helps maintain the soil carbon bank;
- “local” food reduces “food miles”, but there is still considerable transport involved in its production if it is non-organically produced;
- buying seasonal food avoids the transport involved in importation and avoids the electricity used in heating glasshouses for UK produced vegetables;
- buying whole food, rather than processed foods, avoids the energy used by the food processing industry;
- buying fresh unpackaged food, avoids the energy used in packaging and reduces food wastage; and
- the main barriers to the greater uptake of climate-friendly food are the lack of awareness of the climate impacts of agriculture and the higher cost of organic food. However, people can even reduce their food spending by buying such food direct from producers, while people who rely now on convenience food would save money anyway.
- the FSA, Defra, regional authorities and NGOs can all help raise awareness of the issues and encourage the purchasing of environmentally-friendly food

¹⁶ See the Department for Communities and Local Government website, <http://www.communities.gov.uk/index.asp?id=1500549>

- schools and public institutions can take a lead in public education and help develop the local, organic supply chain, by buying environmentally-friendly food for their canteens. The Government should provide more funds to enable this.

A. INTRODUCTION

The Soil Association was founded in 1946 to achieve environmentally sustainable agriculture and produce highly healthy food, through organic farming. We are the main organisation and certifier for organic food and farming in the UK, certifying about 70% of the organic food sold in the UK. Organic farming now accounts for 3.4% of UK farmland. Sales of organic food are worth about £1.6 billion annually in the UK and the market is growing by an extra £7 million a week. It is the fastest growing sector of British agriculture. About 77% of UK households buy some organic food (TNS poll of 15,000 households). The market functions well, based on a EU-wide system of production standards for organic farming and an efficient legally-based system of certification for organic produce.

Organic farming is the most sustainable farming system. It is a management-based approach based on using natural ecological and biological processes *in situ* on the farm, rather than using synthetic chemical inputs which have to be manufactured and transported from elsewhere (the basis of non-organic agriculture). This approach avoids or reduces most of the environmental problems of non-organic farming systems, including halving the energy used in the production of food and maintaining the soil carbon bank. Organic farming also reduces soil erosion, agrochemical pollution and waste, and supports higher levels of farmland wildlife than non-organic farming. The Sustainable Development Commission has called organic farming the “gold standard” for agricultural sustainability.

Because of its proven environmental benefits the Government wishes to expand organic farming. DEFRA adopted an organic action plan in 2002, with a target that 70% of the UK organic food market should be supplied by UK farmers by 2010, and for public food procurement to involve the purchasing of organic food. There is enormous potential for the expansion of organic food and farming, with considerable benefits for mitigating and adapting to climate change.

B. RESPONSE TO QUESTIONS

Our interest and expertise is in agriculture and food production; we therefore restrict our answers to this area.

1. *What is the real scope for individual and local community action to contribute to tackling climate change?*

(i) Citizens can make a major contribution to reducing the climate change impact of the food they buy. To assess the importance of this, it is helpful to first have a good picture of the contribution of agriculture to the UK's total greenhouse gas emissions. Officially, agriculture accounts for 8% of the UK's greenhouse gas emissions (14.2MtC in 2005), and is recognised to be the major UK source of the powerful greenhouse gases methane and nitrous oxide. In fact, nitrous oxide and methane are the main greenhouse gases of agriculture, accounting for 55% and 37% respectively of the total official UK agricultural greenhouse gas contribution. CO₂ is officially the smallest contributor, accounting for only 8.6% of UK agriculture's total contribution.¹

(ii) However, this 8% figure is far from comprehensive and very misleading. It mainly represents only the direct emissions from agricultural activities. So, the CO₂ emissions due to the fossil fuel energy used in agricultural activities are included. However, all other indirect emissions due to the use of farm inputs (from their raw materials, manufacture and transport) are excluded and accounted for under other sectors (industry and transport). Secondly, one important emission is not yet included: soil carbon emissions due to agricultural practices. Thirdly, this figure does include the substantial emissions associated with the large proportion of our food that is imported, but for which we should still take some responsibility. The total contribution of our current agricultural system is therefore considerably more than the official 8%; the real figure is not available at the moment.

Citizens can make simple decisions in relation to food that have a huge impact on the level of greenhouse gas emissions from this component of their lives. There are only two main choices about the system of food production: non-organic or organic. There are some other agricultural or food schemes that apply to a limited number of sectors or issues, but “organic” is the only alternative to non-organic farming that covers all food types, from all regions, that addresses a wide range of environmental issues, is clearly identifiable, and also controlled through the certification system. The climate change benefits of organic farming are summarised as follows:

¹ Soil Association calculation. Using 2002 data for UK agricultural (i) CO₂ emissions of 1.2MtC from “Review of the UK Climate Change Programme—consultation paper, Defra, 2004; (ii) methane emissions of 890,000 t and N₂O emissions of 89,500 t from “UK Greenhouse Gas Inventory 1990-2003 - Background for Agriculture”, 2005 (<http://www.naei.org.uk/reports.php>). Using conversion factors of 21 for methane and 310 for N₂O, gives 5.1MtC-equivalent for methane and 7.6MtC-equivalent for N₂O emissions. Total = 13.9 MtC. 1.2 MtC of CO₂ = 8.6%; 5.1MtC of methane = 37%; and 7.6MtC of N₂O = 55% of total UK agricultural GHG emissions.

(iii) *Minimal manufacture and transport of farm inputs:* The main distinguishing feature of organic farming, as opposed to non-organic, is that it is genuinely a largely local production system, using natural processes on the farm (such as healthy soils for mineral supply and natural predator populations for pest control). In contrast, non-organic farming is based on the use of a range of agrochemical inputs, such as inorganic fertiliser, pesticides, veterinary drugs and also animal feed (though there is still some use of imported animal feed in organic farming). Considerable amounts of energy and greenhouse gas emissions result from the manufacture and distribution of these inputs to non-organic farms. In addition, this reliance on external sources of crop nutrients, rather than the soil's organic content and biology, means that the soil carbon bank is generally not adequately maintained under non-organic farming.

(iv) *Eliminates emissions from N fertiliser manufacture:* the single main climate change benefit of organic farming is its non-use of inorganic fertiliser. This is a major source of greenhouse gas emissions. Inorganic fertilisers are produced from fossil fuel, usually natural gas (methane). This releases carbon to the atmosphere and also means that fossil fuel cannot be used for as fuel for energy. In addition, the manufacturing process is highly energy intensive and produces large quantities of nitrous oxide. Overall, the manufacture of N fertiliser is the single main cause of energy use in non-organic farming, accounting for 37% of the total, and fertilisers are also the single largest source of nitrous oxide emissions in the world.

(v) *Reduces emissions from N fertiliser use:* Furthermore, when nitrogen fertiliser is applied to the land it emits more nitrous oxide. Although there are some soil nitrous oxide emissions with the biologically supplied nitrogen in organic farming (clover), organic farming is less nitrogen intensive, so the emissions should be less per hectare though this can be considered countered by the lower yields of organic farming. In addition, the use of fertilisers acidifies the soil, requiring the regular application of lime by farmers. The manufacture of lime produces carbon dioxide.

(vi) *Twice as energy efficient:* The non-use of fertilisers and minimal use of other inputs means that organic farming is much more energy efficient than non-organic farming. According to a Defra 2000 analysis, organic crop and livestock production is roughly twice as energy efficient per unit of food produced.²

(vii) *Protection of soil carbon bank:* The reliance on fertilisers also affects the soil carbon bank. Soil is a major store of carbon, containing about twice as much as the atmosphere. The recent completion of a 25-year UK soil survey by the National Soil Resources Institute found that the UK's soil is losing carbon "on an enormous scale". The researchers estimate that 13 million tonnes (Mt) of carbon are being lost from the UK's soils *each year*.³ This is almost as much as the official estimate of the greenhouse gas emissions from UK agriculture (14MtC in 2005); this has not yet been included in the national inventory.

(viii) Agriculture is the main land use in the UK and the use of chemical-based farming methods and intensive grazing is likely to be a cause of these soil carbon losses. In non-organic farming, soil carbon levels are not maintained as farming is now reliant on brought in inorganic fertilisers, rather than the maintenance of the soil's natural organic matter levels. Fertilisers also cause plants to produce smaller root systems which means less carbon is built up in the soil. Furthermore, the use of ploughing in non-organic farming promotes an on-going net loss of carbon from soils. (In contrast, ploughing is not generally a problem in organic farming, as soil carbon levels are maintained by the farm practices). Organic farming relies on applications of organic matter and the avoidance of toxic chemicals to build a healthy, living soil with a high organic content.

(ix) Although the conditions may differ in the UK (bearing in mind the large on-going losses of soil carbon, different soil types and farming practices), long-term trials abroad have shown that organic farming could have considerable potential in this area. The Rodale Institute trial found that organic farming increased soil carbon by 15–28% over 24 years, while conventional had no significant effect. If adopted nationally, they calculated it would absorb 1 to 2% of the CO₂ released from the combustion of fossil fuels in the US.⁴ A nine year trial in the US, reported in *Science* in 2000, found that organic farming builds up 80kgC/ha/year (although they only measured the top few centimetres so this would be a considerable underestimate).⁵

(x) *Methane levels:* 84% of the agricultural emissions of methane in England are direct emissions from ruminants, mostly from cattle. There is no clear data on the overall levels of methane produced under organic and non-organic systems. The issues are complex, but overall there may little difference on a per kg meat basis. However, we anticipate a considerable reduction in methane emissions with widespread organic farming as there would be a significant reduction in meat production and consumption, as all the livestock would be outdoors and the production more costly.

(xi) Organic farming is therefore an energy efficient, low carbon solution for food. Buying organic food is a simple way of reducing the carbon dioxide and nitrous oxide emissions from food.

² MAFF review "Energy use in organic farming systems" (1996/2000).

³ "Carbon losses from all soils across England and Wales 1978–2003", P Bellamy *et al*, *Nature*, Vol 437, 8.9.2005.

⁴ "Environmental, energetic, and economic comparisons of organic and conventional farming systems", D Pimental, P Hepperly, J Hanson, D Douds, and R Seidel, *BioScience*, July 2005.

⁵ "Greenhouse Gases in Intensive Agriculture: Contributions of Individual Gases to the Radiative Forcing of the Atmosphere" by G P Robertson, E A Paul and R R Harwood; *Science*, Vol 289, pages 1922–1925, 15.9.2000 (www.sciencemag.org). Conversion to kg/ha by Soil Association.

(xii) Additionally, choices around the type of food have a major impact: food that is unseasonal, processed and/or packaged will have used a lot more energy in its production. Out of season vegetables, for example, are produced in heated glasshouses which are very energy intensive system of production. Processed food involves additional levels of transport and packaging, and much energy is used by the processing industry. Tackling food wastage is also a key part of the problem. Considerable amounts of fresh food are wasted in this country, partly because of the “cosmetic” standards used by the supermarkets, which means large amount of good food are rejected, and also because of use of packaging for much fresh fruit and vegetables by the supermarkets which means people often buy more than they need. So, fresh, whole (ie unprocessed) food, bought locally and unpackaged, is best.

(xiii) Additionally, choices should be made around the source of the food: whether UK produced and locally supplied; or UK but bought from a supplier that uses a centralised distribution (ie supermarkets); or imported. To minimise the emissions associated with “food miles”, local food is best. It should be noted that local, non-organic food is not a substitute for local, organic food, as non-organic food will have involved a considerable level of transport of farm inputs prior to the farmgate.

(xiv) Therefore, by mainly buying food that is seasonal, local, organic whole food, people can considerably reduce the impact of their food on the climate. In this way, people would also be generally eating a tastier and much healthier diet as well.

(xv) Awareness raising has considerable potential in helping people make more climate-friendly food choices. Currently, there is very low awareness of these issues, particularly the significance of the current reliance on fertilisers and how non-organic farming is essentially a transport-based system.

2. What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives sufficiently strong to affect behaviour?

(i) Purchases of organic food grew 30% last year, a good level of growth for any sector. Nevertheless, organic food still accounts for less than 2% of the whole food market. The main barriers to uptake are (i) the perception of a higher cost of organic food, (ii) inadequate awareness of the impact of non-organic farming on climate change, (iii) and the lack of public support from the Food Standards Agency and other Government agencies to encourage greater consumption of organic food.

(ii) Generally organic food is more expensive, if like-for-like comparisons are made. However, this is not the case if people are prepared to buy their food from different sources, such as vegetable box schemes. A price comparison by the large box scheme company “Riverford” against Sainsbury’s prices for the same non-organic items in July 2005, showed that Riverford’s organic food was generally cheaper than non-organic food from Sainsbury’s, with 5 of 7 of their boxes being cheaper.

(iii) Also, people who rely heavily on convenience food would save money by moving to a fresh organic diet. The *Daily Mail* challenged two families in July 2006, swapping the dietary habits of a wholly organic family and a family which relies on convenience food. The first spent £214 on processed food and ready meals, compared to their usual £120 for organic food, and noticed that their children’s behaviour became worse. The other saved money by moving to organic food, spending only £115 compared to their usual £140. *First* magazine did a similar challenge with two families who were spending an average of £80–85 per week on food, one to eat only fresh organic food and the other to eat only ready meals. The “organic” family saved over £5 a week, spending only £74.78, while the “ready meals” family spent over £10 more than normal, spending £96.18, and also noticed that the behaviour of their children became difficult.

(iv) Government policy is that organic farming should be “market-led”, although it assists the expansion of organic farming through payments for conversion and the £60/ha area payments under the Organic Entry Level Scheme (compared to only £30/ha for non-organic farmers). But neither the Food Standards Agency or the Government actively promote the purchasing of organic food by the general public, leaving this to the media and the Soil Association. We agree the sector should be market led, but much could be done to encourage greater consumption of local, organic food.

(v) *How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?*

(vi) There is currently little awareness among the public of the real climate impact of the current agricultural system and their food choices, and this is a lost opportunity. We think the Food Standard’s Agency and Defra should adopt proactive policies to raise awareness of the impacts of non-organic farming and other food choices. Based on this, they should encourage and help people adapt their food choices, with guidance on how to minimise costs. This should be part of a wider attempt to develop a more positive food culture in Britain where the pleasure of buying, cooking and eating good, fresh food is valued.

(vii) Schools and public institutions have a considerable role to play in raising awareness and developing the organic market, and so improving supply efficiencies through economies of scale and improvements in the local, organic supply chain infrastructure. Schools should take major steps to introduce local, organic food, educate children about the impacts of farming and food choices, and to develop a positive food culture among school children. The Soil Association has gone a long way in achieving its objectives for improving school food, helped by the high profile support of Jamie Oliver, but more money is still needed to help

schools make all the changes. All schools should be encouraged to take part in our “Food for Life” initiative for schools, which provides a guided framework for improving school food. Public institutions should take a lead in introducing local, organic food through their public food procurement purchases. Budgets should be increased and targets for year-on-year increases in the percentage of food that is local and organic should be adopted.

(viii) All this should be taken forward by: (i) an official assessment of the climate change and other benefits of widespread organic farming; (ii) a strategy to develop organic farming to at least 30% of food and agriculture by 2020; (iii) a public promotion campaign for organic food; and (iv) public food procurement targets for 30% organic and 50% local food by 2015.

3. *What is the role of NGOs in delivering the “citizen’s agenda” on climate change?*

(i) NGOs can all help spread the message about the climate impacts of non-organic farming and other food choices, and encourage people to instead mainly buy fresh, seasonal, local, organic food. They should ensure that they themselves have taken steps to supply such food within their organisation and events.

4. *Are Domestic Tradeable Quotas (personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?*

(i) We cannot comment on the viability but any schemes should cover food choices.

The Soil Association

September 2006

Memorandum submitted by the Natural Environment Research Council (NERC) (CIT 31)

1. The Natural Environment Research Council (NERC) welcomes the opportunity to provide evidence.

2. NERC is one of the UK’s eight Research Councils. It funds and carries out impartial scientific research in the sciences of the environment. NERC trains the next generation of independent environmental scientists. Its priority research areas are: Earth’s life-support systems, climate change, and sustainable economies.

3. NERC’s research centres are: the British Antarctic Survey (BAS), the British Geological Survey (BGS), the Centre for Ecology and Hydrology (CEH) and the Proudman Oceanographic Laboratory (POL). Details of these and of NERC’s collaborative centres are available at www.nerc.ac.uk.

4. NERC’s comments draw on inputs from CEH, the Tyndall Centre for Climate Change Research and Swindon Office staff. The Tyndall Centre has submitted evidence regarding Domestic Tradable Quotas under separate cover.

GENERAL COMMENTS

5. NERC recognises the critical role to be played by individuals, households and communities in trying to meet the targets in the UK’s Climate Change Programme, and the role that scientists must play in ensuring that the general public as well as policy makers are well informed about the science. Where the public understanding of science is concerned, messages about climate change should avoid visual or other suggestion that if the UK alone became carbon neutral, the impacts of man-made climate change would be avoided. However, unilateral initiatives are likely to encourage more widespread international action, and countries that take the lead in adopting low-carbon technologies could find themselves benefiting from new export markets.

6. The Committee may be interested to refer to the detail presented in the Tyndall Centre’s report “Decarbonising the UK: Energy for a Climate Conscious Future” published in 2005 and available at www.tyndall.ac.uk/media/news/tyndall_decarbonising_the_uk.pdf. Several of the points made in this submission derive from that report, which presents five integrated scenarios for the UK energy economy. All the scenarios achieve a 60% reduction in carbon emissions and all assume moderate to high levels of economic growth, but their energy consumption ranges from 90 (the Red scenario) to 330 (the Purple and Pink scenarios) million tonnes of oil equivalent (Mtoe) (cf 170 Mtoe in 2005). Importantly, the scenarios include international aviation and shipping, whose emissions are significant and growing but excluded from the Government’s 60% reduction target. The Red scenario assumes low aviation growth, and is the only scenario in which carbon emissions from aviation do not eventually dwarf those from all other sectors.

7. Research funded through the Tyndall Centre also led to the 2005 report “40% House” available at www.eci.ox.ac.uk/pdfdownload/energy/40house/40house.pdf which makes policy recommendations aimed at influencing building construction, appliance manufacture, and the availability of information to households about their energy consumption.

8. We are aware that the Committee will be receiving evidence from Dr Dave Reay, NERC Fellow and author of the book “Climate Change Begins at Home: Life on the Two Way Street of Global Warming” (2005), which identifies many of the actions that individuals can take to reduce carbon emissions.

RESPONSES TO SPECIFIC QUESTIONS

Question 1 *What is the real scope for individual and local community action to contribute to tackling climate change? Some areas for possible consideration include:*

increasing energy efficiency, in particular the delivery of the Energy Efficiency Commitment (EEC);

9. As stated in “Decarbonising the UK”, efficiency improvements could dramatically decarbonise many sectors of the economy. These improvements could come through relatively small increases in the incremental rate at which efficiency “naturally” improves. The replacement of domestic appliances with more efficient versions at the end of their useful life provides one of the best opportunities for individuals to increase the efficiency of their energy use. It also reduces the need for long-term commitment to capital-intensive power supply plants, and spreads the cost over millions of consumers. The best available equipment and appliances on the market are often twice as efficient as the typical product sold, allowing a 50% reduction in carbon emissions to be easily achieved. Labels and customer goodwill should be replaced with mandatory and incrementally-improving energy-efficiency standards.

10. However, it is important that we do not concentrate only on improving energy efficiency as a means to reduce emissions. They will have to be managed also by managing the demand for energy, and by decarbonising the source of energy. There is more flexibility in the former than in the latter.

11. Managing demand means guiding economic growth appropriately. As stated in “Decarbonising the UK”, “If the annual improvement in both the efficiency of energy services and the thermodynamic efficiency of energy supply were to continue at their historic rates, and assuming no increase in demand, our current annual energy consumption would reduce by more than 60% by 2050. In other words, at a simplistic level, if it were not for economic growth, the government could achieve its carbon reduction target without recourse to explicit carbon-mitigation policies”.

12. There is also some concern that improvements in a device, eg better energy efficiency, may encourage its use and increase overall consumption. The UK Energy Research Centre’s Technology and Policy Assessment unit is currently drafting a report on this phenomenon (the rebound effect), due for publication before the end of the year. Clearly, increases in the cost of a unit of energy could counteract the rebound effect.

reducing energy consumption—not only electricity, but also energy used in heating and transportation;

13. The Tyndall Red scenario achieves significant energy demand reduction (at the same time as significant economic growth) by a mix of market-mechanisms operating within a “joined-up” and sophisticated regulatory environment, and by a high rate of technological innovation in sustainable energy technologies.

14. The scenario includes:

- a decoupling of economic growth and carbon emissions, through innovation in the demand and supply technologies and operational approaches, driven by high levels of investment in enabling technologies, in the alleviation of fuel poverty and in low-carbon activities and services;
- the inclusion of external costs in the pricing of goods and services;
- a large-scale shift towards public transport, stimulated by the provision of a comprehensive public transport infrastructure (in urban areas the planning framework is used to prioritise public and other modes of transport such as cycles over cars; new inter-urban transport networks are focused on public, not private, transport) and by a reduction in the “attractiveness” of the private car through policy measures such as personal use charging, congestion charging and commuter plans;
- a curbing of growth in aviation, reflecting a reduction in business travel as a consequence of innovations in virtual technology and a reduction in short haul flights driven by the availability and relative cost of quality high-speed rail links within Europe;
- a 50% decrease in domestic energy consumption achieved by regulating the energy consumption of appliances, initially through standards applied across the supply chain and ultimately through regulation of the energy consumption of domestic appliances, and by improving the energy consumption of the housing stock through increased information and ultimately through stringent building energy standards which drive demolition and rebuild where refurbishment is not possible;
- moderate decarbonisation of the supply system through the implementation of carbon capture technology linked to hydrogen production; and

- a drive towards a more diverse portfolio of supply solutions, with innovation focused on step changes in end-use technologies, such as fuel cells, needed for the use of hydrogen as an energy carrier.

15. A low-carbon future would not necessarily preclude an increase in personal mobility. The scenarios show that substantial increases in the number of passenger-km travelled, both nationally and internationally, could be compatible with the UK's 60% emissions reduction target. However, a higher target would probably curtail the rate of growth in personal mobility as well as the choice of transport modes and fuels.

the provision of desirable low carbon alternatives, such as energy saving light bulbs or using public transport;

16. In the short-term—the next 10–15 years—personal carbon dioxide savings at home and in lifestyle are probably the only area where significant reductions in UK carbon dioxide can be made. Changing an energy structure or transforming to market technologies not yet widely available is a longer-term strategy which also requires action now. As indicated above, appropriate regulation could achieve a significant shift to public transport, and better energy efficiency standards for appliances should be made mandatory.

17. Information about technologies should help policy makers to develop appropriate regulation and/or influence pricing to achieve appropriate choice.

18. Because slightly more energy is consumed in the manufacture of low-energy light bulbs than in the manufacture of traditional bulbs (more glass and complex shapes), there may be a case for using traditional bulbs in rooms where light is needed only for short, infrequent periods until those bulbs fail, rather than replacing them immediately with low-energy bulbs. However, conventional bulbs require so much more energy to achieve equivalent brightness than do low-energy compact fluorescent bulbs (which also last much longer), that the question should be asked, why are conventional bulbs still available?

the potential for, and barriers to, micro-generation;

19. Environmental science has an important role to play in identifying the scope for micro-generation, eg the capacity of the environment to support different devices (micro-turbines, low-head hydro, ground-source heat pumps, solar panels, local biomass schemes etc). The collection of data on the performance of such devices could be improved, in particular to improve predictions and the availability of information to individuals considering an installation.

the potential for “smart metering”;

20. Technology in this area is evolving and could help individuals to analyse and reduce their household energy demand.

awareness of climate change and availability of information about the role of the individual in tackling the problem.

21. NERC welcomes the Government's “Communicating Climate Change” initiative, and the increase in the provision of information on climate change at local-government level. There are also an increasing number of websites about climate change, including Dave Reay's on the science of climate change at: www.ghgonline.org and the international benchmark www.realclimate.org.

22. It is not easy to persuade individuals that their actions, eg changes in lifestyle, are either necessary or likely to make a difference. It is therefore particularly important that policies take into account the costs and impacts of different options, as revealed by full life cycle analysis, for example, and that these are explained to individuals. This is probably nowhere more important than in the context of aviation, whose growth accounts for a sizable proportion of the public's contribution to carbon dioxide emissions.

Question 2 What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

23. As indicated above, individuals may not be convinced of the need to take action, or of the value of doing so. Information and education are crucial. Natural resistance to change makes it particularly important to explain the implications of changing nothing. And individuals may need better feedback on the cumulative impact of their own and others' small actions. The trend towards community approaches to tackling climate change could increase motivation.

24. Price is another barrier. While choice remains in the appliance market, it is likely that poorer people will continue to buy less expensive, less efficient fridges and similar goods, even though the energy used will cost them more in the long term. On the other hand, in the car market, those who can afford to run less efficient vehicles seem not to be deterred by the relatively small difference in vehicle excise duty. The

implementation of mandatory efficiency standards for white goods as well as cars, combined with the natural turnover of such goods based on their expected life, could see a marked reduction in emissions within about a decade.

Question 3 How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

25. For an organisation such as NERC, providing information to the public in a form that they can understand is a high priority. The public needs to be reassured that government policies, and the actions that individuals are being asked to take, are based on sound science.

Question 4—What is the role of NGOs in delivering the “citizen’s agenda” on climate change?

26. NERC sees a role for NGOs in channelling information to policy makers and the public. It therefore welcomes opportunities to work with NGOs to meet their information needs, to ensure that campaigns, and thus government policies and individual actions, are based on sound science. At the same time, it is important that independent research organisations such as NERC and its research centres maintain their objectivity and an appropriate distance from campaigning or party-political organisations.

Question 5—Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?

27. Pioneered by David Fleming and then the Tyndall Centre, Domestic Tradable Quotas are analysed by Richard Starkey of the Tyndall Centre in a separate submission. The UK Energy Research Centre, which refers to DTQs as Personal Carbon Allowances, is also submitting comments.

Natural Environment Research Council

September 2006

Memorandum submitted by RWE npower (CIT 32)

INTRODUCTION

1. RWE npower, part of the RWE Group, is one of the UK’s largest energy suppliers, with around six million customers and a diverse portfolio of over 9,000MW of generation capacity in the UK. We sell our expertise in power generation in key markets and are one of the UK’s leading renewable energy developers and operators.

2. We welcome the opportunity to contribute to the Environment, Food and Rural Affairs Committee’s inquiry into the citizen’s role in tackling climate change. As one of the UK’s largest energy suppliers, we recognise that we have a duty to engage with Government and other stakeholders, including NGOs, in order to ensure that energy resources are used responsibly and efficiently. In meeting our Energy Efficiency Commitment (EEC) target, we also work in partnership with organisations from the public, private and voluntary sectors to achieve energy savings through the installation of a range of energy efficiency improvements in homes throughout Great Britain.

3. Following some general observations, our response below focuses on the aspects of the inquiry where we believe that we as a company can most usefully make a contribution, particularly in the areas of energy efficiency, new technologies, such as microgeneration, and smart metering.

BACKGROUND

4. In order to meet the Government’s carbon reduction targets in an affordable manner while providing reliable supplies of energy, we believe that all available measures have to be employed. This involves not only deploying a diverse range of low carbon electricity generation resources but also ensuring that as a society we use energy in the most efficient ways. In our view, there is considerable further scope for action by individuals which could result in a material reduction to carbon emissions, helping to mitigate climate change.

5. However, while in this submission we focus on energy-related matters, we also believe that a holistic approach is required which addresses the main climate change-related issues for the average citizen namely, energy, transport and resource efficiency. Although there may be more that individuals can do themselves directly to have an impact on energy and transport, all three aspects require actions across the supply chain to minimise the climate change impact.

6. Raising awareness of climate change and the contribution that the individual can make is fundamental to engaging all citizens. While we welcome the Government's proposal to spend £20 million on increasing consumer awareness of the benefit of installing energy efficiency measures, we nonetheless consider that this falls well short of the resource needed for a truly effective programme. While perhaps more citizens are engaged than a decade ago, there is still a long way to go.

7. Personal carbon allowances or domestic tradable quotas (DTQ) may in future present a viable way to incentivise energy savings at the level of the individual. However, we do not underestimate the practical challenges of introducing a DTQ scheme¹ and believe that there are other significant challenges to be addressed first. These include stimulating customer take-up of energy efficiency measures, for example through fiscal incentives, the introduction of new technologies where economic, and increasing efficiency standards for domestic appliances. A key element of this will be to make the public more aware both of the energy they are using and the energy saving solutions available to them.

ENERGY EFFICIENCY

Stimulating the Energy Efficiency Market

8. We believe that energy efficiency measures must be placed in the context of a much broader and more flexible policy framework that provides incentives for domestic customers to give greater consideration to energy savings. It is currently difficult even to "give away" energy efficiency products to some customers. The recent Energy Efficiency Innovation Review confirmed that consumers do not understand the long-term benefits of such measures and often decline to improve the efficiency of their home on the basis of the "hassle factor".

9. The Government needs to radically change this view in order to stimulate the market. While we support the current reduced VAT charges for energy saving materials and measures, we believe that consumers need to be given further fiscal incentives. This could be achieved through council tax or stamp duty incentives, which would encourage the "consumer pull" needed to encourage a real take-off of the energy efficiency market. Equally, "penalising" inefficient products or properties, for example, through higher VAT rates or higher council tax respectively, may also encourage consumer pull. Smart metering too (see below) will have an important role in improving consumer awareness by providing real time information about the amount of energy being used.

The Energy Efficiency Commitment

10. We welcome the Government's commitment as part of the recently published revised Climate Change Programme to redefine the EEC target to deliver reduced carbon emissions rather than energy efficiency. We also welcome the Government's commitment in its Energy Review report ("The Energy Challenge") to carry out an interim consultation on extending the range of allowable measures under EEC ahead of its consultation on EEC3 next year. The broadening out of the EEC target to carbon reduction would enable energy suppliers to extend the range of energy saving solutions on offer to consumers to include microgeneration technology and low or zero carbon technologies. It would also help to ensure the EEC programme is focused on outputs (absolute energy or carbon reductions) rather than the measures deployed.

11. We also believe the EEC could be more effective if it were separated from fuel poverty goals; it is disappointing that the Energy Review report does not appear to support this proposal.

Reducing Energy Consumption—Building Regulations and Appliances

12. We support a continued tightening of building regulations to improve long-term energy efficiency and welcome the proposed Building Regulations dissemination programme. Bold steps could be taken that would effectively require the installation of low or zero carbon technologies on every new house or building design to achieve equivalent carbon savings (passive solar, ultra-efficient insulation, heat recovery ventilation, etc). It is important that "outputs" are achieved rather than specific technologies favoured or backed. We welcome the Government's commitment in The Energy Challenge to set stretching energy efficiency levels for the Code for Sustainable Homes which will guide the future direction of building regulations. We believe that the Code should also be used as a vehicle for delivering new technology into new builds.

13. Although appliances and lighting account for just less than 20% of household energy use, longer-term energy and cost savings do not drive customers' decisions to purchase many electrical goods—price is the key factor, as is personal recommendation. Market penetration by energy efficient class A appliances has increased steadily over the past five to six years; however, fewer A+ or A++ appliances are sold in the UK

¹ Practical challenges could include: the case of those with large energy needs for health reasons would need to be taken into account; a means would need to be established to identify the number of individuals in a household; a means would need to be established to identify those who own or live in two or more properties such as students; in some cases there may be issues in separating domestic from business consumption where this occurs on the same premises. Even if it proved possible, in theory, to record all this information, the transaction costs and civil liberties issues would need careful consideration.

than in the rest of Europe. Product policy built around the use of minimum energy performance standards and labelling provides a cost-effective means of reducing carbon. The success of current minimum energy performance and energy labelling schemes indicate that there is scope to introduce standards and labels to a wider range of products and to uplift existing standards at the EU level.

14. We support the Budget 2006 initiative, which, in partnership with major retailers and the Energy Saving Trust, will introduce voluntary schemes in the retail sector to encourage the purchase of more energy efficient alternatives. However, we believe that this needs to go further. An example of the effectiveness of legislation is the boiler market. Introduced in April 2005, new legislation has transformed the market from less than 10% A-rated installations in 2000 to more than 70% by January 2006.

MICROGENERATION TECHNOLOGIES

15. Microgeneration units, such as solar panels, domestic and small commercial micro-CHP units and small-scale wind turbines, could usefully contribute to reducing CO₂ emissions by displacing more carbon intensive centralised generation and cutting losses arising from electricity transmission. They could also stimulate action amongst consumers and small and medium sized enterprises. However there remain significant barriers hindering the growth of microgeneration, particularly in the areas of settlements and metering.

16. All projections indicate significant growth in microgeneration between now and 2020, possibly stimulated by the adoption of the technology in Building Regulations around 2010. Assessing the potential of microgeneration in the longer term (for example, up to 2050) is more difficult given the uncertainties involved. It is, for example, very difficult to predict the effect on average domestic electricity consumption of increases in the use of domestic electrical appliances or increased use of air conditioning or electric vehicles over the next forty-five years and the effect of this on overall demand.

17. However, our assessment at this stage is that it is unlikely that microgeneration will significantly affect overall electricity demand in the medium term. Even under the most optimistic of scenarios, the characteristics of electricity producing microgeneration technologies mean that they are only likely to reduce peak electricity demand rather than reduce dependence on major generation.

18. Instead, we can foresee a situation where electricity demand actually increases. As the thermal efficiency of new houses increases many properties can be adequately heated using electrical heating systems (whether heat pumps or traditional storage heating). Provided that new and replacement generating capacity takes the form of a diverse range of low carbon technologies, this move towards electricity may lead to reduced reliance on other primary fuels, increase fuel diversity (which may be attractive given present concerns over security of energy supplies) and lower carbon emissions.

SMART METERING

19. Successfully reducing energy demand through energy efficiency requires “customer pull”. In addition to the fiscal incentives mentioned above, raising customers’ awareness of how they use their energy and the measures available to support them in reducing their consumption is essential. We therefore would support the introduction of smart metering technology in all households by 2015. This would help increase consumer awareness of the importance of energy efficiency providing real-time information which can be used to advise them on measures to improve their patterns of consumption, reduce their costs and, at the same time, reduce carbon emissions.

20. We support an industry-wide programme for universal implementation of smart metering, which should be agreed by 2008 in accordance with the Energy Services Directive and lead to the installation of smart meters in all domestic premises by 2015. It would be possible to deliver this programme in such a way that the provision of devices that deliver information to customers is a competitive supplier activity, but where the devices that capture the raw metering information are built to a standard technical specification with common protocols, fitted by distribution businesses and financed under the relevant price control.

21. The Climate Change and Sustainable Energy Act and the Energy Review (paragraph 2.35) suggest the possibility of a supplier obligation based on a tradable target for an absolute reduction in energy demand or carbon emissions from the household sector. Given the upward pressures on electricity consumption noted elsewhere in this submission, such an obligation is unlikely to be achievable unless accompanied by effective measures to stimulate consumer pull (eg education, information through smart metering, and fiscal incentives).

CONCLUSION

22. In conclusion, while we believe that there is ample scope for the citizen to play their part in tackling climate change, a holistic approach is required which enables them to address climate change issues in all the areas where they can have an impact, including energy, transport and resource efficiency. Complex DTQ mechanisms are presently too sophisticated for the market and consumers and in any event enabling technology (eg smart metering) would be required to make this happen. Encouraging consumers to make

choices and change behaviour by introducing fiscal incentives is simpler. Decoupling fuel poverty from EEC will allow suppliers to place a greater and more efficient focus on carbon reduction. Finally, other industries must also play their part in finding and delivering the appropriate solutions.

RWE npower

September 2006

Memorandum submitted by the Royal Society of Chemistry (CIT 33)

The Royal Society of Chemistry (RSC) welcomes the opportunity to comment on “The Environmental Audit Committee Climate Change—The UK Programme 2006” inquiry.

The RSC is the largest organisation in Europe for advancing the chemical sciences. Supported by a network of 43,000 members worldwide and an internationally acclaimed publishing business, our activities span education and training, conferences and science policy, and the promotion of the chemical sciences to the public.

This document represents the views of the RSC. The RSC’s Royal Charter obliges it to serve the public interest by acting in an independent advisory capacity, and the RSC is happy for this submission to be put into the public domain.

The document has been written from the perspective of the Royal Society of Chemistry and consequently our comments relate to only parts of the consultation document.

The evidence submitted was for the most part published in an RSC report¹ entitled “Chemical Science Priorities for Sustainable Energy Solutions” and the RSC responses to the DTI energy review,² the EAC inquiry into Reducing Carbon Emissions from Transport,² the EAC inquiry into Climate Change—The UK Programme⁹⁴ and the joint RSC and Bioscience Federation response to the EFRA inquiry into Climate change: the role of bioenergy.²

EXECUTIVE SUMMARY

1. A combination of energy efficiency measures and low carbon technologies will need to be employed in order to reduce the UK carbon emissions.
2. The chemical sciences will play a critical role in the development of technologies that will reduce carbon emissions from domestic living, especially those that reducing heat loss in the home, efficient lighting and efficient transportation options.
3. Citizens can contribute to reducing UK carbons emission through their use of technologies and lifestyle changes that affect the home and personal transport choices.
4. Government must put in place a framework of incentives, regulation, education and demonstration and all of these must be at an appropriate level to inspire action. Ideally there should be cross-party consensus on this framework.
5. Government must be prepared to lead by example and demonstrate energy efficiency measures and technologies in Government buildings and in the vehicle fleet. Such demonstrations will be invaluable in educating citizens about the viability and economics of energy efficient measures and technologies.
6. Learned bodies such as the RSC have a key role to play in providing expert, unbiased advice on technologies and measures to reduce carbon emissions to Government and other key stakeholders. There is also an important role in educating organisation members and the general public about the science behind climate change and the measures required to mitigate it.

INTRODUCTION

1. Technology has in the past and will in the future have a major impact on reducing UK carbon emissions, however, individual and community actions to reduce carbon emissions are critical if we are to address climate change. Dangerous impacts of climate change will only be mitigated if we maximise the use of all the tools available.

2. In its submission to the EAC inquiry on the climate change programme the RSC made a number of points relevant to this inquiry.³

3. A huge amount of energy is wasted in generation, transmission and at final use. Significant public and/or private investment in energy efficiency is vital because:

— The Government will fall short of its target of 20% carbon emission reduction by 2010.

¹ www.rsc.org/Gateway/Subject/EnvEnergy/

² www.rsc.org/policy

³ www.rsc.org/policy

- The UK government will not meet the carbon emissions reduction target of 60% by the year 2050 without huge improvements in energy efficiency.
 - It has been calculated that 20% of energy could be saved cost-effectively by investing in energy conservation. This would yield savings of over £10 billion a year; money that would boost the economy when spent on other goods and services.
 - There are significant social benefits of investment in energy conservation include creating significant numbers of jobs in energy-related services such as manufacturing and installation of energy saving equipment. Moreover, homes and workplaces would be made easier and cheaper to heat, greatly improving standards of living and comfort.
4. Good leadership and adequate support from Government will ensure that the chemical sciences have a leading role in improving efficiency in the generation, transmission and use of energy.
5. For the *transport sector* the RSC encourages the uptake of biofuels through the Renewable Transport Fuel Obligation. However, when considering biofuels it is important that they are produced efficiently otherwise the benefits of reduced carbon emissions can be eroded. In particular the RSC is concerned that the recent DTI report *the energy challenge*⁴ indicated an increase in the Renewable Transport Fuel Obligation that would place it at level where UK would be forced to import fuels as they could not be produced locally. The energy balance of a fuel (ie how much energy is required to produce it and transport it compared to the energy it produces on combustion) can be adversely affected by transport over great distances. This point is equally valid when describing the impact of transporting food (ie food miles) over large distances. A move towards vehicles with greater fuel efficiency through the use of lighter materials of construction, advanced fuel additives, increased engine efficiency, the use of advanced technologies such as hybrid and electric vehicles and those with fuel cells should be encouraged both through support for technology development and through policy that offers incentives for using such vehicles. Carbon emissions from air travel are expected to increase substantially in the medium term, and whilst technology can reduce the emissions per flight, it is much more important to reduce the overall number of flights.
6. The *domestic sector* offers a huge opportunity and a challenge for reducing carbon emissions. The RSC is encouraged that the Climate Change Programme includes measures for much needed energy efficiency improvements to domestic buildings and building regulations. Domestic energy efficiency measures can play a significant part in meeting UK carbon reduction targets. The RSC is concerned that the measures proposed do not adequately address energy efficiency in older buildings and that this is a missed opportunity. Smart coatings on glass and highly efficient insulation materials could dramatically reduce heat loss in all buildings saving money and reducing carbon emissions. With sufficient support, scientists and engineers will continue to develop products and services that are energy efficient.
7. It is critical that low carbon technologies that are available now, and that will be available in the future, are widely employed by individuals and by communities. The RSC recommends that a framework of regulation and incentives is put in place by Government nationally, regionally and locally that demands and encourages the application of low carbon technologies and also energy efficiency in domestic life and in communities. It is absolutely crucial that this is complemented by an educational campaign that both informs and motivates individuals and organisations to take positive and appropriate action.
8. The RSC is encouraged that *the energy challenge* proposes that inefficient technologies such as incandescent light bulbs, standby modes on electrical goods and inefficient white goods are to be phased out. To maximise the impact of these measures they must be carried out alongside a targeted programme of education and demonstration.

ENCOURAGING PUBLIC ACTION

9. The RSC suggests that timescales for the impact of global warming are perceived as too far in the future and that people cannot associate today's individual actions with their impact on future climate change scenarios. This is a huge challenge to overcome as action is required now in order to reduce the impact of climate change.

10. To encourage individuals to "do their bit" towards minimising the impact of climate change will require a framework of incentives, regulation, education and demonstration and all of these must be at an appropriate level to inspire action.

REGULATION AND INCENTIVES

11. The RSC recognises that regulation forcing the public towards a change in lifestyle (for example regulation that demands a minimum standard of insulation in every home in the UK) is unlikely to be a vote winner. The RSC suggests that such legislation and regulation be brought in on the back of a cross-party agreement that demonstrates consensus of all major parties to the measures in the long-term. Equally such measures should be backed with an incentive, education and demonstration scheme at the appropriate level that clearly demonstrates the benefits and assistance of the measures.

⁴ <http://www.dti.gov.uk/energy/review/>

EDUCATION AND DEMONSTRATION

12. Currently a significant level of misinformation and media hysteria surrounds the impact of climate change and the strategies for its mitigation. The role of Government is to inform the public about climate change and clearly detail the UK strategy to address it.

13. In the *public sector* the Government must lead by example and *demonstrate* significant carbon emission reduction in both its buildings and its vehicle fleet. Such a scheme would increase stakeholder confidence in carbon emission measures and technologies and provide valuable data on high impact programmes and technologies.

14. In a broader sense Government must also lead the way in planning and constructing new buildings and public services that, as well as having low carbon emissions, are located to minimise the need for both employees and customers to travel and to optimise the use of efficient public transport.

15. A wider point here is that demonstration projects and educational initiatives must be linked together as this will provide an essential means of reinforcing educational messages. Here the RSC recommends that demonstration projects are developed at the local, regional and national level and that these projects have an educational aspect associated with them. It is critical that demonstration projects span all aspects of society including homes, schools, universities, business, public buildings, transport and Government and that the technologies employed are appropriate to the situation. Through such projects it will be possible to demonstrate, gather data and inform the public on a number of key technologies including:

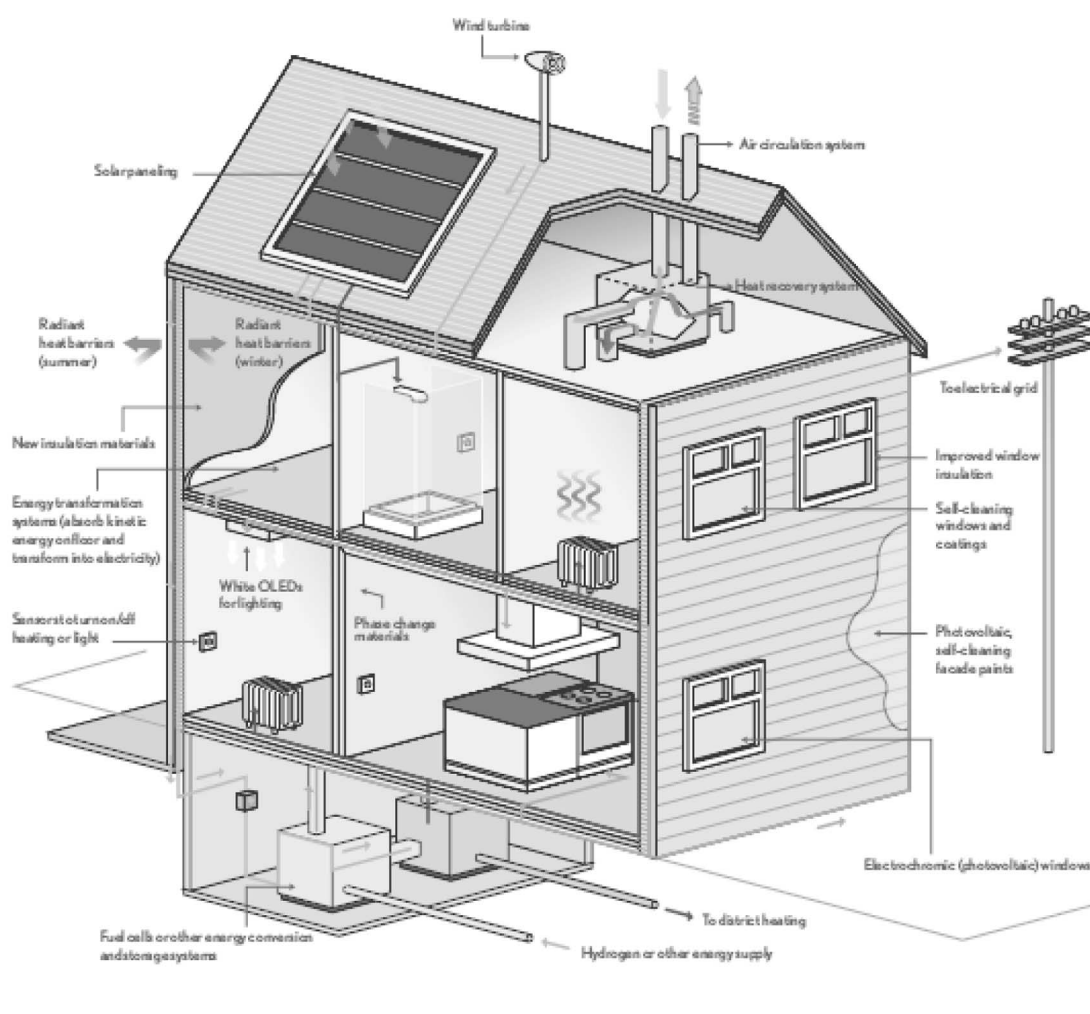
- Smart meters (helping to demonstrate the effect of lifestyle and technology on energy usage).
- Energy efficient buildings (insulation, smart windows and natural ventilation systems).
- Energy generating buildings (see the energy generating home below).
- Low carbon transport (walking, cycling, improved public transport, lighter fuel efficient vehicles, smart fuel additives, biofuels, hybrid vehicles and fuel cell vehicles).

16. As an example, the RSC is a partner in the European platform for sustainable chemistry (SusChem); one of the initiatives of this project is the *energy generating home*⁵ (see Figure 1). In this project ground-breaking technologies and smart materials will make this vision possible by reducing heat loss, improving energy efficiency and absorbing and transforming energy into electricity. This project aims to demonstrate a mixture of present and future energy technologies and has an interactive control system that provides real-time information on the status of the property. By a combination of smart windows and insulation materials, micro-energy generating technologies and intelligent control systems this project will demonstrate that a house can actually generate electricity for sale to the national grid.

⁵ www.suschem.org

Figure 1

SusChem ENERGY GENERATING HOUSE



THE ROLE OF THE RSC AND OTHER LEARNED BODIES

17. At the RSC our Royal Charter demands that we serve the public interest by acting in an advisory, consultative or representative capacity in matters relating to the science and practice of chemistry.⁶ The RSC actually has a number of roles in delivering the citizen's climate change agenda, including:

- Education.
- Unbiased scientific advice to Government and to the public.
- Technology assessment.
- Technology foresight.
- Expert members available for comment.

18. Through its expert members the RSC can provide authoritative information on current and future low carbon technologies and the impact of climate change and how to mitigate it. The RSC published an authoritative report on *chemical science priorities for sustainable energy solutions* in 2005 and has responded to a number of Government consultations in related areas including our response to *Our Energy Challenge*.⁷ Currently an expert working group is compiling a report on *chemical science priorities for sustainable water* that will include details on water and energy efficiency in the household and the effect of climate change upon UK water resources.

⁶ <http://www.rsc.org/AboutUs/Governance/charter.asp>

⁷ www.rsc.org/policy

TRADABLE DOMESTIC QUOTAS

19. The RSC does not have an official position on tradable domestic quotas, however, the RSC does recognise that this concept offers a clear mechanism for individual contribution to climate change abatement.

20. The RSC is concerned that reducing carbon emissions is not cost neutral and that if incentives are not in place then only those that can afford to implement low carbon measures will do so (for example consider the cost of wind turbines and solar panels). This could result in a situation where those who are most able to afford to implement such measures are likely to be those who have credits to sell. Conversely, those who are most likely to struggle to meet the cost of improvements are also those who are most likely to need to buy credits.

21. In addition to the concern about cost the RSC also is aware that in order to implement domestic tradable quotas it will be necessary to inform the public to a far greater extent the link between domestic living and climate change. This must include a clear presentation of the facts that will prepare the public for the changes in lifestyle required, such as:

- The likely impact of climate change, the associated dangers and the cost of inaction.
- Extent of reductions required.
- How this will affect lifestyle.
- Fact that regulation may be required.
- Timescale over which these changes will need to be implemented.

Royal Society of Chemistry

September 2006

Memorandum submitted by E.ON UK (CIT 35)

1. E.ON UK is the UK's second largest retailer of electricity and gas, selling to residential and small business customers as Powergen and to larger industrial and commercial customers as E.ON Energy. We are also one of the UK's largest electricity generators by output and operate Central Networks, the distribution business covering the East and West Midlands. We are also a leading developer of renewable plant. E.ON UK is part of the E.ON Group.

2. Individuals and local communities must play a major role in tackling climate change given that the domestic and transport sectors account for 27.3% and 28.3% respectively of the UK's CO₂ emissions by end user (2004). The key question for policy makers is what combination of economic incentives, regulation, concern for the environment and better information will motivate individuals to alter their behaviour to cut consumption of energy and create demand for more energy efficient products and services. In our view the most effective route is to create an energy market framework in which customers have strong economic, social and ethical incentives to consume energy more efficiently and energy suppliers are able to encourage and meet this demand by innovating with new products and services.

ENERGY CONSUMERS

3. Consumers are increasingly aware of the relationship between their own energy consumption, CO₂ emissions, and climate change, but for many their ethical and environmental concerns are as yet too weak to drive the uptake of energy efficiency measures. Additional policy measures are required to motivate changes in customer behaviour.

4. Cost remains the principal driver of customer behaviour. Government should focus on improving economic incentives for consumers to reduce their energy consumption both in their homes and in the use of transport. While higher energy prices are leading to some increased investment in energy efficiency measures and reduction in demand, more effective use of the tax system could encourage the more efficient use of energy in a more systematic and less socially damaging way. A price for carbon is already factored into the cost of electricity through the EU emissions trading scheme. In addition we favour targeted measures to strengthen customer interest in energy efficiency in the residential market. These could take the form of a reduction in stamp duty, or a reduction in council tax, for energy efficient housing and further reductions in VAT for energy efficient goods or materials. We strongly support the requirement to include energy efficiency information in home information packs.

5. Government has a major role in reinforcing the message that the profligate use of energy is socially and environmentally unacceptable through more publicity and information campaigns. Central information campaigns up to now have been weak at generating a response. There is little correlation between these campaigns and an increased uptake of energy efficiency measures. The sheer scale of the challenge requires a step change in approach. These campaigns should be much harder hitting with the aim of reaching a tipping point of consumer awareness and action. Parallels can be drawn with government information awareness of issues such as the dangers of AIDS and smoking, which have transformed customer behaviour. Such hard hitting messages come best from Government rather than private institutions.

6. Government must also continue to fund independent provision of advice to consumers about their energy consumption and how they can take action to reduce it, as uncertainty amongst consumers about how they can best reduce their energy consumption is inhibiting an effective response.

ENERGY SUPPLIERS

7. Suppliers need to operate in a framework which encourages them to innovate. The current energy efficiency commitment scheme tends to encourage suppliers to pursue an approach which minimises costs. Government should give suppliers greater flexibility in pursuing EEC targets to incentivise the roll out of new technologies and we hope that phase 3 of EEC, which runs from 2008 to 2011, will allow this.

8. The Government has committed in its energy review report to maintaining some form of household obligation on suppliers until at least 2020. We support the development of a more market oriented approach over this period provided this reduces emissions cost effectively in a socially equitable manner and does not introduce excessive complexity in the policy framework. We look forward to exploring with the Government the option of a supplier obligation based on tradable targets or caps for household demand or carbon emissions referred to in the Government's energy review report.

9. Suppliers have a key role to play in providing consumers with more accurate information about their energy consumption and how they can reduce it. We are conducting two trials: one to give consumers simple comparative information about their energy consumption over the same period 12 months ago as part of their quarterly bills; the other to give a real time display of electricity consumption to consumers using an LCD screen feedback device. These trials will also show the differences in responsiveness amongst consumers. We believe that each consumer is different and will require a different approach in order to secure changes in behaviour.

10. The introduction of more advanced meters by suppliers could improve significantly the availability of information about energy consumption to customers and, together with the provision of energy efficiency measures by suppliers or tariffs structured to reward reductions in consumption, could encourage significant reductions in consumption. However, there is at present no business case for installing more advanced forms of metering in most residential housing and additional incentives are required to reflect the environmental benefit. Suppliers should be able to claim credits for installation of smart metering backed by appropriate energy efficiency measures or tariffs, under the EEC scheme, subject to further analysis of the potential for metering to effect changes in consumption behaviour. We support Ofgem's intent to allow suppliers to develop this technology within a market environment as part of their efforts to engage customers in improving energy efficiency and welcome the Government's support for smart metering trials.

E.ON UK

September 2006

Memorandum submitted by Greenpeace (CIT 37)

1. Enclosed is our submission to the Energy Review with a relevant policy annex, our report *Decentralising UK Energy: Cleaner, Cheaper, More Secure Energy For The 21st Century* and a film that Greenpeace has made about decentralised energy, entitled *What are we waiting for?* We would like to submit these as evidence to your inquiry *Climate change: citizen's agenda*. In this letter, I will explain briefly how Greenpeace believes that they address some of the questions you have asked as part of the inquiry. I have also set out our views on individual action. For this reason, you may also wish to use this letter as part of our evidence. We have only attempted to engage on the areas that we feel that we have expertise on.

2. Greenpeace believes that real scope for individual and community action is severely limited because of the centralised energy system and because there are insufficient fiscal and regulatory measures put forward by the Government to stimulate the development of product standards and new technologies that can create meaningful opportunities for individuals to “do their bit” through their behaviour and consumption choices.

3. Crucially, at the moment in the UK’s big centralised power stations, two thirds of the energy in the fuels used is thrown away as waste heat before anyone even switches on an energy efficient light bulb! Any action that individuals may take to limit their energy demand is drowned out by massive inefficiencies on the supply side.

4. As our film and the reports that formed part of our Energy Review submission demonstrate, decentralised energy (where energy production is close to the point of use) makes it possible to use both the heat and electricity generated and more than doubles the efficiency of our power stations. Decentralising the UK’s energy supply could change the consumer’s relationship with energy. This is because consumers can see where and how the energy gets to them and, with smart metering, exactly how much they are using and what this is costing them.

5. Making the changes towards a decentralised system requires Government leadership. In particular, the Government should:

- Not allow any new fossil fuel generation without CHP.
- Bring forward new building regulations to promote decentralised energy including linking to district heat networks.
- Provide a guaranteed market for decentralised energy with suppliers being required to purchase surplus electricity from decentralised generators at rates that will ensure it takes off.
- Provide tax incentives for decentralised energy such as stamp duty, council tax or business rates.
- Ensure regional government action on energy such as developing a nationwide network of biomass and biogas cogeneration plants.

6. Greenpeace believes that NGOs have successfully raised awareness of climate change amongst the public and that there is now popular acceptance of the need for urgent action brought about through regulation and fiscal measures. The public wants and expects leadership but the Government is unwilling to give it. For example, a recent Mori poll, commissioned by the Aviation Environment Federation showed that more than 70% of people would back higher aviation taxes if the money raised were spent on improving the environment. Aviation is an area that the Government has, according to the Environmental Audit Committee, taken a “fatalistic” attitude seeming to accept that little could be done to stem the increase in CO₂ emissions due to the rises in travel resulting from economic growth.

7. Whilst public awareness of climate change is now high, Greenpeace believes that regulation and fiscal measures are the only way to change behaviour to a significant degree. Our Energy Review submission contains policy recommendations in some detail to this effect. The most effective measures are those that provide financial penalties or incentives. For example, unleaded petrol was not widely taken up by consumers until it was made the same price as leaded, despite Government awareness campaigns explaining the health implications. Recent steps by the Government towards environmental taxation such as increased and graduated VED have been too little and have come too late. The Environmental Audit Committee and the Sustainable Development Commission recommended a top level of £1,800, supported by research demonstrating that this was the minimum amount sufficient to change consumer behaviour. The Government’s response was to increase the top rate to £210.

8. Greenpeace believes effective local and community action on climate change can only come about if there is large scale reform of the centralised energy system and if there are sufficient fiscal and regulatory measures to actually drive the desired changes in individuals’ behaviour and empower those that want to take action with better, cleaner options to choose from.

Stephen Tindale
Executive Director
Greenpeace UK

August 2006

Memorandum submitted by the Renewable Energy Association (CIT 39)

INTRODUCTION

Citizens can contribute to reducing climate change in three main ways:

Avoiding consumption. For example avoiding un-necessary purchases, journeys etc.

Increasing the efficiency of the goods and services they consume, and the manner in which they consume them. Eg preferential purchase of energy-efficient products, making journeys by the most energy-efficient means, operating appliances and vehicles in an energy efficient manner etc.

Using zero-emission alternatives, such as generating heat and power through micro-renewables and using biofuels for transport.

Whilst Government should do all it can to encourage citizens to pursue all three of these key approaches in parallel, this response focuses on the last group of actions, as it fits most clearly within the remit of the Renewable Energy Association.

Individuals can be encouraged to reduce their contribution to climate change through a combination of education, regulations and incentives. The REA would like to see greater emphasis placed upon measures to raise awareness and educate the general population, allowing people in their personal and working lives to establish fundamental connections between everyday choices and their environmental impacts.

Much progress has been made on the regulatory front, and this should be continued; with the tightening of building regulations, the rolling out of the positive planning agenda and the introduction of the Renewable Transport Fuel Obligation.

We would like to see much more progress, however, on addressing the market distortions that arise due to the existence of obligations for renewable electricity and fuels, but not renewable heat.

Government can also assist in helping bring down regulatory barriers, where these hinder citizens' ability to reduce their environmental footprint. The barriers are particularly significant with the installation of micro-renewables equipment.

Regulation can help citizens avoid actions which harm the environment, whether they are cognisant of this or not. Incentives, on the other hand, are measures designed specifically to encourage certain behaviours. With the exception of incentives to influence vehicle and fuel choice, there are few if any explicit incentives for individuals to reduce their environmental impact. We welcome the debate on personal carbon allowances, although see practical difficulties with implementing it.

MICRO-RENEWABLES FOR HEAT AND POWER

Only when it becomes *easy* for householders to adopt micro-renewables will mass-market deployment really take off. We would like to achieve a situation where utilities strive to deploy micro renewables on their customers' premises, and provide incentives to householders to allow them access to do so.

In contrast, at present any householder who succeeds in installing a PV panel or a wind turbine on their premises and benefits from the Renewables Obligation is likely to require the entire skill set found in a specialist renewable project development company. Furthermore, they would need to be very environmentally-motivated, as often there is little financial incentive for micro-generation. Indeed, the fiscal treatment of an individual micro-renewable generator contrasts starkly with that of a corporate entity. An individual would have to pay VAT on the equipment, whereas a company would get the VAT back. Individuals do not benefit from any beneficial tax allowances on the investment, unlike corporate entities. Furthermore the capital cost of equipment in £/kilowatt installed is in inverse proportion to the capacity, so the smaller scale the generating equipment, the higher the cost per kilowatt installed.

Government should level this playing field or, better still, introduce fiscal incentives to encourage the uptake of micro-renewable generation.

REALISING THE VISION

Any scheme for householders must be simple for them to understand and easy to access. Ideally it would be promoted by utilities, as they already have an interface with householders. It should involve low transaction costs for both the utilities and Ofgem.

Micro-renewables policy can be considered from the perspective of carbon free power generation, but merely on a smaller scale. Alternatively it can be viewed as a means of reducing demand, and viewed through the lens of energy efficiency policy.

Following the former approach would suggest continuing to modify the Renewables Obligation to make it more effective for stimulating micro-renewables. The latter approach fits with the philosophy of the Energy Efficiency Commitment (EEC).

Until now effort has been focused on the Renewables Obligation, as this has been the only route available. However the EEC may offer greater potential for this sector. The Energy Review and requirements under of the Climate Change and Sustainable Energy Act, have resulted in both policy mechanisms being evaluated from the perspective of micro-renewables, which is very welcome.

Interaction of current policy measures

At the moment there are three major routes by which citizens who install micro-renewables could benefit. These measures are summarised in the table and comments are given in text below.

	<i>Renewables Obligation</i>	<i>Low Carbon Buildings Programme</i>	<i>Energy Efficiency Commitment</i>
Type of mechanism	An obligation on electricity suppliers, which translates into an output-based premium price.	A capital grant programme which householders can access directly.	An obligation on electricity suppliers to take actions to reduce customers' energy demand. Manifests as an upfront grant.
Qualifying	Power generating renewables only.	Heat and power generating renewables, plus micro-CHP.	At present only solar thermal and ground source heat pumps qualify.
Interface with householder	Ofgem—application to become an accredited generating station, followed by, submission of output data.	Energy Savings Trust.	Through the utility.
Potential changes/improvements	Interface with agent.	None envisaged, but it is worth noting that funding for households expected to run out rapidly.	Might be extended to all micro-renewables in future.

The Renewables Obligation

The Renewables Obligation was designed with larger scale generation in mind. Since its introduction it has gradually been improved with respect to smaller scale generation. More changes are expected in April 2007, with an amendment to the Order. This will allow agents to act on behalf of micro-renewables generators, minimising the administrative burden for householders.

The Renewables Obligation may change further still, with different number of ROCs awarded for different technologies. The reasons for “banding” the obligation are set out in the results of the Government’s Energy Review. One option for increasing the incentive for citizens to adopt micro-renewables is to award a higher number of ROCs/MWh of output. However this may not be the best means of supporting micro-renewables.

The RO is an output-based measure, and therefore output must be measured. This inevitably involves a greater amount of administration required in comparison with measures that reward the expected environmental performance, perhaps on a one-off basis through an up-front grant or via a premium tariff. Although the RO could be modified further to allow payment to be made on the basis of expected output, Government has so far rejected this approach. While this remains the case, it seems unlikely the RO could ever reach the potential of the EEC for administrative simplicity.

Grants

The Low Carbon Buildings Programme (LCBP) replaced the Clear-skies and PV demonstration programmes in April this year. The LCBP provides similar levels of grant funding per installation for householders, but the total amount of funding available for household grants is lower than under the previous programmes. In other words it will cover fewer householders than its predecessors. In the last 12 months of Clear skies and MDP the combined grant funding of household projects was approximately £4 million, whereas the budget for householders under the LCBP for totals £6.5 million over three years. We understand over 70% of this year’s funding was allocated in just five months of the programme.

Until other incentives replace the need for grants, the householder stream of the LCPB should be increased to meet the level of demand. The DTI has been considering how it can stretch out the funds to cover the entire three years of the programme. It would be extremely damaging if once the first year's worth of allocation has been spent, there is a delay until the start of the second year. This would slow the market down—as customers will not go ahead with orders, if they have the option of waiting a few months in the expectation of a grant. As well as slowing down deployment, a stop-start situation would be very confusing to the public.

Energy Efficiency Commitment (EEC)

The Energy Review suggests that the next phase of EEC could be replaced with an obligation on suppliers—based on a tradable target—to cap growth of emissions from the household sector. Micro-renewables and energy efficiency measures would be the most common way of achieving this goal.

DEFRA has just issued a consultation document on the third phase of the EEC. It proposes that EEC should be extended to encompass all forms of micro-generation, as this would broaden the options available to suppliers, encourage a whole-house approach, aid the targeting of consumers and foster an energy services approach.

It would seem that broadening the scope of EEC to encompass micro generation would present an ideal, long-term framework for the householder. It will, however, take time to evolve and should therefore be augmented by significant extension of the LCBP in the short-term.

THE PARADOX OF HEAT

Since there is a widespread and enduring need for energy services, securing renewable energy supplies provides a relevant and tangible means by which individuals or businesses could contribute to the wider efforts to mitigate the damaging effects of climate change. In practice, however, opportunities to realise this objective have been limited:

- For larger scale renewable electricity plant, businesses have proved unable to compete with licensed electricity suppliers, for whom renewable electricity assumes a considerably higher value under the Renewables Obligation.
- For domestic scale renewable electricity plant, current incentives under the Renewables Obligation remain complex to access and are often perceived as inconsistent with the decision-making processes of most individuals.

Securing supplies of heat from renewable sources could therefore provide a more straightforward option for many individuals and businesses to access the benefits of renewables. Many of the fundamental conditions already exist for the development of renewable heat supplies:

- Heat generation already occurs on a highly decentralised and unregulated basis; virtually every home and business in the UK either has a boiler or is connected to a local hot water system served by a boiler plant. In many cases a move to renewables is little more than a fuel switch.
- The domestic boiler stock is turned over approximately every 15 years, providing the opportunity for rapid but systematic market growth.
- Costs for renewable heat are increasingly competitive with fossil alternatives.¹

Table 1

WOODFUEL EQUIVALENT ENERGY COSTS COMPARED TO FOSSIL FUELS

Fuel	Fuel Price	Unit	Fuel Price	Heat Cost	Saving—p/kWh vs.			% Cost Saving		
			p/kWh	p/kWh	High Qual. Chip	Co-Product	Pellets	High Qual. Chip	Co-Product	Pellets
High quality wood-chips	55	£/tonne	1.60	1.88						
Sawmill co-product	30	£/tonne	1.56	1.89						
Pellets	150	£/tonne	3.08	3.52						
Heating oil	32	p/litre	3.29	4.39	2.51	2.50	0.87	57	57	20%
Natural Gas	1.6	p/kWh	1.6	2.37	0.49	0.48	−1.15	21	20	−49%
Tanked gas	34	p/litre	5.38	7.17	5.30	5.28	3.65	74	74	51%
MFO	22	p/litre	2.07	2.77	0.89	0.87	−0.76	32	31	−27%
Coal	80	£/tonne	1.03	1.58	−0.29	−0.31	−1.94	−18	−20	−123%
Electricity (off peak)	4	p/kWh	4	4.44	2.57	2.55	0.92	58	57	21%
Electricity (peak)	6.5	p/kWh	6.5	7.22	5.35	5.33	3.70	74	74	51%

Source: Eonergy, 2005

¹ Scoping Study: The Commercial Opportunities of Wood fuel Heating in Scotland, Eonergy, December 2005.

In addition, studies have shown that the contribution that renewable heat could make to UK carbon emissions abatement is far from trivial. The Carbon Trust² has estimated that biomass could save a maximum of 5.6 Mt carbon per year if all the existing and potentially available UK biomass resource was used in large heat projects. Large heat has the highest conversion efficiency and displaces the higher carbon intensity of heavy fuel oil (HFO), rather than light fuel oil (LFO). Carbon Trust estimates that using the same resource in small heat or very small heat installations, typical of domestic applications would only reduce these carbon savings slightly.

Despite the major benefits and the potential accessibility of renewable heat to many citizens, Government has consistently overlooked the opportunity either to stimulate the market for renewable heat supplies through effective, stable incentives or to reward the carbon benefits that it can deliver. This institutional failing has previously been highlighted in the House of Commons Environment, Food and Rural Affairs Committee's earlier inquiry "Climate change: the role of bioenergy".

If Government were to establish a stable incentive framework that created a long-term market opportunity for renewable heat, then an efficient industry that could deliver equipment, installation, servicing and—in the case of biomass—renewable fuels would develop. The framework introduced should reflect the needs of specific sub-sectors:

- For domestic installations such as heat pumps, solar thermal panels and biomass boilers, the scope of the existing Energy Efficiency Commitment should be extended to recognise the benefit of these systems in reducing fossil-fuel consumption.
- For larger installations, typically biomass boilers supplying commercial premises, building heating systems or district heating networks a Renewable Heat Obligation (RHO) would underpin market demand and provide a certainty over future revenue streams that would support capital investment.

Further details regarding these approaches are set out in Appendix 1.

In the absence of such incentives the opportunity is likely to remain under-invested and underdeveloped. Worse still, segments of the market, notably biomass heat, will be compromised by the effect of other renewables policies. Current incentives for co-firing of biomass fuels in fossil power stations are now so strong that they result in upward price pressure for some feedstocks; as a consequence biomass heating, which could be competitive at cost-reflective fuel prices, can prove unable to compete for fuels and so be rendered unviable. Incentives for co-firing, which as a renewable supply option is time-limited by the lifetime of coal-fired power stations, may therefore be acting to restrict the development of a long-term market for the supply of renewable energy to the domestic, commercial and industrial heat sector.

BIOFUELS

With carbon emissions from transport already accounting for more than 25% of total UK greenhouse gas emissions and continuing to grow, the transport sector must be at the forefront of national efforts to curb emissions growth. With practical and political constraints affecting efforts to limit demand for private vehicle use, biofuels provide an effective means by which rising levels of emissions can be tackled.

At the same time, our use of motor vehicles is one of the most tangible connections between the everyday lives of most Britons and their personal impact on the environment. This realisation has been heightened by fiscal measures such as variable rates of Vehicle Excise Duty and the company car tax regime, and is manifested by the current media debate over 4x4 vehicles. Increasingly, individuals will establish the connection between their behaviour and their impact on the environment every time they fill their tank. The filling station will become an important point of sale where the consumer can express a preference for a lower carbon alternative.

The Government has belatedly moved to reflect the benefits of biofuels in its climate change policy, and the fledgling Renewable Transport Fuels Obligation appears to be having a positive impact in stimulating a UK market. However, for the consumer the effect of the Obligation will be invisible; biofuels will be blended in conventional fuels as a matter of course. Indeed in some regions consumers are already supplied with a 5% blend.

On one hand this is an advantage, insofar as there is no barrier to the market in the form of public acceptance. But on the other hand the chance to further sensitise the public to the climate change issue, and to provide the opportunity for ordinary citizens to express a positive preference for a low carbon product, is missed.

This need not be the case. In many countries a "high-blend" biofuels market has developed successfully in parallel with a conventional mass market for lower blend fuels. In the US, there are now some 650 filling stations offering E85,³ a 300% increase over the 2004 level.⁴ In Sweden, there is a growing E85 market: in 2005 the number of filling stations with E85 was more than 300, or about 10% of the national network, while

² Biomass sector review for the Carbon Trust, Paul Arwas Associates, October 2005.

³ E85 is a fuel blend consisting of 85% ethanol and 15% petrol or gasoline.

⁴ <http://www.ethanolrfa.org/resource/e85/>

leading fuel retailer Statoil report that 14.1% of their total ethanol sales now come from E85. In Germany, attractive fiscal incentives have been retained exclusively for high biofuel blends despite moves to an obligation-based mechanism for mass-market blends.

In the UK, there is no substantive reason not to adopt a similar approach. The UK project partners in the pan-European Bioethanol for Sustainable Transport (BEST) study, including Somerset County Council, have demonstrated the practical and technical viability of an E85 market.⁵ The Wm. Morrison supermarket chain has already introduced E85 pumps at 10 of its forecourts. Recent research commissioned by the Home Grown Cereals Authority (HGCA) has shown that an increasing number of consumers expressed preparedness to pay a significant premium for biofuels.⁶

It is, however, unclear at this stage in market development that a high blend market will develop under the RTFO regime. Indeed the UK partners for the BEST project have concluded that retention of a strong fuel duty incentive will be necessary to underpin market development.⁷ It is apparent that there remains a considerable appetite for high biofuels blends from customers, retailers and vehicle manufacturers. Ford, GM and Scania are taking a lead in bringing vehicles with the capacity to operate on high blends to market. At this very early stage in development of the biofuels market Government should make every effort to establish the conditions under which high blends can flourish, rather than take premature steps that could preclude this option and instead pick a low-blend, mass-market fuels as the winner long before the UK and international biofuels markets have begun to approach maturity. Support for high blends will not only preserve the opportunity to promote consumer awareness and choice, it will allow the overall penetration of biofuels to grow beyond the 5% by volume constraints imposed by existing fuel standards and regulations.

APPENDIX 1

RENEWABLE ENERGY ASSOCIATION RENEWABLE HEAT AND COOLING SUMMARY POLICY POSITION

CASE FOR ACTION

Existing measures to promote renewable heat and cooling fall far short of the incentives necessary to establish a sustainable renewable heat industry that can deliver major benefits for the environment, the UK economy and householders.

Benefits of Renewable Heat

- Increased security of supply through diversification away from fossil-fuel energy sources. Heat makes up 30% of UK energy demand outside of the transport sector.⁸ The UK today depends on natural gas to meet 90% of its domestic heat demand and 55% of industrial and commercial needs.
- Carbon savings of between 2 and 5.6 MtC pa.^{8,9} One measure alone—replacing all suitable oil-fired boilers with biomass alternatives—could deliver savings of 2.5 MtC pa.
- Alleviation of increasing rates of fuel poverty, particularly in off-gas grid locations. Once installed, solar thermal units deliver heat at zero-cost to the consumer. Heat pumps can cut electric heating costs by up to 75%. Woodfuel heating options deliver overall cost savings of between 20% and 60% to households using heating oil, and up to 75% for those using tanked gas.¹⁰
- Growth and diversity in the rural economy, through the development of an additional end-use that will contribute to a sustainable market for energy crops and biomass fuels in the UK.
- An immediate contribution to UK energy policy objectives:
 - Simple, proven and highly efficient technologies are available today.
 - Commercial risks can be minimised through incremental capital investment and under simple contractual arrangements.

⁵ <http://www.best-europe.org/>

⁶ Consumer perceptions of Biofuel—Results of an omnibus survey commissioned by the HGCA, The Oxford Partnership, September 2005.

⁷ The case for fiscal support for high blend mixtures of bioethanol in road transport fuels, Somerset Biofuel Project Partnership and the BEST Project, April 2006.

⁸ Renewable Heat and Heat from Combined Heat and Power Plants—Study and Analysis, FES, 2005
<http://www.defra.gov.uk/farm/acu/energy/fes-renewable-chp.pdf>

⁹ Biomass sector review for the Carbon Trust, Carbon Trust, 2005.

¹⁰ Scoping Study: The Commercial Opportunities of Wood Fuel Heating in Scotland, Eonergy/Scottish Enterprise, December 2005.

Potential

Renewables have the potential to make a major contribution to UK heat supplies:

- The Biomass Task Force¹¹ estimated renewables could meet 3% of UK heat demand by 2010 and 7% by 2015; a market in heat supply of c£1.5 billion pa.
- FES estimate a market potential of 92 TWh pa by 2020, or 12% of UK demand.⁸

Existing Incentives

- Planning and grant-led approaches deliver installed capacity, but used in isolation cannot guarantee either physical heat supply or carbon savings.
- Grants cannot deliver the long-term confidence vital to attract investment.
- Current policies for renewable heat fail to match the scale of the opportunity:
 - policies are projected to deliver a heat market share of less than 1%¹² and a market of only £100 million pa—less than 7% of potential growth; and
 - new measures announced in the Climate Change Programme Review will save a maximum of 0.1MtC pa—2% of estimated potential.¹³

MEASURES

A co-ordinated package of measures should be established to realise the potential contribution of renewable heat supplies to the UK's energy policy objectives.

Institutional Reform

- Adapt government, legislation and regulatory agencies to recognise diverse sources of supply and the need to develop a renewable heat market.
- Monitor and measure the contribution that renewables deliver to national heat supplies, irrespective of the fiscal treatment of these supplies.

Capital Grants

Grants have an important function in pump-priming demand for renewable heat technologies and fuels, and in facilitating supply of biomass fuels:

- To be effective, grants must be simple to administer, with minimum transaction costs and bureaucracy.
- The value and award of grants should be structured to incentivise early movers and reward success.

Certificate-Based Renewable Heat Incentive

Sustained growth in the renewable heat supply industry can only be achieved through a measure that creates enduring, long-term demand:

- The demand created by an incentive scheme will generate revenues against which both capital installations and businesses can be financed.
- Through driving investment in the industry, the incentive will optimise the impact of grant programmes, stimulating competition and cost-reduction.
- A certificate-based scheme:
 - Rewards schemes on the basis of environmental benefits delivered.
 - Provides the flexibility to link the incentive to new or existing schemes, including the Energy Efficiency Commitment and the EU Emissions Trading Scheme.
- An incentive should be structured to provide a value equivalent to that afforded to biomass power under the RO, addressing fuel market distortions, providing a level playing field and maximising incentives for efficient CHP.

¹¹ Report to Government, Biomass Task Force, October 2005.

⁸ Renewable Heat and Heat from Combined Heat and Power Plants—Study and Analysis, FES, 2005
<http://www.defra.gov.uk/farm/acu/energy/fes-renewable-chp.pdf>

¹² UK Energy and CO₂ Emissions Projections, Updated Projections to 2020, DTI, February 2006.

¹³ Climate Change—The UK Programme 2006, HM Government, 2006.

Planning and Public Procurement

- Part L of the Building Regulations should recognise the cost-effectiveness of renewable heat technologies and “prescribe” renewable energy systems on a technology-blind basis in all new-build buildings from 2010.
- Positive planning policies should be strengthened, to require developers to incorporate on-site renewable energy in all new commercial developments over 1,000m² and all residential developments over five units.
- Planning guidance should be developed to avoid a 10% minimum requirement becoming a *de facto* cap.
- Government must lead in demonstrating the viability of renewable heat in the public estate through a proactive public procurement policy.

OUTLINE PROPOSAL FOR A RENEWABLE HEAT INCENTIVE

Introduction

The introduction of revenue-based, demand-side incentive to underpin the long-term value of the renewable heat and cooling market will be vital to securing investment in the sector, achieving energy policy objectives and optimising the impact of parallel measures, including capital grant schemes.

Guiding Principles

Equity

- Any scheme should be accessible to all renewable technologies on an equitable basis.
- The level of incentive should be the same for all heat technologies.
- The level of incentive should allow heat suppliers and customers to compete for feedstock on a level playing field with other end uses.

Flexibility

- Wherever practical the scheme should directly reward the benefits delivered, creating a revenue stream from units of heat supplied.
- Below an appropriate *de minimis* level, future benefits should be recognised as a present value.
- The widest possible range of parties should be capable of contributing to renewable heat supply and realising the value of the incentive framework.

Capital Efficiency

- The scheme should deliver stable and secure revenue streams in order to leverage private capital investment.
- The introduction of the scheme should be signalled as early as possible to deliver maximum impact from existing grant programmes.
- The scheme should be established within the context of a long-term framework providing the incentive for investment in the industry and supply infrastructure.

Consistency

- The scheme should be consistent with existing support mechanisms such as the RO, and should explicitly provide for convergence with the carbon market—in respect of both function and value.

OUTLINE STRUCTURE

Generic Requirements

Certificate-Based

- The supply of renewable heat should receive credits for the carbon saving, fuel security and economic benefit that it delivers.
- Credits should take the form of tradeable certificates.

- Sale of certificates would create a revenue stream against which:
 - costs of fuel supply could be supported; and
 - investment in renewable heat plant and infrastructure could be financed.
- Certificates would be awarded on a flexible basis in order to maximise access and avoid disproportionate costs of compliance (notably on smaller installations where metering costs may be prohibitive):
 - primarily on the basis of metered heat output;
 - in restricted circumstances on the basis of a “derived” method meeting prescribed standards of accuracy, eg quantity of fuel supplied, where that fuel meets a consistent, verifiable standard and supply is supported by auditable documentation; and
 - alternatively as an “up-front” allocation equivalent to the lifetime output of the installation.

Since heat meters are widely used in industrial and community heating applications, and accurate meters are increasingly available at relatively low cost, the majority of capacity is expected be metered.
- Certificates could be awarded to any entity meeting specified qualification criteria. This may include owners or operators of plant. Criteria should reflect plant standards of performance and capacity of operator to provide accurate data.
- OFGEM have already established a simple and efficient process for certificate issue that could be readily adapted.

Flexible Cost Burden

Purchasers of certificates could be one of a number of parties, which might change or evolve with the scheme:

- Obligated parties, established under a Renewable Heat Obligation or similar.
- Obligated parties, subject to the Energy Efficiency Commitment (EEC) or any successor, such as an Energy Reduction Commitment.
- Other obligated parties.
- Government, via a bilateral contract with the producer, for conversion into carbon credits of some type (AAU, unilateral ERU etc).

Transparent and “Future-Proof” Market Arrangements

Market transparency, third party access, and liquidity would be facilitated by the establishment of a Government-sponsored “clearing house” or “broker” for certificates. This arrangement would:

- Ensure that even the smallest parties were able to transact efficiently and extract value from the scheme.
- Preserve the capacity for evolution of the scheme if the purchasing parties were to change.
- Provide price stability and the capacity to set a price floor.

Competitive and Equitable Revenues

The price of certificates would be driven by an administrative process:

- Under an Obligation arrangement, demand for certificates would be driven by the alternative compliance costs for obligated parties—a “Buy-Out Price”. To deliver a real incentive to supply this should be set at a level that exceeds by a significant margin the expected costs of supply of renewable heat.
- Under any scheme the price level would need to reflect the value of biomass created by the Renewables Obligation in the power market and should be consistent with the RO in terms of cost of carbon saved.
- Over the long-term prices should migrate towards a stable carbon price, in parallel with the similar migration of incentives under related measures.

Differentials in the rate of Climate Change Levy provide a potential precedence:

- With lower emissions per unit of output associated with generating heat, the Climate Change Levy on heating fuels is roughly a third of that on electricity (0.15p/unit compared with 0.43p/unit).
- Correspondingly the Buy-Out Price of a certificate should be £10–£15 per MWh (ie one third to one half of the current level of a Renewables Obligation Certificate).

Administration

- Any incentive scheme would require an appropriate authority to register qualifying schemes and issue certificates on the basis of metered heat output or other qualifying criteria.
- Existing experience, systems and institutions could readily be adapted to deliver the administrative infrastructure necessary to support a heat incentive:
 - collectively, OFGEM and the DEFRA-sponsored CHPQA programme have established proven systems for data management and scheme administration in respect of Renewable Obligation Certificates (ROCs) and Climate Change Levy Exemption Certificates (LECs);
- CHPQA has specifically addressed the technical challenges in respect of heat; and
- HMRC will gain relevant experience of data management through the RTFO.

Considerations for an Obligation

Where to impose the cost burden for any certificate-based heat incentive is a key consideration for Government. If Government opted to place a cost burden upon consumers via an Obligation, specific considerations would be raised over the mechanics of collecting and disbursing funds.

Obligated Parties

- An Obligation would be placed on suppliers of fossil fuels for heat.
- A party's Obligation would be determined on the basis of the quantity of fuels sold for heating purposes (as opposed to electricity or transport), and could be readily determined:
 - Gas and coal together contribute c85%¹⁴ of fuel supply for heating. Suppliers of natural gas and coal are required to complete detailed records in order to comply with the requirements of the Climate Change Levy. These records provide for quantification and differentiation between supplies reaching users in the power, transport and domestic sectors.
- Liquid fuels contribute c15% of fuel supply for heating. The majority of liquid fuels for the heating market are duty-exempt (90% of domestic heating oil is kerosene). Since these fuels are both marked under controlled conditions at a limited number of bonded locations, and are sold through Registered Dealers in Controlled Oils that declare quantities and end receivers, it is possible to accurately record volumes of these fuels. Gasoil supplies would need a separate administrative system to differentiate end-use, but this should be readily achievable (a similar system is already practiced in France).

Compliance

- Obligated parties would face alternative compliance options, analogous to the RO and RTFO:
 - Payment of a "Buy-Out" penalty, set at a relatively high level that maximises the likelihood that a party would seek to supply renewable heat.
- Presentation of certificates, generated either via the party's own actions or purchased from a 3rd Party.

Distribution of Funds

- The decentralised nature of activity in the renewable heat market suggests that 3rd Party supply of certificates would be a prominent feature of any heat incentive, and for an obligation would be a notable differentiation from the RO and RTFO.
- An administered "clearing house" would minimise transaction costs, increase liquidity of certificates and enhance system efficiency; it would likely prove a prerequisite under an obligation approach in ensuring that obligated parties meet the objectives of the measure at least cost.

¹⁴ Since energy supply data as reported in DUKES and UEP is not disaggregated by end-use, it is assumed throughout this paper that non-electricity energy supplies will meet a heating demand. In some cases this is likely to result in an over-estimate for heat demand and some skewing of proportional allocations.

Costs to the Economy

Cost of Carbon

- At an incentive level of £10/MWh, abatement costs range from £70 to £220/tC saved.
- Table 2 illustrates the performance of the scheme—in terms of cost per tonne of carbon saved—for a range of levels of incentive from £7.50/MWh to £15/MWh of heat supplied. Costs have been derived by determining the difference in carbon emissions per MWh for a range of energy sources and the renewable alternative, and equating this to the level of incentive offered.
- A heat incentive, imposed at the levels proposed, performs favourably with other comparable measures employed in the energy sector.
- Table 3 compares a heat incentive to a range of carbon abatement measures employed elsewhere in the economy.

Table 2

COST OF CARBON ABATED USING RENEWABLE HEAT AT VARIOUS INCENTIVE LEVELS

	<i>Emission Factor (tC/MWh)</i>	<i>Incentive (£/MWh of Heat Supplied)</i>			
		<i>7.5</i>	<i>10</i>	<i>12.5</i>	<i>15</i>
Electricity	0.115	69	92	116	139
Electricity—Grid Average	0.115	69	92	115	139
Electricity—Grid Average/New Build*	0.155	51	68	84	101
Gas	0.054	159	212	265	318
Mains Gas	0.053	163	217	271	325
Bottled Gas	0.064	132	175	219	263
Fuel Oil	0.076	109	145	181	217
Burning Oil	0.072	115	153	191	229
Gas Oil	0.073	113	151	189	226
Domestic Oil	0.072	115	153	191	229
Non-Domestic Oil	0.072	115	153	191	229
Heating Oil	0.074	112	150	187	224
Heat from boilers—waste	0.007	859	1,146	1,432	1,719

Source: ODPM, BRE

* Average of marginal carbon intensity and plant built or avoided 2005–10

Table 3

COMPARISON OF CARBON ABATEMENT COSTS

<i>Measure</i>	<i>Cost (£/tC)</i>		<i>Source</i>
	<i>Low</i>	<i>High</i>	
Renewables Obligation	183	513	NAO/Oxera
Renewables Obligation	slight -ve	175	DEFRA
RTFO		350	DfT
Social Cost of Carbon		140	DEFRA
Heat Incentive @ £10/MWh	70	220	

Cost to the Economy and Consumers

- Costs to the economy of a proposed heat incentive are of the order of £0.5–£1.5 billion pa.
- Actual cost to the economy will be determined by the level of response to the incentives introduced. Table 4 illustrates the cost to the economy at various response, or success, rates in successive years. Response rates reflect the potential market penetration for renewables illustrated by the Biomass Task Force and FES.
- Costs of renewable heat supply options will become increasingly competitive under conditions of rising fossil fuel prices. Since an obligation does not impose a direct cost on the consumer or taxpayer, this approach would offer the distinct advantage that costs to the economy (and consequently consumers) of the incentive could be reduced or even eliminated.
- Costs per unit of energy supplied will depend upon the level of incentive and the target imposed by Government. Gas costs are presently approximately 2.0–2.5 p/kWh for industrial consumers and 2.1–2.8 p/kWh for domestic consumers (including taxes).¹⁵ With a £10/MWh incentive and a 7% target, a decision to impose the burden of the incentive on consumers would introduce additional costs of 0.07 p/kWh for fuel supplied, equivalent to c3% of current gas costs.

¹⁵ Quarterly Energy Prices, DTI, March 2006.

Table 4**SUMMARY OF COSTS TO THE ECONOMY**

	<i>Year</i>								
	2010	2015	2020	2010	2015	2020	2010	2015	2020
Level of Incentive (£/MWh)		7.5			10			12.5	
Renewable Target (% Heat Demand)	3%	7%	12%	3%	7%	12%	3%	7%	12%
Heat Demand (TWh)	837	862	884	837	862	884	837	862	884
Maximum Cost (£M)	188	452	795	251	603	1,061	314	754	1,326
Cost per Unit of Energy (p/kWh)	0.02	0.05	0.09	0.03	0.07	0.12	0.04	0.09	0.15

Renewable Energy Association

September 2006

Memorandum submitted by Dr Jillian Anable (CIT 43)

This memorandum gives the main findings from a research study, entitled “An Evidence Base Review of Public Attitudes to Climate Change and Transport Behaviour” undertaken for the Department for Transport. This was completed in July 2006 by:

Dr Jillian Anable
UKERC Transport and Aviation Topic Leader
The Centre for Transport Policy
The Robert Gordon University

In conjunction with:

Dr Ben Lane, Ecolane Transport Consultancy Ltd
Dr Tanika Kelay, Environmental Psychology Research Group, University of Surrey

Client:

Department for Transport

RELEVANCE TO THE INQUIRY:

The overall objectives of this study were to improve the evidence base for policy decisions concerning:

1. How climate change knowledge and awareness relates to transport decision-making, attitudes and behaviours amongst the public.
2. The nature and impact of interventions aimed at altering attitudes and behaviours in relation to climate change issues.
3. The identification of research methods (including measures and data sources) pertinent to these issues.
4. The identification of evidence gaps worthy of further research.

The summary report is attached here. The main report is approximately 200 pages long and can be found at: http://www.dft.gov.uk/stellent/groups/dft_sustravel/documents/page/dft_sustravel_612225.pdf#search=%22evidence%20base%20review%20public%20attitudes%20to%20climate%20change%22

The findings are particularly relevant to the committee’s questions:

- What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as vehicle excise duty sufficiently strong to affect behaviour?
- How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects.

Specifically, the study suggests that:

1. There is only a weak link between knowledge and awareness of climate change on the one hand and travel behaviour at the individual level on the other. Raising public awareness of this link is necessary, particularly to galvanise support for carbon abatement policy, but it is not sufficient to change behaviour on its own.
2. In order to effect change, many other factors need to be addressed—at the objective and subjective and at the individual and collective levels—these “barriers” to behaviour change are outlined in the report.
3. These factors incentivising or discouraging behaviour change will be different for different travel behaviours and for different people.

4. Transport policies can set out to change attitudes directly as a route to behaviour change, or they can be indirect in that they aim to change behaviour *first* without *necessarily* changing attitudes. This review concludes that a combination of each of these types of measures is desirable.
5. Any travel behaviour change strategy will be more effective if it targets change at the community level. Community Based Social Marketing offers a strategic framework to transform markets and behaviours.

Dr Jillian Anable

September 2006

Memorandum submitted by the British Electrotechnical and Allied Manufacturers Association (CIT 45)

1. The British Electrotechnical and Allied Manufacturers Association (BEAMA) welcomes the opportunity to submit evidence to this Environment Food and Rural Affairs Select Committee inquiry into climate change: the “citizen’s agenda”. BEAMA members are world leaders in the design and manufacture of smart meters and associated systems for the electricity, gas, water and heat markets and are based all over the UK. The Association is therefore particularly interested in the smart metering reference of the Committee’s work and our submission aims to highlight the contribution that smart meters can make to tackling climate change, increasing energy efficiency and benefiting a long term low carbon economy.

2. The use of smart meters providing innovative displays in homes, on computers or TVs, combined with better, more informative bills can begin to engage the homeowner with their potential to reduce their energy bills, whilst helping the environment and security of supply of energy for the country. Smart metering systems have been shown to provide significant energy and carbon savings, and provide a tool for consumers to better manage their energy, and water usage. It is well understood that pre-payment metering engages the customer much more than standard meters, and as a result these customers can improve their management of energy usage. Smarter versions of all metering systems will extend this engagement between the customer and their energy use further.

3. There is no single definition of smart metering, however all smart-meter systems comprise an electronic box and a communications link. At its most basic, a smart meter measures electronically how much energy is used, and can communicate this information to another device. This type of system can be added to provide a wider range of customer benefits in ways:

- AMR—One way Communication from the Meter to the Data Collector- as a minimum Automated Meter Reading.
- AMM—Two Way Communication between the Meter and the Supplier—enabling a wider range of functions known as Automated Meter Management.

4. The key distinction between smart-meter types is therefore determined by their communication i.e. whether there is any with the energy supplier, whether this is one-way or two-way and the data-storage capability of the meter. The combination of these features determines the extent to which the metering system can help customers reduce their energy usage and minimise carbon emissions. These smart functionality options are likely to be in 3 broad bands: the display of utility data for consumers; the provision of better, more accurate billing data, and the use of innovative tariffs for load control. All these functions are recognised as having the potential to lead to energy use reductions.

5. To allow the introduction of any type of smart metering however, the basic measurement and storage of metering data needs to improve considerably. The most cost effective way to deliver this is for all new meters to contain a minimum level of data and for this data to be stored and accessed using industry agreed protocols to allow easy communication with the meter. This would allow the present market structure in the metering industry to continue, and facilitate the market to deliver the optimum smart functions.

6. The UK Government is shortly to consult on the Energy End Use and ESCO Directive which needs to be implemented by May 2008. Article 13 of the directive covers utility metering: “Member States shall ensure that, in so far as it is technically possible, financially reasonable and proportionate in relation to the potential energy savings, final customers for electricity, natural gas, district heating and/or cooling and domestic hot water are provided with competitively priced individual meters that accurately reflect the final customer’s actual energy consumption and that provide information on actual time use”.

7. Implementation of the Directive could provide the baseline for smarter metering possibly mandating a the minimum level of functionality, with the wider Directive requirements of the time of use meter data and increased accuracy of billing provided by the increased smart functions, likely to be specified by the market. In addition these extra levels of functionality could be included under future Energy Efficiency Commitment schemes, if the energy savings can be measured and agreed.

8. The Directive will provide energy usage data for customers which, evidence suggests, will result in significant energy savings. The recent Sarah Darby (ECI) report for Defra indicates direct feedback, via well positioned customer interface, can deliver savings of between 1–26%. Further evidence from a range of sources, including the Energy Saving Trust, indicates typical energy savings of between 5–10% once smart

meters have been introduced. Implementation of the Directive will also provide customers with much better and more accurate bills and a basis for metering micro renewables. It is worth noting that research by Sustainability First has demonstrated that just a 1% saving represents 8.6% of the Government's domestic CO₂ reduction target.

9. Smart metering has been rolled out with considerable success in a number of world wide markets including the United States, Italy, Sweden and Australia. Indeed for some years BEAMA members have produced meters and controls enabling suppliers and consumers to establish an accurate, up-to-the-minute record. This ensures an accurate statement can be calculated and billed, avoiding the problem of increasing high bills for customers. There is worldwide evidence that giving consumers appropriate, relevant information on their energy use usually leading to a reduction in their use of energy.

10. International experience however suggests that although the overall benefits to society exceed the costs, government or regulatory intervention has been required to facilitate smart metering because suppliers/distributors cannot capture all these benefits. The Government presently has an opportunity with the Energy End Use and ESCO Directive to create an environment where metering can make a real difference in both environmental and energy terms. The forthcoming Energy White Paper, due in Spring 2007, provides a chance for the Government to require the introduction of smarter metering, with a minimum level of functionality, to deliver customer displays, better billing and increased energy efficiency.

The British Electrotechnical and Allied Manufacturers Association (BEAMA)

November 2006

Memorandum submitted by the Electrical Heating and Venting Association (CIT 46)

SUMMARY

1. This paper constitutes the submission by the Electric Heating and Venting Association (TEHVA) to the EFRA Select Committee inquiry into Climate Change. Our submission outlines the current alternatives to gas central heating and hot water supply, which TEHVA feel provide a long-term sustainable solution to the dilemma surrounding the dependence on fossil fuels for the provision of heating and hot water. When fossil fuels are scarce, the only reliable and sustainable way to heat and provide hot water for our homes will be with 100% efficient at the point of use, electric solutions either working discretely using low carbon centrally generated electricity or coupled with other low carbon technologies such as solar thermal collectors.

2. The submission specifically addresses how individuals can reduce the energy consumption used for heating and hot water through the adoption of electric heating which, especially when combined with the microgeneration of electricity, can play a long-term, sustainable role in the reduction of fossil fuel usage. The need to reduce carbon emissions is now paramount but in some respects quite separate from energy costs. However, massive increases in energy prices are a real concern for householders and tenants alike. As demographics change and the population gets older the demand for care homes and sheltered accommodation grows. In parallel, more older and younger people are living alone. Both factors increase the construction of flats and apartments, which tend to favour an electric heating and hot water solution due to low space heating demand and limited hot water requirements.

3. It is now recognised that Electric heating can be at least 17% cheaper than gas central heating for the average householder over the lifetime of the heating system, according to a recent study carried out by TEHVA member Applied Energy (using government consumption data, current energy prices and British Gas Services information).

4. As many countries around the world are now recognising; zero-carbon electricity generation allows for zero-carbon heating with modern electric appliances. The net result we need is lower carbon central electricity generation, grants for micro-generation technologies and more thermally efficient buildings, with the introduction of more ambitious standards for air-tightness.

5. Dispelling the myths

- Electric heating and hot water products are inefficient—They are in fact 100% efficient at point of use.
- Electric heating and hot water services cost consumers more than equivalent gas systems—Electric can be up to 17% cheaper over the lifetime of the system.
- Electric heating and hot water services increase the carbon footprint of a dwelling—In the new build sector this is not the case. New building regulations set carbon targets for new build dwellings and electric heating can pass as well as gas through improvements to the fabric of the dwelling and, in some instances, working with microgeneration technologies.

- It must be better to have microgeneration options than electric heating and hot water—Microgeneration options, such as solar thermal, are a supplement to a wider fuel heating system in the UK. Electric products are renewables ready and work well with solar, providing a very carbon efficient system option for modern new build dwellings.
- Decentralised energy systems are a much better option for flatted properties than individual electric heating solutions—TEHVA accepts the role of decentralised energy systems in a balanced energy framework but believes that choice is also critical and the demand for electric heating is high. This is due to its convenience, cost, efficient operation and minimal/non-existent maintenance requirements. It needs no on-going facilities management, does not necessarily rely on gas in a low carbon central generation regime, does not present the budget modelling problems for housebuilders that exists with CHP and is maintenance free.

THE ELECTRICAL HEATING AND VENTING ASSOCIATION

6. TEHVA is the trade association with responsibility for promoting electric heating, hot water and mechanical ventilation products and systems.

7. TEHVA was launched in 2004 in recognition of the wide consumer and political demands to reduce energy consumption and associated carbon emissions from buildings. TEHVA members' products all play a contributory role in achieving this aim. Part of BEAMA (The British Electrotechnical Allied Manufacturers' Association), TEHVA has the backing of a very well established and widely respected trade association representing a broad range of companies in the electrotechnical industries.

8. Modern electric heating and hot water products operate at 100% efficiency (according to the government funded Standard Assessment Procedure) and offer users a sensible route to low running costs. They are reliable, virtually maintenance free during their lifetime and will provide the comfort required at maximum product or system efficiency.

9. Similarly, as mechanical ventilation products now provide a heating benefit that is greater than the energy they use in operation, these also offer great cost and efficiency benefits. This is not forgetting that whilst they give that energy positive benefit, they are effectively ventilating homes to give the level of air quality that is so important for the maintained health of the building and its occupants.

BACKGROUND

10. Given that gas prices will increase dramatically in the medium to longer term as we move towards imports of some 80%, and considering that the carbon content of electricity will reduce substantially in the next 15–20 years (either through nuclear, renewable or sequestration means), smaller, thermally efficient and air tight dwellings incorporating electric heating and hot water technologies present a long term, sustainable solution. This case is enhanced when electric systems are specified in tandem with renewable technologies. Microgeneration also improves efficiency as it limits the transfer of the electricity and therefore considerably reduces transmission losses.

11. The Government's recent Energy Review pushed for lower carbon centralised generation plants. The knock-on effect of this will be reduced carbon intensity figures for electricity, thus reducing the carbon footprint of electric heating and hot water. Also, electric heat and hot water systems are 'renewable ready' as opposed to other forms of central heating provision. It is now likely that investment in renewables, nuclear or carbon sequestration will see a renaissance for electric heating in 10–15 years. This is also consistent with the Energy Review, which stated that the UK must reduce its reliance on gas for heating homes.

CURRENT TECHNOLOGIES

12. *Electric heating*

- Electric heating products can be installed as single units or as part of a system, which makes them an extremely versatile choice for customers.
- Installation is simple and clean with no need for pipe work and the associated disruption that comes with other fuels.
- Electric heating is a low cost option for customers. It is cheap to install and, because it does not require an annual servicing and maintenance contract, it is cheap to own.
- Electric heating can supply well controlled heat on demand at point of requirement without wasting energy in delivering heat to and through an inefficient central heating distribution system

13. Electric hot water

- Electricity is a clean and safe option for hot water provision.
- With no requirement for the regular servicing and maintenance regimes associated with gas appliances, electric hot water products can truly be classed as “fit and forget”.
- There are a wide range of electric hot water products available that offer the flexibility to have hot water when and where you need it without any building design limitations and system losses.
- Whether it’s stored hot water, instantaneous point of use or boiled water that is called for, electric is the best and most efficient solution.

CONCLUSION

14. We would ask the committee to recommend that the Government give serious thought to the use of electric heating and hot water products as a long-term low carbon solution and not to dismiss the industry out of hand due to the current, short term carbon intensity of electricity generation. Electric heating and hot water systems incorporate products that are 100% efficient at point of use, ‘renewable ready’ and will be a vital weapon in the fight against climate change in the short, medium and long term. In the short term this is aligned to improved building quality and specification with microgeneration technologies but in the medium to long term this extends to low carbon central generation.

15. What we would like to see from Government is a shared stance with us on a true low carbon strategic outlook that considers not only energy generation and supply, but also how we will use it to power domestic building services over the next 40–50 years. At all levels, through central and local government to NGOs and Government agencies we need to see:

- (a) A commitment to stimulate growth in the electric heating industry beyond the short-term energy efficiency horizon.
- (b) A clear statement recognising the important role electric heating and hot water appliances have within a low carbon and sustainable energy future.
- (c) The upcoming energy review taking the opportunity to make the distinction between climate change and security of energy supply, which whilst related, sometimes do have conflicting objectives.

16. The Government has committed lots of time to discussing sustainability and strategy. Now is the time for the Government to really demonstrate that it understands and believes in the concept of both. Following the challenges above would be a step in the right direction.

The Electric Heating and Venting Association (TEHVA)

November 2006

Memorandum submitted by Light Rail UK (CIT 47)

The Committee requested written evidence on the following points:

1. What is the real scope for individual and local community action to contribute to tackling climate change?

Some areas for possible consideration include:

- increasing energy efficiency, in particular the delivery of the Energy Efficiency Commitment (EEC);

Response: Increase low carbon public transport as an alternative to the car in the urban area.

- reducing energy consumption—not only electricity, but also energy used in heating and transportation;

Response: Prevent Dft from cancelling electric based transport systems in favour of diesel bus based systems.

- the provision of desirable low carbon alternatives, such as energy saving lightbulbs or using public transport;

Response: Expand electric based public transport.

- the potential for, and barriers to, microgeneration;

Response: Climate change needs tackling quickly. The planning process is far too long and too much consideration is given to NIMBY pressures on projects which will have an impact.

Examples

Nottingham phase 1 trams took 16 years from conception to the first revenue earning service. Phase 2 is expected to take another 7 years following a vast amount of (paper)work completed over the past 5 years. The actual construction period for phase 1 was 3.5 years and phase 2 is expected to take 2.5 years. In the time it took to debate, design and build 1 line in Nottingham our twin city of Karlsruhe built 18, 50% of which are solar powered by using photo-voltaics on municipal buildings.

There is a market for renewable energy which cannot be met by supply. The reason is probably to do with a virtual stop on wind-farm developments due to NIMBY pressure. At Eakring near Nottingham a wind farm was proposed and the locals mounted a massive campaign against it. The project was eventually dropped because “it may interfere with aircraft radar”. Perhaps we should have put that the other way around.

I would just like to add that the proposed Nottingham tram extensions have been the subject of three public consultation exercises in as many years, and none were strictly required under the T&WA 1992. This session of Parliament may see some reforms to speed up planning for major infrastructure—energy, transport. Kate Barker and Ron Eddington want an Independent Planning Commission, though urban tram schemes won’t be big enough.

Small CHP power plants would be a way forward. What possible chance though in the current NIMBY climate?

- the potential for “smart metering”;

Response: No comment.

- awareness of climate change and availability of information about the role of the individual in tackling the problem.

Response: local councillor (chair of planning committee) wishes to install a wind turbine. Planning considerations have held this up for the past 2 years. What chance does the rest of us have?

2. What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

Response: No Comment.

3. How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?

Response: Community projects for schools to reduce the individual school run, more use of green school buses.

4. What is the role of NGOs in delivering the “citizen’s agenda” on climate change?

Response: Very effective locally if direct funding was available.

5. Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?

Response: Encourage microgeneration with household subsidies for solar panels etc., and a fair market rate for surplus electricity without an enormous bureaucracy.

6. To what extent is “green taxation” an effective driver of behavioural change?

Response: If handled correctly and evenly a very effective means, but has many dragons lurking if Government gets it wrong.

Light Rail UK

December 2006

Memorandum submitted by Ted Robins (CIT 48)

I am writing to you after watching BBC Parliament yesterday. I write particularly with regard to the question and answer session where the BBC reference was to Climate Change: Citizens Agenda. Since watching the program I have also learned more from the UK parliament web site.

For a number of reasons I anticipate that what I have to say will probably be disjointed and may appear to be unconnected. I ask your tolerance.

Before doing so, however, I repeat what Professor Reg Revans said many years ago. Reg Revans is almost universally said to be the founding father of Action Learning (AL). I am a firm believer of the theory and practice of AL.

I paraphrase what Reg Revans said:

“There are clever men and there are wise men. Clever men are almost invariably men that lecture others. They are academics, experts and business consultants. Many of them will have letters after their names. Wise men, however, are learners. They often have had no formal training and no papers to document their achievements. They have, however, learnt from the experience and failures of themselves and others”

I refer to what Reg Revans said because thus far I have seen nothing to indicate that the wise men, to which he refers, are being given to opportunity to contribute to the discussions. I was also surprised see that electrical and mechanical engineers were not called to give evidence—I am however not fully aware of your plans in that regard.

I will now, in a sense, provide you with food for thought.

ACTION LEARNING

The process of action learning, as proposed by Reg Revans, (there are other versions) is as follows. A small group of people of experience and training get together and solve problems by discussing those problems. The theory is that someone in the group may have already experienced a similar problem. The group as a whole then benefits from the experience and knowledge of its members.

FUNCTIONALLY IDENTIFIED MAINTENANCE SYSTEMS (FIMS)

FIMS were developed by the Systems Effectiveness Laboratory of America in the 1960s to solve a serious problem that existed in the armed forces in this country and in the United States. The problem stemmed from the need to speedily locate and fix faults in equipment. Mainly munitions equipment. I will not explain how they did that or what the solution was. However, there are pointers that can be learned from the process. I present the important ones now.

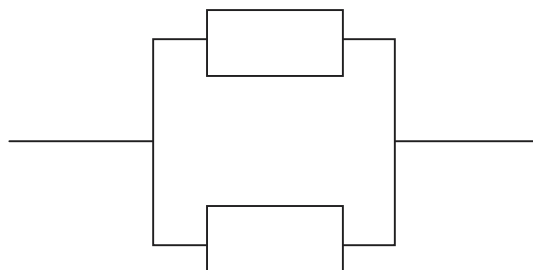
Almost every process and piece of equipment can be divided into separate component parts. For example, the steps needed to make a pot of tea. Or the parts used to build a motorcar.

Every step in a procedure and every part of an assembly also performs a function—if it doesn't then it is redundant.

An oversimplification of what SEL did was to reverse engineer a piece of equipment working from assembly drawings. Moving from the general to the particular they identified and illustrated every active part of the equipment. They used simple box outlines and connecting lines to illustrate the sequence in which the various functions were designed to achieve. Consecutive activities/functions were illustrated thus.



Concurrent activities/functions were illustrated thus.

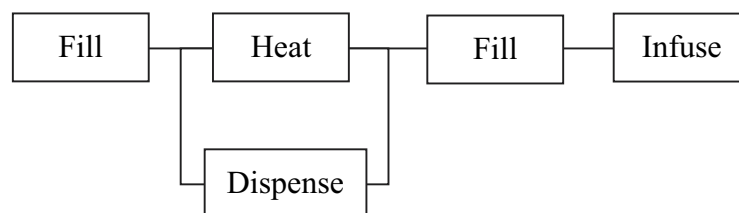


To keep matters simple I leave the SEL process and illustrate the general theory by illustrating this everyday process.

The steps/activities required to make a pot of tea are as follows:

- Fill (container [kettle] with water)

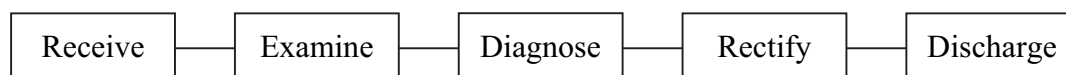
- Heat (container [kettle] and water)
- Dispense (tea leaves/bag)
- Fill (teapot)
- Infuse (tea)



You may have already:

- realised that lower functions are necessary (to fill the kettle for example).
- seen that if any of the activities did not take place then the objective (to make a pot of tea) would not be achieved.
- realised that the process can be reversed. That is to, first set an objective, and then determine and illustrate the functions/activities needed to meet that objective.

Now for something less obvious. Please consider the following.



The above could represent a car repair shop

Or A hospital

The methodology and the way information is presented is always the same.

FUNCTIONAL DESIGN

The process of functional design is essentially the reverse of that developed by SEL. Functional design calls for:

1. an objective to be decided upon.
2. the functions/activities needed to achieve those objectives listed.
3. the functions and the sequence of those functions illustrated as shown above.

SUGGESTION(S)

I suggest that

- functional design should ALWAYS come before product design.
- groups of people, similar to those proposed in action learning and having no preconceived ideas, should ALWAYS contribute in the process of functional design.

WHY

Because more innovative, and possibly un-thought of designs would could be considered with development in mind.

A FEW, MAYBE, CRAZY THOUGHTS AND IDEAS

A car uses energy to climb a hill. And in braking when going down hill. Some electric and hybrid cars employ regenerative braking. Other cars could freewheel downhill if a freewheel clutch were to be fitted.

In India and other places (including farms in this country) animal waste is used to produce gas and sometimes from that gas to electricity. Cattle and humans produce gas naturally—is it not possible to convert human and domestic waste the same way?

The Wom brook that flows through Wombourne powered several mills in years past. It does nothing now.

I have a clock that keeps accurate time from a signal that comes from Germany. I also have a broadband connection without wires. Question—is it not possible for similar and other technologies to be used to switch lights on in occupied rooms. And switch them off in unoccupied rooms? Such devices would indicate the presence of intruders within commercial buildings making burglar alarms unnecessary—and save electricity.

Refrigerators and freezers generate heat when cooling/freezing. Could that heat not be used?

Shops are even more inefficient. They cool/freeze goods. Heat the surrounding area. And then employ air conditioning to reduce the air temperature.

A SHOPPING CENTRE OF THE FUTURE

Goods from all major manufacturers located in one central storeroom. All goods sold Argos fashion—purchasers place orders but do not collect goods immediately. Instead they go to a central collection area where the goods are waiting for them.

WHY

1. Because goods would be delivered to one store room—thereby reducing transport pollution (Kelloggs, for example, delivering goods for Tesco, Sainsbury, Asda, Waitrose, Iceland, Aldi) to the same spot and at the same time.

2. Stocks would be maintained by using just in time methods.

3. All frozen/refrigerated food would be in one set of temperature-controlled rooms. The heat generated would be used to heat water always and the building when required.

4. An electronic selling, payment, and goods picking system would largely eliminate theft.

5. There would be grouped pick up points. No travelling between shops and their car parks.

Plainly you may consider that the thoughts given above are crazy. Crazy they may be but by sifting such thoughts from a large number of individuals MIGHT, just might, bring to your attention energy-saving and energy production methods currently unheard of. This is where a version of action learning could be used—a blog or blog(s) could be used maybe. And why not involve children and young people in the process? A schools competition perhaps.

FINALLY

All parties should consider using a similar faultfinding process to avoid making mistakes similar to those being made by this and previous government. By remembering that, any organisation is only as efficient as the sum efficiency of its component parts.

To improve efficiency it is important to determine first **WHAT** each component part is **designed** to do—NOT what it currently does. Only when that is known should the other words **WHY**, **WHEN**, and **HOW** be considered. It is worthwhile noting that the process outlined above enables work to start on individual units without having to wait until all units have been theoretically disassembled.

Several years ago several of my friends and I considered the NHS. We came up with a controversial new approach to the treatment of patients, hospitals and doctors surgeries. But that is another story, for another day, maybe.

Thoughtfully yours,

Ted Robins

December 2006

Memorandum submitted by Air Travel—Greener by Design Group, Royal Aeronautical Society (Cit 50)

EXECUTIVE SUMMARY

To echo the Secretary of State, green taxes are only worth imposing if they influence environmental performance. Paying to cover costs where there is no link to a reduction in the polluter's (or another polluter's) impacts is no more than an empty benefit to the Exchequer (paras 2-3).

It is important to assess the likely effectiveness of green taxes sector by sector, not on the basis of broad economic theory. No evidence has yet been produced by Governmental, parliamentary committee, NGO or even expert body advocates of green taxes or charges that the imposition of a financial penalty would make a material difference to aviation's climate change impacts (7).

Ahead of next generation technologies coming on stream, if green taxes were to stimulate an improvement in environmental performance they would have to prompt a reduction in demand to the extent that load factors would fall to a level at which services would be consolidated or cut. The reverse has occurred. While this may be an inconvenient truth to advocates of green taxes on aviation, market evidence suggests that Government's elasticity assumptions have been over-optimistic and that the sector has been highly resistant to classical economic signals in the face of significant cost increases—akin to taxes and charges and that such instruments would be unlikely to pass the Secretary of State's test. A tax imposing a burden at even the high level experienced by the market over the past two years would not be sufficient to cap or reverse emission growth. It would have to be levied at a very high rate—perhaps upwards of 150% on fuel—in order to prompt a demand reduction sufficient to cut load factors to a level where flights become uneconomic and are consolidated or cancelled (8-15).

The November 2006 DfT review of Continuous Descent (so-called “clean flying”) and the introduction of the EU Single Sky system will, in our assessment, do more than any tax to reduce fuel burn (18).

It is possible that for journeys of under 400km where rail and bus alternatives are available, increasing the cost of air travel might be effective in encouraging a shift to lower-emission transport modes (22).

Offsets, while not influencing aviation's performance, are an example of beneficial green taxation provided the efficiency of the funded projects is properly assessed (23).

There may be a role for hypothecated charges in order to accelerate improved efficiency; but taxes and charges are unlikely to persuade manufacturers to accelerate development of step-change technologies because the opportunity costs of not optimising revenues from current and planned aircraft models are so high. An approach focusing on regulation and incentives is needed (24).

BASIS OF SUBMISSION AND STATUS OF RESPONDENT

1. This submission, covering the relationship between green taxes and aviation's environmental performance, responds to the Committee's extension of its inquiry to include the issue of the extent to which “green taxation” is an effective driver of behavioural change. It is made by the Air Travel—Greener By Design Group (“GBD”), a DTI-funded advisory body that seeks to establish and promote technological, operational and market-based options to address aviation's climate change impacts. GBD is administered by the Royal Aeronautical Society and although its advisory group covers Government Departments, air traffic managers, the airport, airline, and manufacturing sectors and the research and academic communities, its executive function is independent of any industry or NGO interest.

THE OBJECTIVE OF GREEN TAXES

2. The Committee's question echoes David Miliband's recent statement that green taxes are only worth imposing if they influence behaviour. In the case of aviation, the behaviour to be influenced is

- Direct—with the objective of stimulating a reduction in flight or airport climate change impacts.
- Indirect—with the objective of stimulating passenger action that influences direct behaviour.

3. On the Miliband basis, it is not enough to impose taxes to cover external costs or to satisfy the Polluter Pays principle if they only raise revenue without affecting impacts. The principles of Polluter Pays or the covering of external costs work best where there is a clear relationship between payment and remedy—for example, where a factory pays a levy or fine for riparian discharge, with the revenue funding restocking or cleanup. Paying to cover costs where there is no link to a reduction in the polluter's (or another polluter's) impacts is no more than an empty benefit to the Exchequer. If, for various reasons, it is not possible for an aviation polluter's payments to remedy its impacts, the two principles are inappropriate for that sector.

4. In the case of aviation, although there is still uncertainty over the extent (and possibly the nature) of impacts, mitigation of impacts can be achieved through

- (i) technological development and application—optimising combustion and airframe design;
- (ii) operational measures—for example, avoiding areas of cold air in which cirrus cloud is most likely to be stimulated; and reducing energy use at stands, in taxiing and on approach to land;
- (iii) optimising Air Traffic Control to reduce delay or diversion-related fuel burn;
- (iv) replacement of inefficient aircraft with more efficient types; and/or
- (v) consolidation of or reduction in services; and indirectly through
- (vi) (indirectly) offset schemes that take into account non-CO₂ climate effects of aviation.

5. The options for reducing CO₂, NO_x and contrails and cirrus cloud are different in kind and call for different technical and different regulatory or legislative measures. Our work suggests that the impact of non-CO₂ emissions can best be reduced by regulatory action, ultimately at ICAO level but possibly at EU level in the first instance (on the basis that regulatory action by an important destination such as Europe will lead to the introduction of the appropriate technologies and operational practices that can be expected,

in due course, to be adopted globally). Progress in this area must await further advance in the atmospheric science relating to these impacts. The main incentive to reduce fuel burn, and thus CO₂ emission, is likely to be financial.

6. Bearing in mind that it requires a global reduction in aviation emissions to reduce the climate impact of aviation significantly, that almost half the world fuel burn by aircraft is on flights originating in the USA and that the Far East is expected to be the region of most rapid growth in air travel over the coming decades, we must ask what UK or European measures can be expected to have a significant impact on the bullet points above. In particular, what influence can we expect green taxes to have?

THE OBSERVED AND LIKELY IMPACT OF GREEN TAXES

7. To date, no evidence has been produced by Governmental, parliamentary committee, NGO or even expert body (Royal Commission on Environmental Pollution, Sustainable Development Commission, Commission for Integrated Transport, Stern) advocates of green taxes or charges that the imposition of a financial penalty would make a material difference to aviation's climate change impacts. Air Passenger Duty, categorised as a green tax by the Treasury, may have reduced the rate of growth in air travel but there is no way to prove it; and we note that while the Pre Budget Report claimed that the doubling of APD would reduce air transport emissions by 0.2-0.5mtc by 2010-11 (PBR Chapter 7, p.179), no methodology was published to support this claim and the National Audit Office's Audit of Assumptions did not examine APD. There is no evidence, as far as we are aware, that it has achieved or encouraged (i)-(v) above. It is a deficiency of the Regulatory Impact Assessment process that tax announcements are excluded from the requirement to publish an assessment of impacts and to undertake a proportionality test. It is questionable as to whether the PBR's APD increase would have satisfied such an assessment.

8. It was suggested by the Liberal Democrat Environment spokesman in a recent letter to *The Independent* (2 November 2006) that "On flights, there is well-established evidence on responsiveness of air travel to price changes. This suggests a 1% change in price leads to a little more than 1% change in travel, assuming other factors—such as incomes—do not change." It could be claimed by advocates of green taxation that this would support an assumption that Air Passenger Duty or other aviation-related taxes and charges would beneficially influence behaviour and satisfy the Miliband test. In fact, although elasticity assumptions ranging from 0.5 for business passengers to up to 2.5 or even 3 for leisure travellers have at different times been advanced by the industry, the Department for Transport and the Treasury, there is little practical evidence to support them. On the contrary, recent market experience suggests that aviation is highly unresponsive to external drivers akin to taxes and charges and that such instruments would be unlikely to pass the Secretary of State's test. If taxes or other cost increases are to influence performance they must either

- reduce demand to a level at which load factors would fall to a point at which airlines would either abandon or consolidate services or, if available in their fleet, switch to smaller aircraft. At current average load factors, it may require a fall of 8-10% in passenger numbers for a service to be considered marginal;
- stimulate replacement of existing aircraft with more efficient types; or
- encourage fuel saving.

Would taxes or charges cut demand?

9. At this stage, it is important to understand that it is not passengers who pollute but flights. The critical indicators of performance are not therefore passenger numbers but the number of movements and emissions per movement. The Institute for Fiscal Studies recently endorsed this distinction in relation to the claimed impact of APD:

"The IFS said there was a risk the doubling of air passenger duty to between £10 for European economy class and £80 for long-haul business class flights would be ineffective in reducing emissions from aircraft.

Mr Leicester cited evidence that people responded to higher fares by flying less. But if that resulted in planes flying with fewer passengers rather than fewer flights, the environmental benefits would be minimal".¹

(Source: *Financial Times*, 8 December 2006)

Because, as load factors increase, demand is rising significantly faster than the number of flights, it is misleading to seek—as have several NGOs and research bodies—to match passenger growth forecasts *pari passu* to projected emissions.

¹ The IFS' own report on green taxes (The UK Tax System and the Environment, October 2006) cites a Canadian study claiming that a 10% tax cuts leisure demand by 10% and short haul demand by 15% but it is uncertain on reading the study whether it was based on economic assumption or on market observation.

10. The Air Transport White Paper modeled the impact of a fuel tax. It assumed a 10% tax in 2006, increasing by 10 percentage points every year until it reached 100% in 2015. It also assumed that the tax would be introduced globally and entirely passed through to passengers. Fuel was assumed to account for 10% of total costs. The result of this, DfT projected, would be a reduction in 2015 demand of 10%, or a cut in growth of 0.7% a year (*Source: The Future of Air Transport, 2003, p.150*).

11. What has actually happened? Between June 2004 and June 2006, the price of aviation fuel rose by 94.5% (*Source: IATA*), a much steeper rise over time than modeled by DfT and which, unlike a steady annual increment, gave the industry no time to adapt. Fuel comprised not 10% but 12 to 20% (IATA) of operating costs before this rapid increase. The industry imposed surcharges but much of the fuel price rise was absorbed for competitive reasons.

12. Standard economic analysis would assume that the upshot of the fuel price movement—essentially a 94.5% fuel tax (reduced by price hedging to an average of 50%)—and accompanying surcharges of recent years would be a reduction in demand and therefore in movements. In fact, over the two years global movements rose 5.1% (IATA). Furthermore, if we look at the most financially sensitive global market, the United States, data released last November show that over 2000-2005, total US passenger airline costs rose by 80%. A quarter of that was fuel, the cost of which increased by 266% to account for 25.5% of costs as at November 2006. Landing charges also increased by 145% (*Source: US Air Transport Association[s1]*). Between 2000 and 2005, IATA reported that US carrier movements rose 27.5%. So this suggests that a tax imposing a burden at even the high level experienced by the market would not be sufficient to cap or reverse emission growth, still less in the more robust European sector.

13. The above cost:movement ratio could misleadingly be interpreted as a “movement elasticity” of -2.9: misleading because, as we have noted, although it is impossible to assess accurately, cost increases may have reduced the rate of passenger and movement growth. Nonetheless, the observed responsiveness of aviation emissions to price signals appears to be very low and the Committee should note the Air Transport White Paper progress report’s (DfT, 2006, Table C1) acknowledgement that the Department’s passenger growth forecasts were considered more or less robust regardless of whether DfT’s assumed £70/tonne cost of aviation carbon was doubled or halved.

14. The industry’s response to cost pressures has in fact been to seek to increase load factor while driving down other operating costs, and while those pressures might under conventional models be expected to lead to increased fares and possibly to reduced demand, despite marginal trading conditions highly competitive market dynamics forced overall US fares down by 12% between 2000–2005 (*Source: ATA*). This has had its parallel in the influence of no frills carriers in the UK, although the European market, with a greater passenger emphasis on service quality, has allowed network operators to maintain a wider pricing and cost premium over no frills operators than has been possible in the US. While some US domestic services were scrapped following the start of the sharp fuel price rise, their operators merely transferred capacity to more profitable international flights and within a few days even the shelved domestic services were restored. US load factors have risen markedly, and while emissions per passenger have reduced, the number of emitting flights has increased.

15. It appears clear on the basis of the above evidence that a green tax would have to be levied at a very high rate—perhaps upwards of 150% on fuel—in order to prompt a demand reduction sufficient to cut load factors to a level where flights become uneconomic and are consolidated or cancelled. It is possible, however, that where substitution between transport modes is relatively convenient[s3]—for example, journeys of under 400km—increasing the cost of air travel would be more effective in encouraging a shift to less polluting modes, although any tax or charge would have to be sensitively applied in order not to prejudice communities (such as the Highlands and Islands) which may be highly dependent on the availability of air services.

Would taxes or charges stimulate fleet replacement?

16. If even steep increases in costs have not reversed movement growth, would they encourage airlines to move to higher-efficiency aircraft?

17. Leaving aside the high opportunity costs of accelerating planned fleet replacement, the evidence is that UK airlines are extending their fleet life, not because they want to continue using out of date aircraft but because the UK (and indeed the European) fleet is pretty much state of the art and more efficient models to replace the key short-medium haul workhorses of most UK carriers (the A320 and B737 and B757 families) are unlikely to be launched for several years. While the efficiency of an engine falls slightly over time, dependent on maintenance standards, there is little environmental benefit in replacing an eight year old 757 with a new one if lower-impact types are not yet available. The known potential for near to medium term advances in engine and airframe technologies could, in our assessment, radically mitigate climate change impacts (cf GBD’s 2006 Annual Report: <http://www.greenerbydesign.org.uk>). However, manufacturers do not believe the incentive yet exists to commercialise them or to invest in higher risk research. That incentive—whether by market dynamics, incentives or regulatory standards—must be created if a substantial improvement in environmental performance is to be achieved by 2030.

Would taxes and charges encourage fuel saving?

18. At such a significant share of operating costs, airlines currently need no incentive to save fuel and they all have fuel saving schemes. The November 2006 DfT review of Continuous Descent (so-called "clean flying") and the introduction of the EU Single Sky system will, in our assessment, do more than any tax to reduce fuel burn.

CONCLUSION

19. It is important to assess the likely effectiveness of green taxes sector by sector, not on the basis of broad economic theory. Those who advocate green taxes or charges as a mechanism for improving aviation's environmental performance have not to date adduced any evidence based on market performance that supports their contention.

20. Ahead of next generation technologies coming on stream, if green taxes were to stimulate an improvement in environmental performance they would have to prompt a reduction in demand to the extent that load factors would fall to a level at which services would be consolidated or cut. The reverse has occurred. While this may be an inconvenient truth to advocates of green taxes on aviation, market evidence suggests that the sector has been highly resistant to classical economic signals in the face of significant cost increases.

21. Government's elasticity assumptions have been over-optimistic. The likely "movement elasticity" of air travel in response to tax and charge-like signals is very low. We would be happy to assess evidence to the contrary.

22. It is however possible that for journeys of under 400km where rail and bus alternatives are available, increasing the cost of air travel might be effective in encouraging a shift to lower-emission transport modes.

23. The funding of offsets[s4], while not influencing aviation's performance, is an example of beneficial green taxation provided the efficiency of the funded projects is properly assessed. Standards are being developed that will lead to a more uniform market and it is possible that such schemes could complement emissions trading. While it is likely that transaction costs will rise, offsets offer a way of achieving environmental benefit at a low cost. Moreover they can be taken up immediately and could carry a strong message to consumers not of simply assuaging any guilt associated with air travel but to encourage careful consideration of the reasons for flying.

24. There may be a role for hypothecated charges in order to accelerate improved efficiency through, for example, air traffic control improvements or support for technology research programmes; but taxes and charges, unless hypothecated (and possibly not even then) are unlikely to persuade manufacturers to accelerate development of step-change technologies because the opportunity costs of not optimising revenues from current and planned aircraft models are so high. An approach focusing on regulation (for example, the International Civil Aviation Organisation's NOx standard has significantly influenced Rolls-Royce's engine design programme) and incentives is needed.

Air Travel—Greener By Design Group,
Royal Aeronautical Society

January 2007

Memorandum submitted by Tesco (CIT 51)

1. We welcome the Environment, Food and Rural Affairs Select Committee's inquiry, *Climate Change: The Citizen's Agenda*, and the opportunity to share our views on tackling climate change, and in particular on the role of the individual or citizen.

2. Our response draws on research that we have recently undertaken with customers and opinion-formers on tackling climate change. This research focused on public attitudes on where responsibility rests for tackling climate change, the role of the individual, and the barriers to, and opportunities for, greater individual action.

3. Tackling climate change is a huge international and domestic challenge. All parties—businesses, individuals and governments—have a duty to play their part.

4. Tesco is committed to playing a leadership role on this issue, in particular by innovating and investing in sustainable technology; sharing our knowledge; and using our relationship with our customers to empower ordinary people to take action. We have a target of reducing our energy use in our buildings (kWh/sqft) by 50% by 2010, against a baseline of 2000. We have established a £100 million fund for investment in sustainable environmental technology. We have also made progress on our environmental stores, with a target of building the most environmentally-friendly store in the world.

PUBLIC UNDERSTANDING AND ENGAGEMENT

5. Climate change has risen significantly in public and political salience and is increasingly an issue that our customers care about and want to play their part in tackling.

6. Our research has shown that awareness of global warming is high, with 9 in 10 people saying they had heard a lot or a fair amount about it recently. It also shows that global warming is perceived to be the most immediate threat to life on earth after terrorism.

What are the Barriers to Action?

7. It is clear from our research that most people believe they can do more to help tackle climate change. 71% say they do not feel they are doing everything they can. There are therefore huge opportunities if we overcome the barriers currently preventing people from doing more and inform, encourage and empower them to take action.

8. These barriers include:

- (a) **Lack of knowledge about the issue and understanding of technical nomenclature.** Despite the growing awareness about climate change, there remains a lack of understanding among the public about some of the more detailed issues. Our research showed for example that half of the general public did not know what a carbon footprint was, or what carbon neutral meant.
- (b) **Uncertainty about the role that individuals can play.** Our research revealed a lack of understanding among the public about what they can do as individuals to make a difference on climate change, with a sense that individual action cannot influence a global problem. Of those questioned, a third claimed that they did not know enough about what they could do to help stop global warming, while over half of those questioned felt they did not have enough information to make greener lifestyle choices. There was a feeling that individuals could not make a difference and that the world at large needed to take action.
- (c) **Cost and simplicity.** Positive environmental choices—be they recycling, buying energy efficient products or switching to renewable sources of energy—are often not the simplest choices. They are also often not the cheapest. Our research shows that having to pay more to be green is a fundamental barrier to action and that incentives will have a key role to play in encouraging individual action.

What can Business, the Government and NGOs do?

Partnership

9. Consumers want help—from businesses, Government and NGOs—to do more in the fight against climate change. They want to be more sustainable and want help to make sustainable choices.

10. A number of environmental NGOs have achieved a great deal over the years in fostering the idea of green consumption. Government, business, as well as NGOs, now have a role to play in making this idea mainstream, mobilising and empowering the many to take action, rather than just the few.

11. Raising public awareness, understanding and therefore engagement on the issue of climate change is an area where we believe that effective partnerships between businesses, the Government and NGOs could really deliver results.

Government

12. The Government could perform a valuable role in supporting green consumer choices by providing the right incentives. Our research shows that incentives and financial considerations can significantly drive customer behaviour, with 40% of customers claiming that knowing a product saves money on energy bills in the long run would motivate green purchasing, and a quarter claiming that a price promotion would influence their decision.

13. Financial incentives could, for example, be provided for consumers through VAT reductions or exemptions on energy-efficient products. In fact the European Union recently published an action plan recommending this approach. Our research shows that reducing the price differential between green products and standard choices will influence consumer behaviour, and help manufacturers respond to pressure for more sustainable products.

14. There is also a significant role for the Government to play in incentivising businesses to adopt green technology, both in terms of their own energy efficiency and in the products offered to consumers.

15. Government should act on its proposals to streamline the planning system to make it quicker and simpler to secure permission to install renewable technologies such as wind or solar power—both in domestic and non-domestic properties.

16. The Government, in partnership with business and others, should also make it a high priority to develop training and accreditation of skills in sustainable technology to address the skills gap that we currently face and which is impeding progress in rolling out and maintaining green technology.

17. Incentivising businesses in this way will not only help deliver carbon savings in itself, but will also help businesses set an example to individuals, mobilising them to take action too.

Business

18. Business has a key role to play in setting an example to customers. From this month, three-quarters of the Tesco distribution fleet is running on a 50% biodiesel blend, the highest percentage blend of biodiesel used by any major UK distribution fleet. We hope this will stimulate others, our customers included, to use more environmentally friendly fuels. Indeed, we are the UK market leader in the sale of biofuels to customers and already offer a 5% bioethanol mix at 185 petrol stations at the same prices as standard unleaded. What's more, all 181 of our filling stations in the South East and North West of England have been converted to a biodiesel mix.

19. Similarly we hope that when people visit our environmental stores they are inspired by what they see to do their bit at home too. In our most recently opened environmental store in Wick for example they will see a range of innovations from wind turbines and dimmable lighting, to rainwater harvesting and photovoltaic panels.

20. In addition to setting an example for our customers and reducing our own carbon footprint, we can also play a key role in empowering customers to take action themselves. Sir Terry Leahy our Chief Executive will be making a keynote speech on 18 January outlining some of our plans for the future but, by way of example, we are already:

- Using price promotions to help customers switch to low-energy light bulbs
- Developing a carbon calculator for children in partnership with Defra and the Royal Society for Arts which will help users quickly and easily understand their own environmental impact and understand some simple steps that they, and their families, could take. It will also support a linked range of lesson plans on climate change and citizenship and provide the basis for a national competition where schools/classes compete for green prizes based on behaviour change.
- Investigating how best to roll out green Clubcard points during 2007. This builds on their successful introduction to reduce the number of carrier bags given away (a scheme which involves customers being rewarded for every carrier bag that they do not use with an extra Clubcard point).

CONCLUSION

In summary, we strongly believe—and the evidence suggests—that the scope for individual action to tackle climate change is considerable. However, a lack of understanding about what can be done at an individual level, and a fear that individuals are powerless to make a difference, are real barriers to action. The fact that green choices are often neither the easiest nor the cheapest choices to make is a further, and considerable, barrier.

Raising awareness about the difference that individuals can make and empowering and mobilising them to take action, through both removing barriers and introducing incentives, must be the way forward if we are to meet the challenge posed by climate change.

We would be more than happy to discuss our thoughts with the Committee in more detail, and indeed to show you some of the initiatives that we are taking forward in store.

Tesco

January 2007

Memorandum submitted by Cheyne Capital Management Ltd (Cit 53)

I write you today in connection with the Environment, Food and Rural Affairs Committee's inquiry into climate change: the "citizens agenda" Tackling climate change and would appreciate an opportunity to present oral evidence at one of these future inquiries. Cheyne Capital Management is an FSA regulated stakeholder and participant in the wholesale purchase and sale of high quality, quantifiable, permanent, robust and additional verified emission reductions ("VERs") we would like to participate in the stakeholder workshop planned by Defra in January 2007.

While we agree with the Environment, Food and Rural Affairs Committee's view that: (1) personal and corporate climate change education, (2) behaviour modification, (3) energy efficiency programs and (4) governmental regulatory practices individually contribute significantly to a solution. We further believe, in order to achieve a meaningful, coordinated and scalable response to climate change mitigation these four components must be implemented in conjunction with a robustly verified and certified Environment, Food

and Rural Affairs Committee approved voluntary offset program containing voluntary VERs being brought to market by creditworthy providers who may be held legally and financially accountable for the offsets they offer. This presents an enormous opportunity for Defra to shape broad based international policy consensus regarding the creation and acceptance of high integrity internationally accepted and fungible voluntary VERs.

As I discussed, at the All Party Parliamentary Climate Change Group meeting (“APPCCG”), hosted by Colin Challen MP and Chairman of APPCCG in Portcullis House on 5 December 2006, many certified and verified voluntary VER projects have substantially more positive attributes, ranging from project quality to sustainable development, than the more than 60% of current pipeline European Union Emission Trading Scheme regulated certified emission reduction (“CER”) projects that create CERs from HFC-23 destruction in China.

The following statement taken from the Defra website is problematic because: the reasons stated in the previous paragraph and the statement fails to consider or acknowledge the current robust verified and certified voluntary VERs, by United Nations Framework Convention on Climate Change (“UNFCCC”) accredited designated operational entities (“DOEs”), based on voluntary protocols which were designed to mirror the Clean Development Mechanism protocols:

“Government recognises the UNFCCC and the CDM as the highest internationally agreed standard for emission reductions and is choosing to develop a facility to invest in CDM projects. The Government is aware that the number of CDM projects available is limited at present and that offsets are also being offered on the voluntary market. We recognise that the Voluntary offset market has value for raising customer awareness of the climate change impact of their activities. We would encourage those in the Voluntary sector to adopt measures such that the assessment of their emission reductions mirrors the CDM process to ensure the integrity of the voluntary offsets being offered”.

Development of an arbitrary Government Code of Best Practice for creditworthy and financially accountable carbon offset providers that excludes Government approved voluntary VERs or fails to endorse high integrity voluntary VER standards that guarantee real, robust, quantifiable, verifiable and permanent voluntary emission reductions based on clearly defined methodologies and sound principles has the potential of undermining current and future investment in new technologies and project development in the international voluntary carbon offset markets. The Environment, Food and Rural Affairs Committee’s leadership role in driving the growth of an internationally fungible voluntary VER offset reduction market by providing the investment community with a spectrum of tools which provides a strong business case fuelling explosive growth and investment in new technologies and project development in the voluntary carbon sector. This policy is consistent with the UK regulatory framework, making the UK a global leader and example in environmental stewardship amongst developed countries. This initiative will boost enterprise and the citizen’s awareness to climate change mitigation. Leading by example makes a much more powerful statement. To that end, I would appreciate an opportunity to present oral evidence and elaborate on the topics I briefly touch upon in this outline.

Cheyne Capital Management Limited is one of Europe’s largest fund management groups. Cheyne Capital today manages net assets of over \$9.5 billion in products such as its Special Situations, Long/Short Structured Credit, Pan-Asia Long/Short, Global Opportunities, Multi-Strategy, Multi-Strategy Leveraged & various convertible bond funds. In addition, Cheyne Capital manages gross assets of approximately \$26 billion in its corporate CDO & ABS programs. Cheyne Capital Management Limited is authorized & regulated by the FSA in the United Kingdom.

Cheyne launched the world’s first voluntary carbon offset investment fund, the Cheyne Carbon Fund (“The Fund”), focusing on sourcing, purchasing, warehousing & selling of verified & certified VERs, in August 2005.

- Cheyne’s voluntary offset program funds only verified projects with genuine environmental benefits & facilitates additional investment towards sustainable development.

The Fund creates scalable voluntary greenhouse gas (“GHG”) offset solutions that enable large industrial companies & corporate end-users to mitigate their carbon liabilities while managing forward price volatility & delivery risk. The Fund has developed and provides standardized International Swap Dealers Association (“ISDA”) based VCU sale and purchase transaction documents.

The Fund provides liquidity in the growing voluntary carbon offset market by providing verified high quality, voluntary emission reduction offsets in large scale to industrial, institutional buyers and retail offset providers.

In March 2006, the Voluntary Carbon Standard Version 1 (“VCS”) was launched by the World Business Council for Sustainable Development, the International Emissions Trading Association, the World Economic Forum, & The Climate Group.

Creation of the VCS and the Voluntary Carbon Unit (“VCU”) as fungible, uniform, tradable and standardized emission reduction offset units has removed the barriers to entry in the voluntary emission reduction space. The VCU allows financial institutions and large industrial corporations to protect themselves against reputational risk while using VCUs to mitigate their long-term carbon liabilities.

All VCU verification and certification protocols, on each and every VCU,—baseline settings and monitoring must be evaluated and interpreted only by official UNFCCC accredited Designated Operation Entities (DOEs) The fund only uses the top three of the nine internationally certified DOEs, which adds significant costs but creates certainty, reduces risk and adds an additional layer of performance insurance.

To create certainty, reduce risk and add an additional layer of performance insurance the Cheyne Carbon Fund registers and stores its VCUs in a secure global custody service, at The Bank of New York's VCU Registry ("BNY"), created to suit the most stringent requirements of institutional clientele in the financial services community.

BNY is the world's largest provider of custodial services to the financial markets and is the first bank to provide a robust and credible registry for the voluntary carbon markets. BNY requires proof of title and evidence of ownership chain back to the point of origination, as well as a warranty by the depositor that the emission reductions have not been previously sold or double-counted elsewhere, each VCU has a unique serial number similar to other similar securitized financial instruments such as a Treasury bills, notes or bonds. BNY holds physical custody of the title certificates and the project documentation. The BNY VCU Registry allows for transparent reporting of retired emissions reductions.

Cheyne Capital Management Ltd

January 2007

Memorandum submitted by Mike Ayala (Cit 54)

If the government is really intent on mitigating Britain's carbon impact, then it only makes sense that aggressive policy be introduced designed to be effective—not just to fulfil a perceived requirement or to be only seen as being proactive in this endeavour, but to cut through the fog of bureaucracy and apathy to achieve a rapid positive result.

Proposal:

1. Require new build projects to incorporate GSHP technology.
2. Encourage retrofit GSHP installations through meaningful grants to bring the cost of an installation to less than that of a typical gas boiler installation.
3. Remove tax from ground source heat pumps and installations.
4. Increase subsidies to other renewable energy or micro-generation technologies such as, solar thermal, photo voltaic, wind generation, etc, so that they are affordable to at least 80% of households. (In other words, engineer society so that these technologies are as common as cars, satellite dishes, and lap-top computers.)

In conjunction with proper insulation, GSHP technology offers the biggest bang for the buck when it comes to reducing household carbon-produced energy consumption. The reason is that the efficiency of a typical system is 400–600%. If one consumes a pound's worth of energy, one receives four to six pounds worth of usable heat. No other system available offers such high efficiency. It only makes sense to capitalise such efficiency and translate it into carbon savings.

If this is done on a national scale, Britain would more than meet its carbon reduction targets—and the government, if it wills, can engineer this to happen. Only a government can engineer this to happen quickly. The question is: Does this Government really want to reduce the national carbon footprint and dramatically reduce national dependence on volatile foreign energy sources and keep its national income within its own borders with the added benefit of a lower trade deficit?

Currently, GSHP technology, even with the government's present grant scheme, is prohibitively expensive for most households who would otherwise welcome such green technology (just as it is also for photovoltaic, micro-generation, or sealed vacuum tube solar panels). Part of the problem is the economy of scale. The stimulation from the proposed policy would start a cascade of positive outcomes reducing Britain's carbon impact, reducing the cost of the technology, and supporting the infrastructure required for such a change.

More than just pulling a great many homes out of fuel poverty, the knock-on economic impact would be fantastic: the money saved would be redirected back into the economy through personal spending, and the fiscal leverage of such spending is magnified through an economy, and increased spending means increased tax revenues. In this case everybody is a winner: the householder, the economy, the environment, and the government, and even the tax-payer, for in truth, the cost of fixing a damaged ecology will be massively greater to the tax-payer—if even possible—than a current pound of prevention.

Mike Ayala

February 2007

Supplementary memorandum submitted by Mike Ayala (Cit 54a)

In my last correspondence, I suggested the following proposal:

1. Require new build projects to incorporate GSHP technology.
2. Encourage retrofit GSHP installations through meaningful grants to bring the cost of an installation to less than that of a typical gas boiler installation.
3. Remove tax from ground source heat pumps and installations.
4. Increase subsidies to other renewable energy or micro-generation technologies such as, solar thermal, photo voltaic, wind generation, etc, so that they are affordable to at least 80% of households. (In other words, engineer society so that these technologies are as common as cars, satellite dishes, and lap-top computers.)

I think consideration should be given to the following:

Precautions should be implemented when establishing any grant or subsidy scheme. My experience would suggest that prices are artificially inflated when grants are involved. Twice I have found this to be the case. The first time several years ago I was shocked to receive a quote for cavity wall insulation through a grant scheme that was roughly three times the price of all other quotes I received from other non-grant associated businesses. Recently I received a non-grant associated quote for a 12kW ground source heat pump system for £4,700 plus £500 for installation. I also received a grant associated quote for an 11kW ground source heat pump system for £8,325. Both companies assure me that their machines are of the highest quality from long established European manufacturers. The sales representative for the higher quote responded indignantly when I told him the price of a the lower quote, "Well, that most certainly will not be from a grant-approved installer".

Setting aside the fact that I think both systems are greatly overpriced considering what one would receive for such an offer, I fail to see how there can be £3,000 difference of value between similar products with similar warranties. I can only speak anecdotally, but there does seem to be great opportunity for abuse of government funds for grants and subsidies.

One possible way to avoid wasteful spending is for the grant scheme to procure the various technologies benefiting from bulk purchasing and hopefully superior scrutiny. Then grant recipients would receive the technology from the grant authority through contracted installers at a capped price. I am sure many legal hurdles would need to be overcome before such a system could be implemented, but it would surely provide a barrier against artificially inflated prices, and the tax payer would receive the best value for its money invested.

I do not know what the solution is, but I do know that the effectiveness of any program will be compromised when abuse and profiteering is allowed or tolerated.

Mike Ayala

March 2007

Memorandum submitted by BBC Radio 4: You and Yours (Cit 55)

You and Yours is BBC Radio 4's flagship consumer and social affairs programme broadcast between 12 noon and 1pm every week day lunchtime.

The programme has 3.181 million listeners per week. Their average age is 59. 56.1% of *You and Yours* listeners are female. 43.9% are male.

The social grading of listeners breaks down as follows:

- A and B: 36%
- C1: 36%
- C2: 14.4%
- D and E: 13.6%

INTRODUCTION

Between 30 January and 9 February, working in conjunction with the Environment, Food and Rural Affairs Select Committee, we gave our listeners the unique opportunity to contribute directly to the committee's inquiry into Climate Change—The Citizen's Agenda.

Our phone in programme "Call You & Yours"—which invited listeners to air their views on Climate Change—was broadcast between 12.00–13.00 on Tuesday 6 February 2007 on BBC Radio 4. We asked our listeners to give us their views on:

"The barriers stopping you from reducing your own personal carbon emissions"

RESPONSE

The response was overwhelming; within two weeks we received 908 emails, calls, texts and letters. They break down into 8 broad categories:

- 19% (175 listeners) had their own positive stories and ideas on what simple steps individuals could take to be “green”.
- 18% (167 listeners) responded to say it was government bureaucracy or red tape that was preventing them from cutting down their green house gas emissions.
- 16% (147 listeners) said money was the biggest barrier to them reducing their own personal carbon emissions.
- 14% (129 listeners) contacted us with “other” concerns including calling for shop buildings to turn off their lights at night to people considering vegetarianism as a way of cutting down carbon emissions.
- 11% (108 listeners) said their attempts to be more green were hindered by a failure to get hold of particular products or services.
- 10% (92 listeners) were sceptical that their actions would actually make a difference.
- 7% (66 listeners) pointed out that advice given on cutting down green house gas emissions was often confusing.
- 2% (24 listeners) emailed to tell us of their own successful community projects to reduce carbon emissions.

1. Examples of those with positive stories and individual ideas

The most common idea was to make small changes in the home. Many listeners spoke about turning off lights, cycling to work and turning down their heating. Some listeners even went so far as to suggest new legislation to make more of us take this sort of action.

George Elder from Powys in Wales

He called for every citizen with a car to be provided with a ration book to stop excessive use of the car cutting down on fuel emissions.

Stella Woodman from Norfolk

She believed she was very energy aware having low energy light bulbs and turning off equipment when not in use. But she also called for everyone to have a fixed carbon allowance to stop those with more money consuming more energy.

Judith Proctor

She is surprised by how much money she has saved since becoming more environmentally friendly. The biggest change was buying a small plug in meter from Maplin which told her how much wattage was used keeping appliances on standby—this was her incentive to switch off appliances at the plug. She also brought thicker curtains and poured a mug of water into the kettle drew a line where the water came up to and now only boils the amount of water she actually needs. She also got rid of an old fridge because it used a phenomenal amount of electricity.

Kate Boothby

She wants the UK to look to countries like Norway who she says have insisted on alternative energy sources being incorporated in all new builds. She says she has tried her best by insulating her house but wants the government to do more.

David Richardson

He was interested in the government encouraging citizens to surrender their driving licences and passports for a “Green Medal” to encourage people to use their cars more frugally.

2. Examples of those whose biggest barrier was red tape and bureaucracy

Brian Knight

He wants to see fast tracked planning permission or a simplified process for people like him. He wants to look into having a wind turbine or solar panels installed. This he says will enable local residents to get on with reducing their carbon footprint without being put off by the red tape.

Lorraine Kitty

She explained that she had already invested ten thousand pounds in improvements including double glazing and a new boiler to reduce her greenhouse gas emissions. But when she looked at getting solar panels she went to her local council for a Warm Front Grant the estimate came through at £2,600 with only a £400 grant. Her main complaint was that if you want a grant there seems to be no choice of installer and therefore no competition to prevent profiteering.

Patricia Howe

She says her local council was offering free cavity wall insulation to the over 60's in her area. She has been busy trying to do her bit by getting double glazing, low energy light bulbs etc. But her house is built of sandstone with a 10ft x 4ft rear brick-built porch which faces north and is quite cold. But she was told she couldn't have that insulated for free because it doesn't constitute 50% of the building.

Tony Hirst

He already has solar panels and wanted to take the next step and install a wind turbine. However his planning application for a 2KW machine was rejected by Anglesey County Council on the grounds that he lives in an area of outstanding natural beauty. This is despite the fact that he has a large telegraph pole in his garden which is higher than the wind turbine would be.

Chris Cheeseman

He says that he wanted to increase the roof lagging to 6" depth and applied for a discretionary grant. But he was told that the year's allocation had already been spent and that he needed to get three approved companies to crawl through his loft to give him a quote. So he decided to do it himself but found that he wasn't exempt from VAT which left him feeling very disgruntled.

3. Examples of those who say money is their biggest barrier

Ed Blacker

He explained that two years ago he heard about the clear skies initiative which promised to give him a grant of 50% for environmental energy projects. But having committed himself to installing photovoltaic solar panels he revisited the site to discover that the original scheme now has a monthly cap put in place. So the scheme has proved too popular and now Ed has to find the other 50% to fund his project.

Eve Bendall

She successfully had solar panels fitted and after seeing the drop in her gas bills decided to look at getting photovoltaic roof panels fitted. She says they are very expensive and even though there are grants allocated each month the money tends to run out in the first few days of that month.

Pam Golden

She believes the majority of people would happily install solar panels or solar roof tiles were it not for the cost but at the moment only the minority do it because only a few can afford to take that step.

Kay Jackson

She says the cost of going green is considerable. She has been trying to restore a derelict farm in Fife and wants to install sustainable energy measures including a wind turbine. They need to have a mains electricity supply to feed in any excess electricity they make but don't use. However Scottish Power is demanding more than £35,000 to do this work—an amount they can ill afford. So despite their commitment they are being held back.

Helen Taylor

She says she has recently changed her central heating from oil fired to wood pellet fired. She believes she has saved around 8 tonnes of CO₂ emissions per year. And she was lucky enough to get a grant of £16 thousand pounds. However she says government initiatives pay the same amount for other technologies like solar panels which don't have as good a return—more people seem to be encouraged to look at getting solar panels etc and not wood pellet fired central heating.

*4. Examples of other concerns***Colin from South Wales**

He says excessive street lighting wastes more energy than stand-by home equipment. Why do we need roads to be lit up all night?

Kat Himmel

She says she adheres to a vegan diet which is organic and primarily local. More people should consider this.

Paul Sutton

He says the only solution to our energy and green house problems is to go Nuclear.

*5. Examples of those who could not access services or products***Thomas Costick**

He says he has been considering having solar panels fitted to his roof but a big inhibitor is the lack of standards for such products and the firms that supply them. He thinks more people would adopt this technology at home if there was a reputable one-stop-shop for these products and their installation.

Keith Hicks

He says he would switch off from standby his DVD recorder, Sky Box and TV but says he would lose all the settings and have to reprogramme them each time. Why don't manufacturers make it easier for people?

Suzanne Etherton

She says she is doing up two flats and trying to install grey water re-cycling units. She has tried her water company and local planning and building merchants but no product is available. She has sourced some products but they are only sold in Holland. One supplier in the UK says there were no clear legal guidelines about grey water quality in this country.

Jacqui Watson

She says she has been trying to find someone Kent based to install a wood pellet boiler at her house near Maidstone but despite seeing four different plumbers not one has been able to come back to her with a quote. She says if she can't find a suitable plumber how can she possibly proceed?

Dag Saunders

He says it's been two years since he had photovoltaic cells fitted across their south facing roof together with solar panels for water heating. But he is still waiting for his electricity supplier to properly monitor the electricity he is generating whenever someone comes to read the meter they say they have no knowledge of electricity generation.

Catherine in Bristol

We tried for two years to get two wood burning stoves installed. We got one quote in that whole time for £3,000 per stove. The difficulty was that the people who owned our house before had removed the two chimneys from the roof, so we had to have chimney lining from the stove right up through the chimneys and out of the top of the roof to a height of a metre. In the end we hired a scaffolding tower and did it ourselves. It wasn't easy.

6. Examples of sceptics

Katherine Hammond

Why is it that, while the public are constantly being urged to save energy, businesses appear to do little? Shops in towns and cities everywhere, for example, are still fully lit at night and their central heating systems are on full blast all day.

Wendy Birks

What discourages me from taking action: When I heard that a lot of UK recycled plastic was being sent 5,000 miles to China where it is processed causing huge environmental harm and human misery.

Bob Hyslop

When will the Climate Change lobby give proper treatment to the causes of the rise and fall of the 3 Ice Ages and the variations in temperature over the last millennia? Undoubtedly, these were due to the Sun's activities so how can humanity be responsible for 90% of the current situation?

Michael Williams

When I hear experts on climate change saying "we should only half fill our kettles" or "turn our lights of at night" to save the planet, I despair and worry for future generations. It is "people" who pollute and the fewer people there are in the world the less pollution.

Peter Henson

I would readily give up my car if we had an affordable, safe train service and a safe and extensive cycle network.

7. Examples of listeners who feel their lack of knowledge stands in their way

Anna Thomas

I have recently been looking into changing our electricity supply to a supplier of renewable power as I heard advice on the radio that this was a better solution initially than generating electricity ourselves. At first the alternatives looked good and could save us money but when I visited the Green Electricity Market Place website I learnt that most of the "green" suppliers were selling you renewable power which was part of the 5% that they were obliged to produce anyway. The only supplier that produced 100% renewable power was predictably more expensive. For a clear conscience it seems that this might be the only one to go for but the information available is a little confusing.

Richard Howarth

Key is getting individuals to take responsibility and relates to wider issues, such as consumptions and waste. There are big problems with this related to education (the environment is rarely taught in business schools at University and the issue is marginal) and the self interest of all parties involved; business, individuals who want to maximise their own welfare and governments.

Victor Franklin Kitts

Wind Turbines are NOT friendly. It takes at least 10 years to generate the energy which has been used to make it. Then it has to be repaired. It is a bad decision. Government and particularly the BBC should help people make INFORMED decisions.

Barbara Cooper

We are going on holiday to Italy this summer. We really didn't want to fly but couldn't find a practical alternative or any information to help us.

Teresa Belton

It is difficult to know where to get comprehensive, reliable information about taking green actions in the home. Eg on insulation, solar panels etc.

*8. Examples of listeners own successful community initiatives***Lorely Lloyd**

Many of us have been trying to do our bit for the environment in isolation. Now using the Transition Towns community action model we can work together locally to produce and implement an energy descent plan for our towns or bioregions. Transitiontowns.org list several towns including Totnes, Falmouth, Penwith etc transitionculture.org shows the practical steps for relocalisation and powering down to establish a low carbon based future to both protect our environment and prepare us for the impending reduction in supplies.

Pauline Fothergill

Most people want to do something but they don't know what. I lead the Thatcham Environment Team and our number priority at the moment is to appoint a "Make Thatcham Green Officer"—a sort of Go Green Guru. Someone that people can trust to go into their homes and carry out a green audit and recommend appropriate ways that they can reduce their carbon emissions.

Chris D'Avray

We are organising an Eco Awareness Day in Lingfield, Surrey, on the 9 June with an exhibition supported by the eco industry and a parallel conference to give local people the opportunity of seeing what simple things they can do in their own homes to reduce carbon emissions in our village. Lingfield has been presented with the Best Village in Surrey award and we are proud of what local people can do. I believe that going green locally can make all the difference.

Diana Berriman

I work for a community group call Llanidloes Energy Solutions which wants to tackle climate change on a local scale. We have been encouraging local people to reduce energy wastage as part of our energy efficiency campaign, which also gives us an idea of the energy use in the town. The main problem we are experiencing is the lack of funds to support such a venture, and the high capital costs of the technology, connecting to the grid and ancillary works. Our overall aim is to be carbon lean as a town, and this is proving more and more difficult as legislation gets in the way and lack of funds.

Liz Reason

We have set up Sustainable Charlbury to help individuals, households and the community as a whole to reduce the CO₂ emissions. We have several projects in development—a different kind of home energy audit, street champions, an organic garden, and a light bulb library—an e-missions statement.

You and Yours feedback:

This programme prompted one of the largest responses we have had on "Call You and Yours". The majority of emails and phone calls came in during the one hour broadcast (approximately 500 emails and 200 phone calls). The vast majority of listeners who contacted us were enthusiastic about reducing their own

green house gas emissions. They were also keen to point out the barriers and even had suggestions of ways to reduce these. Most were keen to be involved with the radio programme because of the potential to help shape the Select Committee's final report.

Producer: Rabeka Nurmahomed
BBC Radio 4: You & Yours

February 2007

Memorandum submitted by Marianne O'Brien (Cit 56)

I heard some of the question sessions on You&Yours yesterday, but was unable to contribute.

There is a query that both I and probably many other similar individuals would like to put;

I am 74 and partially disabled, one of the resulting conditions means I need a slightly higher ambient temperature that I used to, although can manage with about 16deg. I live in a ninety year-old detached bungalow, and over the years I have had cavity wall insulation, and put about five inches of glass fibre insulation across as much of the loft as I was able, but would really like to double that depth.

The house is still very cool, especially in the kitchen which is too small to put in heating—the temperature in there this morning when I was stirring the porridge was 7degC, and still is this evening as I write.

I have asked the borough council to further insulate the loft, but they refuse to “top it up”, only install in a dwelling that has none.

I have always lived consciously aware of protecting the environment as much as I'm able—sold my car ten years ago when I retired, (even when still driving I always walked under a four mile radius), now help to promote bus travel in the area, have always composted everything from garden and kitchen waste to newspapers and cardboard, shredded woody garden prunings, have energy saving light bulbs, rad. stats., buy few packaged goods etc, so I feel I should have that extra bit of help towards improving both the environment and the local housing stock!

Marianne O'Brien

February 2007

Memorandum submitted by Mr P C Boggis (Cit 57)

As I expressed at the inquiry, I am extremely concerned that the UK may be adopting a punitive Carbon Tax, as it can put us at a further trading disadvantage in world commerce. I also have reservations about the fact, that this tax may be used by government as a further source of revenue.

As an older person (75) neither my partner (78) or I can afford to get cold, at temperatures below 16 degrees C, hypothermia starts to set in. We dread the thought of Carbon tax or rationing of energy in any form. We are already limited by what we can afford and have lived in highly insulated houses since 1973 and used low energy lamps throughout the house for over ten years.

We would like to proceed with wind energy generation, even though we live in a sparsely populated area we feel the planning position may be impossible. Our idea would be a unit of about 50kw grid connected giving us a completely negative carbon footprint. In the past I have tried to get planning for a Wind farm 5x500 kw units in an unpopulated area only to be thwarted by dictatorial bureaucracy.

Politely, I have concern at the political rush that is taking place. I do not deny some Global warming and sea level rise. We had a warm January, 1916 was warmer. The sea level has been rising at various rates for approx 20,000 years much of that time at faster rates than today and long before the industrial revolution. If we go back 140,000 years the sea rose at even much faster rates, as far as we know the human population at that time was miniscule as compared with today.

As in coastal matters, I find the money being spent on consultants immoral. I fear the same goes for global warming the more so called experts shout the more money government pumps in, it used to be known as “Crowing to feather ones nest”. They have the ear of Government and appear to be causing panic and waste in ungodly haste to mislead the public and divert attention from more urgent matters.

To see people being encouraged to spend over a thousand pounds on tiny wind generators that produce minute amounts of energy, it is little more than a con, of course it is government backed, hence it must be right in the eyes of the public, you are trusted to evaluate and guide. Yes to discharge less Carbon into the atmosphere is important internationally. Every little helps providing it does not waste money that could be spent on better insulation or shares in truly productive wind farms or similar efficient none Carbon processing energy generation equipment. Value for money matters.

To use this panic pressure as a massive diversion and tax source to nations disadvantage makes mugs of us all.

I wish you and your committee well in all your endeavours, but please take a breath and be sure the nation is being guided at all levels not conned.

P C Boggis

February 2007

The following memoranda were received as part of the Committee's outreach programme from individuals following an advertising campaign inviting individuals to give oral evidence on 31 January 2007 at the University of East Anglia, Norwich. (Please see Ev 266 for the evidence taken on the outreach visit.)

Memorandum submitted by Mr Patrick J A Gowen (CRED 2)

I would like to respond to your invitation to attend and apply to give oral evidence to the Environment, Food and Rural Affairs Committee "Tackling Climate Change" consultation at CRed, the University of East Anglia, on 31 January 2007.

I would wish to address the issue of continuing offshore aggregate dredging that is resulting in offshore sea deepening and increasing beach draw down, so undermining our sea defences and causing the loss of housing, seaside trade and amenity at a time of increasing sea rise, worsening climate and cutting the sea defence budget, this coming under your point "The obstacles faced by people and households who are trying to make a difference".

Mr Patrick J A Gowen

January 2007

Memorandum submitted by Henry Cator (CRED 4)

I would like to respond to your invitation to attend and apply to give oral evidence to the Environment, Food and Rural Affairs Committee "Tackling Climate Change" consultation at CRed, UEA on 31 January 2007.

I am Chairman of the Royal Norfolk Agricultural Association and would like the opportunity to ask ways in which the farming and landowning community can help reduce carbon and provide crops which could be used to fuel local power generation plants and renewable resources that could be used in the building construction industry.

The land is an asset which is capable of producing food, fuel and timber. Are we making best use of that resource?

Henry Cator

January 2007

Memorandum submitted by Dr Rupert Read (CRED 5)

I am delighted that you are coming to my University to "take public evidence", on 31 January.

I am a Senior Lecturer teaching environmental philosophy at UEA. As such I have naturally a number of concerns, interests and expertises that I would love to discuss with you . . . but few that could fit into five minutes . . . The one that I would like to focus on, detailed below, is something which COULD however be very briefly presented.

This item is essentially my concern that the British Government is lulling the populace into a false sense of security over dangerous climate change, by misleadingly claiming that the fact that it is perhaps going to meet the Kyoto target in narrow technical terms implies that it is actually reducing GHG emissions—which is not the case.

Let us take the central example of the recent written [eg in his *Independent* article of a few weeks back] and verbal pronouncements of David Miliband.

I was very concerned to hear David Miliband painting a rosy picture of Britain's record on carbon emissions on the *Today* programme, towards the end of his 8.10 interview on Wednesday 20 December. His claims are in my view plain false. At the very least, they are highly tendentious and deeply misleading (I explain why, below). They went by without demur from Mr James Naughtie, the interviewer; this is seemingly the normal pattern, on these occasions. I hope that the 31 January event might help the media to understand better what is actually happening to our atmosphere, at present, courtesy of the UK etc.

David Miliband claimed that the UK had achieved major cuts in greenhouse gases since 1990 (incredibly, he quoted alleged figures of Britain being on course to achieve 16–17% reductions in CO₂ emissions by 2010, and even more incredibly, 24–5% greenhouse gas emissions reductions by 2012! You can verify that this is what he said, by checking the “Listen Again” facility on Radio 4's website). In these claims, Miliband was not challenged by James Naughtie, over the leaving out from the figures of embodied energy, the quite proper inclusion of which would make a complete nonsense of any such notions (Britain is “exporting” its carbon emissions to China etc). In fact, as I say, he was not challenged in any way.

Even on the most generous figures available to the Government (in particular excluding international aviation—which was the very topic of the interview—see below) CO₂ has more or less flat-lined since Labour came to power, rising in recent years, and thus showing an overall small rise and is only slightly (a few percentage points) below 1990 (Kyoto baseline) levels. The greenhouse gas “basket”, which Mr Miliband is probably referring to is down more significantly on 1990 but, again, excludes aviation and shipping. Some newspapers and researchers suggest when those are included there has been little or no reduction even since 1990.

In fact, the *New Statesman* suggested just this week [^[1] <http://www.newstatesman.com/200612180008>] that there has been and remains a systematic massive under-estimate of Britain's contribution to CO₂ emissions from air travel, because only aircraft taking off from Britain are counted. That sounds reasonable, until one notices that 70% of the passengers taking off and landing in Britain are Britons. I.e. The DfT and Defra ought to be attributing 70% of the emissions of planes taking off from and landing in Britain to the UK. This makes a huge difference. Between 1990 and 2003, estimated CO₂ emissions from aviation rose by 90%, a staggering increase, but even then the government stats do not take into account the multiplication factor of the impact of emissions at high altitude, nor the full effects of “radiative forcing” [these are discussed also in the *NS* piece—they were made clear by Caroline Lucas, Green MEP, in her interview on *Today* just an hour before Mr Miliband spoke, and again the interview was conducted by Mr Naughtie—again, “Listen Again” will verify this], let alone the crucial point made in this week's *NS*!

So Mr Miliband's claims are at best partial and very deeply misleading. If the full effects of the increase in aviation, avidly promoted by this government, are included, then it is quite possible that there has been an increase in global warming gas emissions due to Britain since 1990, and there certainly has since 1997. A long long way from what Mr Miliband claimed, on *Today*, and has claimed recently in several other speeches, press releases, etc.! For how can Britain possibly be “on course” to achieve the substantial reductions he claims, in just a few years from now, if in fact there has been no reduction at all, since New Labour came to power?!

As I say, the key proof of Mr Miliband's deception is already available in the government's own—in fact, in his own department's—figures: Please would you take a look at the DEFRA CO₂ emissions inventory figures which are available at [^[2] www.defra.gov.uk/environment/statistics/globalatmos/download/xls/gatb05.xls]. This shows that UK CO₂ emissions have increased from 149.6 million tonnes of carbon (MTC) to 152.5 MTC between 1997 and 2004 (from which the latest figures are available). These figures, deeply-problematically, don't include international shipping and aviation (which are outside the Kyoto protocol), but those can be found at the bottom of the spreadsheet expressed as “bunker fuels”—aviation bunker fuels have of course increased very significantly since 1997 reflecting the growth of the aviation industry [whereas the reported figures on shipping (expressed as “Navigation”) have decreased but this is problematic as it is difficult to pin down the use of bunker fuels for shipping down to an individual country's activities (as it is cost-effective for ships to “shop around” for fuels from country to country whereas this isn't the case for planes)]. In other words, CO₂ emissions (and even more so, effective ghg emissions) have actually gone up since 1997, since the start of this Government's term of office; and when aviation is fully and properly included, along the lines set out by Caroline Lucas MEP an hour before Mr Miliband came on air on the morning I am discussing here, they have gone up fairly drastically.

I have tried to engage Mr Miliband into discussion of the points I am making here. “Surprisingly”, he is not replying to my emails. I would be most grateful if I could make these points clear to you, and ask for your help in getting the Government to get more honest over this most crucial of questions, in defining the parameters of the problem we are confronting, *vis à vis* Britain's contribution to dangerous climate change and its mitigation.

The question I would like posed to Mr Miliband, which I hope that members of the Committee may take forward, after my appearance before the Committee, is “Would you please explain why you have tried to mislead the British populace as to your Government's record on CO₂ emissions? Would you accept that you are plainly NOT “on course” to achieve the large reductions in CO₂ emissions, let alone effective ghg emissions in total, because (for example) the figures you have been using, incredibly, exclude aviation, and in any case your methodology for calculating the warming effect of aviation emissions is flawed? Would you please apologise publicly for your deceptions, and make clear to the media that your previous statements

are wrong, and that the full picture shows that carbon emissions, let alone GHG emissions measured in full including the “radiative forcing” effect etc, have very clearly risen under New Labour, such that as of now we are not “on course” to make any significant reductions in GHG emissions relative to 1990, let alone to 1997, by 2010 or 2012? Is that the rosy picture you have been painting, over the last couple of months, of Britain’s alleged positive contribution to the struggle to present climate change, is wrong, and that actually Britain’s ongoing “contribution” continues to be: a continuing contribution *to dangerous climate change itself*, a contribution continuing at roughly the same level of net impact upon ongoing global over-heating, each year, without any clear pattern of improvement at all . . .

REFERENCES

[1] www.newstatesman.com/200612180008

[2] www.defra.gov.uk/environment/statistics/globalatmos/download/xls/gatb05.xls

[Further information here is borrowed from FoE research/national-websites.]

Dr Rupert Read (UEA)

January 2007

Memorandum submitted by David Haley (CRED 7)

BACKGROUND AND EXPERIENCE

Ecological artist, David Haley is a Research Fellow in MIRIAD (Manchester Institute for Research and Innovation in Art and Design) at Manchester Metropolitan University. He is a founding member of SEA: Social and Environmental Arts Research Centre, A&E: Art and Ecology Research Group and he leads the MA Art As Environment programme. Haley is an active member of the Public Art and Urban Design Observatory, the eco-arts network, greenmuseum.org, a Trustee of Helix Arts, the Mersey Basin Trust and Director of Harrison Studio & Associates (Britain) Ltd. He is, also, a Fellow of the RSA and member of the AHRC Peer Review College. Haley is a member of the RSA/Arts Council England's Art and Ecology programme Think Tank and Advisory Board for Arts and the Environment of the Chartered Institute for Water and Environmental Management.

In addition to ecological arts commissions, he contributes regularly to international journals, publications and conferences. His long-term ecological arts programme for Shrewsbury Museum and Gallery considers creative opportunities for the future of people living with climate change and the River Severn. Current projects include *Rivers from the Future* that critiques the aesthetic and ethical values of the “new suburbia” over freshwater, *A Walk On The Wild Side*, commissioned by Urbis to perform a series of community *Wild Walks* for the *Wild Futures* exhibition and website in March 2007 and *Greenhouse Britain: Losing Ground, Gaining Wisdom* with Helen Mayer Harrison and Newton Harrison to determine how we might “withdraw gracefully” as the sea levels rise.

THE ISSUES I WISH TO RAISE

Addressing the areas of “awareness of climate change and the role individuals can play” and “the role of community projects in schools and other institutions”, I wish to draw the Committee’s attention to the need for an on-going, non-partisan, creative citizens’ dialogue. This will focus on what we need to do to survive the accelerating effects of climate change that we know are taking place. Issues of energy generation, consumption, economics, ethics and aesthetics must be viewed in relation to:

- The conservation and distribution of freshwater.
- Planning for the mass migrations of people and other species.
- The development of, and transition to, a new society (cultural, economic, industrial, infrastructural), not sustaining the old order.

David Haley

January 2007

Memorandum submitted by Ms Cathy Green (CRED 8)

I do not wish to appear before the Committee on 31 January 2007 for the reason that I do not live in Norwich and so would not want to emit carbon in travelling to Norwich. I would however like to send the following comments on the “citizen’s agenda” by email:

AWARENESS OF CLIMATE CHANGE AND THE ROLE INDIVIDUALS CAN PLAY

Despite a year (2006) when climate campaigners should have been pleased that the topic of global warming became mainstream and the denial industry took a back seat for once, the awareness of climate change among the general public remains appallingly bad. I put this down almost entirely to the media and other sources of propaganda. There is plenty of information on the internet from leading climate scientists that if you look for you can read and find out the real truth about what we are doing to our climate and the atmosphere but the newspapers and tv media are not interested in exploring this area, they are only interested in dramas and so-called “human-interest” stories. Even *Newsnight*’s “ethical man” is patronising and completely misses the point about how radical the changes are we all have to make and yesterday! Because of all this misinformation and lack of real solid background reporting all the general public are really aware of now in this country is Recycling! This is the general level of awareness in my experience, even among people who consider themselves to be “green”!

Individuals still have no idea how much carbon they all emit especially us living in the over-developed West in the UK. The average is supposed to be 10 tonnes of CO₂ a year in the UK, but the *Independent* newspaper recently quoted the Carbon Trust as saying it was more like 11 tonnes a year. Mayer Hillman quotes in his book “How to save the planet” that each individual is roughly responsible for five tonnes of CO₂ a year in personal emissions (50% of the overall 10 tonnes). The other five tonnes are emitted in indirect emissions from the food, goods and services you buy and from your workplace. Individuals in the UK therefore have control and responsibility for at least half of the carbon they emit and by my calculations they can easily slash their personal emissions by 80% immediately to become “One Tonners”—see my blog at: <http://theonetonners.blogspot.co.uk>

The idea behind the “One Tonners” is linked to us all having our “fair share” of the atmosphere—an idea promoted by the Centre for Alternative Technology and embodied in the concept championed by the Global Commons Institute called “Contraction and Convergence”. This is the principle where the over-developed countries have to contract their use of carbon so that the developing countries can increase their carbon use so that world-wide we all have the right to emit the same amount of carbon—this is also known as “Climate Justice”.

There are four things any individual can do to become a One Tonner = stop flying/drive less and use public transport more/switch to green electricity/insulate, insulate, insulate.

However, to quote a certain member of the Government still currently in office, the key to reaching the hearts and minds of the general public and getting the real message about climate change across to them is: education, education, education. However, you only know that people have really “got” climate change when they become climate campaigners and if you look on the internet that is still only a few hundred of us in the UK, possibly a thousand by now?

It is very difficult to communicate with people about climate change because most people don’t care about the world or even about the future and definitely not about politics. The number of people who have responded in the following way when I have broached the subject is mind-boggling—“the human race needs to be culled”!. Either amoral thinking and behaviour is natural to humanity or we have bred generations of people lacking a moral compass. Therefore it is impossible to reach the millions of people who think like this and also all those millions and millions in this country who don’t even get as far as thinking, which is where the role of climate campaigners and individuals wanting to become One Tonners ends and the role of politicians and governments comes into play—we need strong hard enforced legislation to ensure that homeowners take responsibility for reducing their home’s carbon emissions/to stop people flying short-haul flights especially within the UK/to stop people commuting long distances with one person in each car five days a week, etc etc etc and to prevent the possible extinction of the human race—what on earth could be more important and more pressing a task?

THE OBSTACLES FACED BY PEOPLE AND HOUSEHOLDS WHO ARE TRYING TO MAKE A DIFFERENCE

I have covered many of the obstacles above but the main obstacle I face daily as a voluntary climate campaigner is the people who really don’t care or who think shopping ethically is the answer. Not shopping at all is a better answer!

Lack of financial backing is not a problem for climate campaigners as they are all working using the internet and voluntarily in their spare time. Money should not be an obstacle for people wanting to go green as for every extra £5k someone earns they emit on average an extra one tonne of CO₂ a year . . . so the low income families generally tend to be the low carbon ones and that’s why living the low carbon life is not popular in today’s society. However low income families should be financially assisted to insulate their homes/fit energy saving devices/purchase condensing boilers, and locally grown organic food should be made available in poor inner city areas that are a virtual food desert because of the power of supermarkets.

Just one last word about Transition Towns in case they don’t come up in any other submissions. Please see the web-site: www.transitiontowns.org for inspiration as to how the human race can survive and live into the next century.

By the way I try and point out to people that becoming a One Tonner really only means reverting to the standard of living of most people from the late 1980s/early 1990s not going back to the stone age and living in a cave! We need a cultural change and shift in people's perceptions of the concept of "progress" but we need it yesterday and are fast running out of time. As George Monbiot says we haven't got time to educate children now we have to educate all the adults . . .

Ms Cathy Green

January 2007

Memorandum submitted by Ms Katy Colman (CRED 9)

I do not wish to speak before the committee in January but I do wish to provide a written note of my points, and hope that this is acceptable and that I am not too late.

1. What is the real scope for individual and local community action to contribute to tackling climate change? Some areas for possible consideration include:

- Increasing energy efficiency, in particular the delivery of the Energy Efficiency Commitment (EEC); As a member of the public I am unaware of what this is, and I feel in my city I am able to increase energy efficiency via recycling, though it angers me that the facilities vary enormously from place to place, even just in my city. Whenever I move to another town, I am unable to continue recycling in the same way. And I truly believe that recycling methods must be standardised so that people can become used to them wherever they are.
- Reducing energy consumption—not only electricity, but also energy used in heating and transportation; I have switched to NPower's "juice programme", which buys back a clean unit of electricity for any that I use. However, I feel unable to use much less with clean methods. I would love to get hold of solar panelling and I have heard of funding but I would have no idea of how to find out about it, or how to go about getting any solar panelling.
- The provision of desirable low carbon alternatives, such as energy saving light bulbs or using public transport; Energy saving light bulbs are one of those things which I keep meaning to buy but forget to do. I need more reminders. I turn off my TV and wish that the government would force electrical companies to make their products without a standby button, and to have an on-off button instead so that I don't have to feel guilty every time I forget to physically unplug my stereo from the wall because it won't turn off otherwise. I heard suggestion of this being implemented and hope that it will be? On an individual level I find I am able to use public transport as I live in a major city, but find that going across the city is very difficult via bus and so I often have to get taxis because I am unable to go on long journeys unaided. I know that a lot of people are put off cycling because there is no provision, there are so many stories of people being knocked off the road by lorries or cars, and it is extremely intimidating biking down the main city centre roads. There needs to be more awareness of cyclists, but also more means to be able to do it, and more encouragement from local councils to get people out of their cars and onto their bikes. This would also obviously help with our growing obesity problems.
- The potential for, and barriers to, microgeneration.
- The potential for "smart metering"; I am unaware of what this is. I would love to find out more.
- Awareness of climate change and availability of information about the role of the individual in tackling the problem. I can only say that from my personal experience, learning about climate change is extremely difficult unless you have an active interest and actively search for the ways forward, which are often varied and contradictory.

2. What are the barriers to uptake of climate change mitigation strategies at the level of the individual, and how can they be overcome? Are current incentives such as the energy efficiency commitment or graduated vehicle excise duty sufficiently strong to affect behaviour?

Personally, I am unsure of what the energy efficiency commitment is, which probably means I don't have enough awareness of what is being done and what I can tap into to make a displayable difference. I am a civil servant and don't feel that government departments are setting a good enough example, by any means. I know that there are certain projects going on which I am involved in within my building, but I feel that we could do so much more and should be doing as if the government isn't run in an environmentally friendly way then how on earth will other people believe they should be doing something themselves. In terms of excise duty on vehicles, I don't believe that it can be enough simply because so many people in the cities who drive not so far to go to work have 4 by 4's. It doesn't appear to be enough to know they are more pollutive, I believe a lot of it is about image. Also the fact that some people have misinformation about what is actually correct in terms of how much pollution they give.

A main barrier to people doing something about climate change on an individual level is the belief that nobody else is, that climate change isn't really happening, that it would be good for England to be warmer because it would be nicer, (totally missing the point about climate change and focusing instead on global warming terminology), or, that America and other huge countries aren't doing anything so even if everyone in the UK did, it won't achieve anything till the US moves. I truly believe that most of this has to be solved via the government, with harsh legislation, (but it is necessary and people need to be educated about the necessary changes to lifestyle with financial incentives for doing it), and influencing the US. As an individual, I feel so powerless to affect the government of the UK and wish that they would do more for me to affect change on the global and national scale which I cannot do. I have my own website which I hope people read. I tell everyone I see about climate change. I try to live as best I can in a society which at the moment makes it hard to be efficient and environmentally conscious, because of packaging on products which I truly believe the government must do something about and get supermarkets to make their packaging recyclable.

3. *How can Government and other agencies—at national, regional and local levels—encourage the uptake of domestic emission reduction measures? What is the role of community projects in schools and other public institutions?*

The government can use financial incentives to get supermarkets to ensure their products are packaged using recyclable materials. This will solve the landfill problem and help the environment

Providing more adverts containing tips rather than directing to the climate challenge website would also help. And providing much more information rather than just key facts so that people understand why it is so important. Standardising recycling methods (including what can go in what coloured bins etc) for the whole country would also help. Taking on methods of other countries such as Germany where Coca-Cola makes all of its bottles in a reusable material so that when taken back to the shops, consumers get some money back on the drinks they have bought.

Ensuring that people understand how air travel affects the environment so much more than trains etc, and helping the railways to decrease their prices so that travelling from London to Manchester by plane is not less expensive than doing it by rail. Also ensuring people know to offset their emissions, though this is not an ideal solution. I truly believe that making tax on internal flights more expensive would begin to make people realise the consequences of travelling by plane.

4. *What is the role of NGOs in delivering the “citizen’s agenda” on climate change?*

5. *Are Domestic Tradable Quotas (also known as personal carbon allowances) a viable option? What other economic and other incentives for behavioural change might also be considered?*

I believe that giving each person a quota of carbon emissions each year would be a hugely effective thing. If people were fined for going over emissions then they would make 10 times more effort to ensure they did do energy saving tips. At the moment laziness, apathy and no incentives or visible effects for not doing anything ensure that people can ignore the problem. Making energy more expensive for overuse or fining people when they go over carbon emissions would ensure that they had choice in what they did or didn't do, and adapted their lifestyles according to what worked best for them.

6. *To what extent is “green taxation” an effective driver of behavioural change?*

I believe green taxation would be a good behavioural change in the long-term, once people understood the alternative ways in which they could pay less tax and thus be greener.

Ms Katy Colman

January 2007

Memorandum submitted by Mr Andy Ross (CRED 10)

The EFRA Committee’s question: How can individuals and communities be encouraged to help tackle climate change, and how can government make greener choices easier?

1. My name is Andy Ross and I am a member of an informal network of voluntary carbon rationing groups, known as CRAGs for short. This is a written contribution to the inquiry and, as I live in Glasgow, I do not wish to apply to give oral evidence before the Committee on 31 January.

2. We “CRAGgers” are implementing at a local level the climate equity principles that underpin Contraction and Convergence and personal carbon rationing. We concentrate on carbon emissions that are directly under our control and easily countable—namely household energy, car use and air travel. These account for roughly 50% of UK emissions.

3. The network emerged in the first quarter of 2006 and now includes around 100 individuals, in seven active and seven nascent groups, spread across the country. We hope to see the network grow in 2007. Our individual personal carbon emissions (from the three sources mentioned in paragraph 2) vary between one and 20 tonnes ie between one fifth and four times the national average.

4. In this our first “carbon year”, we have been learning together how we can (and why we should) move towards lower carbon living. More information about CRAGs is included in the attached short summary. We also have a website <http://www.carbonrationing.org.uk/>.

5. The remainder of this short submission attempts to address some of the questions posed by the “citizen’s agenda” inquiry. It should be seen as *a* view rather than *the* view from the CRAGs.

6. *Carbon footprinting.* Calculating the size and make-up of your personal carbon footprint involves no more than primary level arithmetic but is the essential first step on the carbon reduction journey. The calculation helps you discover how far you need to travel to reach your sustainable goal. But what is a sustainable personal carbon footprint? And by when do we need to squeeze onto it? Similarly, the calculation permits a comparison with current average national and global personal carbon footprints. But how big are these? Confidence in, and clear knowledge of, these facts can provide a powerful moral motivation to “do one’s bit”.

Suggestion 1: The Government should fund an annual national public information campaign highlighting IPCC science-based measures of what a sustainable personal carbon footprint looks like, by when it needs to be achieved in order to avoid dangerous levels of global warming and how it compares with the current national and global per capita emissions level

7. Crucially, for those who choose to undertake it, the personal carbon footprint calculation helps identify in what areas efficiency and reduction efforts will have the greatest effect. While the calculation is straightforward, tracking down all the appropriate CO₂ conversions factors has proved a challenge for CRAGs. The information is out there but unfortunately it is scattered and not always consistent.

Suggestion 2: DEFRA should publish annually, on one web page, a comprehensive set of conversion factors for personal carbon emissions sources. An IPCC accepted radiative forcing factor should be incorporated into the conversion factor on air miles. I am sure CRAGs would be happy to compile a list of the required factors or check a draft for completeness

8. *Carbon visibility.* Despite the elementary nature of the personal carbon footprint calculation, the non-committed section of the population will not bother to undertake it. They may have taken note of the size of a sustainable carbon footprint and the national and global averages, thanks to the publicity campaigns (see Suggestion 1 above), but they will remain unaware of how their own footprint shapes up to these. One way of remedying this is for the Government to insist on carbon visibility in the form of carbon labelling on all transactions related to the three main sources of personal carbon emissions mentioned previously, namely household energy, car use and air travel.

Suggestion 3: Now that DEFRA has a comprehensive list of CO₂ conversion factors on its website (see Suggestion 2 above), Government can insist that businesses state clearly on all energy bills, fuel receipts and air tickets the CO₂ equivalent of the purchase

9. *Carbon cost.* CRAGs not only “see” their carbon emissions but also try to internalise the environmental cost. The price of CO₂ on the European carbon market is currently less than 0.5p per kg CO₂. This is hopelessly low and is the result of a flawed allocation methodology. In 2006–07, most CRAGs have gone for a penalty of 4p per kg for any personal CO₂ emissions over their agreed personal carbon ration. We can put this in context of a consumer choice. A return to New Zealand (allowing for some radiative forcing) causes around 12,000 kg CO₂ per passenger. Even if a CRAGger saved his/her entire 2006 ration of 4,500 kg CO₂, a trip to NZ would still push him/her 7,500 kg CO₂ into the red on his/her notional carbon account. The carbon debt he/she would owe would amount to 7,500 kg x 4p per kg = £300. Will this stick be strong enough to ensure total carbon debts in a CRAG do not outweigh total carbon savings. We will find out at the end of our carbon year. The results may be of interest to UK carbon policy developers.

Suggestion 4: The EFRA committee should make a request to all CRAGs to report on their end of year carbon accounts as an example of how carbon aware citizens respond to more realistically costed carbon

10. *Final thoughts.* This contribution has not dwelt on the practicalities of reducing carbon emissions from our homes although many CRAGgers have learnt a lot from each other about the hierarchy of carbon saving expenditure. Turning down the thermostat, switching off at the wall, fitting energy saving bulbs, draft proofing doors and windows, improving insulation, etc, must all come before the new boilers, solar thermal panels and so on. This is because when CRAG members calculated their carbon footprints, travel emissions have tended to loom as large if not larger than household emissions. As time goes on these latter may take centre stage. In this first year, the importance of carbon footprint awareness has been the key lesson learnt.

This alone has prompted many to action. Some of us have given up flying. Others have sold their car. Most of us are mainstream citizens but ones that have woken up to the moral and practical challenges we face in this new century. We are doing this carbon rationing ourselves because our leaders are not leading.

Suggestion 5: All members of the EFRA committee should join or start a local CRAG in their constituency to demonstrate they are prepared to the "walk the talk" on climate change. One MP has already started walking. Who's next, ladies and gentlemen?

Mr Andy Ross

January 2007

Memorandum submitted by Mr Geoffrey Jarvis, Baldernock Community Council (CRED 11)

Our Community Council of Baldernock, a rural/commuting area of about 250 houses, seven miles north of Glasgow, is very aware of the need to take steps to try to halt Climate Change. On two evenings in January, we are to launch a community wide effort to reduce our carbon footprint. We will show Al Gore's film, now on DVD, in the village hall followed by discussions, attended by a post graduate student from Salford University, who has volunteered his services to analyse our situation over an eight month period with a team of local helpers. Thereafter we hope to implement the resulting plan of action. We are aware that other communities are doing similar exercises, such as at Ashton Hayes in Cheshire, with DEFRA support, and Riverside in Stirling.

The observations we put to the Parliamentary Committee are:

- Our community is fortunate in having the gratuitous advice of this student as part of his course. There are 1,200 such communities in Scotland, and many more in the UK. What hope is there for them getting such assistance? Should this type of exercise not be funded or organised through central government? Although Local Authorities are to be involved in Scotland, following the launch on 16 January of "Scotland's Climate Change Declaration", it is doubtful if they will have enough spare financial and human resources to "encourage and work with others in our local communities to take action . . . etc"—to quote from that Declaration.
- We believe that we are at war with Climate Change, which is a more dangerous enemy than Nazi Germany ever was. Then the country was mobilized with a total war effort. We see little evidence that the government is giving such a wholehearted lead, today.
- How can we persuade good people to reduce using carbon fuels when, for example, the government is encouraging the construction and enlargement of airports?
- Again using WW2 as an analogy, there should be an all party War Cabinet that will lead, support and help to fund all technical means of arresting climate change. All other Ministries should be subservient to it and not do anything to prejudice its efforts.
- How can we the public, be expected to make significant sacrifices if we think the government is being ambivalent about its intentions.
- The government must lead and not prevaricate. The Stern Report calls for action now. Carbon rationing, not carbon trading or carbon offsetting, should be instituted. There is no time to lose.
- We ask that different technical solutions are evaluated before large sums are expended by way of grants, such as to wind farms. There are many advocates trying to promote their products. The public needs expert guidance also on preferred domestic products and methods.

Mr Geoffrey Jarvis

Baldernock Community Council

January 2007

Memorandum submitted by Mr George Aggidis (CRED 14)

UK RESEARCH ON WET RENEWABLE ENERGY MARINE AND HYDRO

Comments like: "I am sure that climate change is the biggest problem that civilisation has had to face in 5,000 years" and "Climate change is the most severe problem we are facing today, more serious even than the threat of terrorism", from leading scientists like Professor Sir David King reinforce the fact that the current exploitation of fossil fuels cannot continue without serious future consequences for the planet and for human activity as we know it (Stern Review 2006). Understanding the importance of Climate change, increasing energy prices over the past two years, questions about security of supply, the available UK resource, and the recognition that the UK is likely to fail to meet the CO₂ emission targets, have emphasised the importance and focus of work in this area. The UK is planning to increase its share of energy generated

from renewable sources over the next decade and existing technology is not equipped to meet this desire. The 2003 UK energy white paper and the 2006 energy review report propose the increase of energy generated from renewable sources to 20% by 2020. The Tyndall Centre for climate change claims that nuclear power “cannot tackle climate change”, and “we can easily deal with climate change without nuclear power”. Wider use of energy efficiency measures such as house insulation and fuel-efficient cars could almost halve energy demand.

Oceans cover over two thirds of the planet and represent a massive resource. Worldwide wave energy resources have been estimated by the World Energy Council to be 2 TW, equivalent to an annual available resource of 17,500 TWh (Thorpe, 1999). If a small fraction of this could be economically harnessed and integrated with other renewable sources such as wind, tidal, hydropower and more conventional generation methods, it would contribute a significant percentage of the world’s energy requirements, vastly lowering emissions. If implemented, in conjunction with energy saving schemes and microgeneration of hydro electric power for single dwellings and small communities, the demand could be reduced significantly, lessening the need to build further non renewable energy power stations. The results from the Marine Energy Challenge (CTC601, 2006) showed that marine energy has the potential to become competitive with other forms of energy. By 2020, 3% of the UK’s energy could be derived from wave or tidal energy, providing up to 1/6 of the UK government aspiration of 20% renewable energy by this time.

I would like the opportunity to address the Environment, Food and Rural Affairs Committee inquiry into “climate change”: how each of us can make changes in our lifestyles and take action to save energy and combat climate change, how individuals and communities can be encouraged to help tackle climate change and how government can make greener choices easier. My background is in Mechanical Engineering, Fluid Machinery and Renewable Energy (FIMarEST, FIMechE), I am a Senior Lecturer and Director of Lancaster University Renewable Energy Group and Fluid Machinery Group. I have research interests and experience in energy, renewable energy, wave energy, tidal energy, hydropower, climate change, energy policy and fluid machinery. Projects I have been involved cover all six areas of interest highlighted by the committee: Energy efficiency and reducing energy consumption; Low-carbon alternatives to traditional domestic energy sources, to cut CO₂ emissions from the home; Microgeneration, Awareness of climate change and the role individuals can play; The role of community projects in schools and other institutions and The obstacles faced by people and households who are trying to make a difference.

Mr George Aggidis

January 2007

Memorandum submitted by Dr Phil Leigh (CRED 15)

In this current political climate the option of reliance on coal, oil and gas is non sustainable; nuclear is an option many people would prefer to avoid and doesn’t provide the full answer—where does that leave us? I would like the opportunity to address the Environment, Food and Rural Affairs Committee inquiry into “climate change”.

1. *Why do many people have the mindset that renewable power will not be able to contribute a worthwhile percentage of our energy requirements in the near and medium term future?”*
2. *“How do we change that mindset?”*

My background is in Electrical Engineering, plus I have a degree in Environmental Science and a PhD in Environmental Microclimate Control. I have research experience in time series analysis of long-term climate datasets; hydrological processes at a catchment level; effects of aircraft condensation trails (formation of contrail related cirrus clouds and measurement of associated chemical species); and a long standing interest in the future of our planet’s climate and energy use.

I am researching a northwest hydro resource model for microgeneration of hydro electric power for single dwellings and small communities. This project is in its infancy, but has potential to be applied throughout the UK. The project covers all six areas of interest highlighted by the committee in the following ways:

1. Energy efficiency and reducing energy consumption:

Renewable energy sources such as hydro power use turbines that have a high efficiency (70–90%), by far the best of all technologies. Additionally non renewable energy consumption is lowered through the contribution of a renewable source. If extra energy is produced over and above the households or communities needs it can be sold to the national grid reducing non renewable energy consumption further.

2. Low-carbon alternatives to traditional domestic energy sources, to cut CO₂ emissions from the home:

Hydro power is a sustainable and renewable energy source, which typically produces highest water flows—thus highest energy levels from autumn through to spring when greatest power demands are made of our energy systems (ie the coldest and darkest months). Installation of a renewable energy form such as hydro has the potential to considerably reduce CO₂ emissions from the home.

3. Microgeneration:

The project is looking to deliver the options of low head hydro power as a stand alone renewable energy source, or as part of a suite of renewables that a household or community can call on as each option has its optimal operating conditions (eg high water flow—hydro power; windy conditions—wind turbine; sunny, warm conditions—solar panels and photovoltaic cells). Hydro power can be produced with heads of less than a metre.

4. Awareness of climate change and the role individuals can play:

Increasingly the general public is becoming aware of climate change and its potential implications on their lifestyle. Hydro is an accepted form of sustainable energy and water power has driven machinery for centuries. This makes hydro a more readily acceptable form of renewable energy over others such as wind power.

5. The role of community projects in schools and other institutions:

The social aspects of a project such as hydro power system employed to provide a percentage of energy requirements for a small community can be immense. Benefits include pulling many diverse peoples within communities or schools together to ensure a project is completed and maintained. People are proud to be even partially self sufficient.

6. The obstacles faced by people and households who are trying to make a difference:

The hydro resource model will employ a sequential decision making process where the user (individual interested people and communities) follow an iterative web based loop of increasing sophistication in order to decide if their location is suitable for micro generation of hydro power. This process will help eliminate the current need for many people to almost re-invent the wheel when wishing to install renewables!

Dr Phil Leigh

January 2007

Memorandum submitted by Mr Mike Brain (CRED 18)

In response to the invitation to contribute to the inquiry into climate change (“the citizen’s agenda”), I would like to contribute a suggestion and a question to the debate. I regret that I am unable to attend the public hearing at CRed in Norwich on 31 January, and indeed appear to have missed the closing date to give oral evidence, but I hope the question alone may provide a useful contribution to the deliberations.

I offer the contribution as a private resident rather than as a representative of any organisation. Although I claim no expertise in the science of climate change, my early career background is in science and engineering research, and latterly the strategic management of engineering and technology, from which I have recently retired. I am a Chartered Engineer and a Member of the Institution of Engineering and Technology.

I share the growing concerns and the perceived need for urgent action with regard to climate change and global warming, and welcome the current messages concerning actions which are required at national and international level, and at the level of the individual. However, I believe there are further significant issues between these two extremes which also warrant urgent consideration, affecting planning at the level of the local community, which do not appear to feature in the current debate, yet which may be essential precursors to allowing the individual to contribute fully to a low-carbon future.

Over the past 30 years that I have lived in Ipswich, the pattern of life has changed out of all recognition, enabled largely by cheap private motoring. I don’t doubt that this experience is common to similarly-sized towns: 30 years ago, life was largely confined to a local community which provided basic facilities such as shops and schools, augmented by public transport to a wider range of town centre facilities. In contrast, people today shop at out-of-town superstores, they live, work, take children to school, and find entertainment, all in different locations, all enabled by cheap motoring. All of this has evolved gradually

over the years to the point where cheap motoring is now virtually essential to everyday life, because communities and the facilities they need have also evolved and become much more geographically diffuse. Town centres still exist, but are very different in nature.

So what will happen if private motoring on this scale ceases to be affordable, due for instance to a relatively modest rise in the price of petrol, or to limitations in supply if the suppliers cease to be so well-disposed to the West, or to limitations in consumption if carbon rationing is the only way to avert catastrophic climate change?

These possibilities need to be “thought through” with some urgency, since their impact may be to create significant new demands which public transport cannot satisfy, given the present diffuse physical structure of our local communities. How will residents continue to access the key facilities which support everyday life without the option of using the private car? Will those key facilities need to become more centralised, as they were in the past? If so, surely this will take time, and need planning and investment?

Then again, what if a carbon-neutral substitute for petrol really can be brought on stream in time, in the required volume and at a comparable price to petrol, so that cheap private motoring continues to grow unchecked? How can local authorities sensibly plan physical and transport infrastructures for such radically divergent future scenarios?

My question is therefore whether anyone is actively planning for the changes to community infrastructure and public transport that will be necessary, firstly if private motoring becomes significantly less affordable, and secondly if it is allowed to continue to grow unchecked. Can this be left to market forces, or are market forces ultimately the cause of the climate change that we are now recognising, and should we be seeking a more strategically-planned and equitable approach to a problem which affects everyone?

I do not know that there is any further evidence I can offer, but I hope that raising the question may be a valuable contribution.

Mr Mike Brain

January 2007

Memorandum submitted by Mr Martin Dixon (CRED 19)

BACKGROUND

I regret if this is a little confused, but I have ME. I use solar panels, low energy bulbs, washing balls, etc I have double glazing, have reduced my room temperature and close my doors and curtains. My house does not have a cavity wall, but I have good roof insulation. I actively recycle and buy as much local produce as I can. I drive as efficiently as possible—highest gear, gentle speed change and braking; if reasonably accessible, I use public transport. I am constantly exploring the available sources of information about climate change and energy efficiency. I am 70, have grand children and actively support a child in Africa.

COMMENT

Whatever the cause(s) climate change, global warming and fuel peaks (oil and gas) are with us now and their effects will have an increasing influence on the lives of every one on earth (human or otherwise). The nearest approach that currently exists to a panacea is the immediate reduction in energy use. There is already a considerable array of equipment and actions which, if used universally, would immediately reduce energy consumption significantly. This would allow a brief breathing space in which to harness the ability of science and popular thought to this challenge.

An increasing proportion of the population have taken some independent action, but are discouraged by a combination of cost, effort, lack of easily available information and complex regulation. Financial incentives are urgently needed to encourage the co-operative development of energy saving equipment so as to ensure that the most efficient are given the greatest opportunity to “mass produce” thereby reducing unit cost. Taxation on energy saving should be removed and grants should be made widely available. Greater taxation should be placed on energy waste in any form. This should apply equally to both private and public producers, transport and consumers so as to concentrate the collective thought and compound the effect. I do not believe that the principle of trading benefits will significantly reduce the overall energy use and their widespread use will discourage inefficient users from making any significant changes quickly.

There has been greater change in the last 100 years than at any time in human history, but basic commercial practice and all levels of government have not changed much. The media emphasise despair, appear to work against co-operation and encourage the mind set of blame and compensation. In all three areas there is little real enthusiasm for “best practice” except where it results in a direct improvement in the “bottom line” (profit), or personal gain.

All levels of government should ensure that “best practice” is researched, practised and shared (eg The use by the Mayor of London of the successful principles actively used by Woking Council). Where there is no clear benchmark central government should ensure unbiased research is initiated with urgency and the results made widely available. All new development, replacement, or other action should only be progressed if it reduces environmental impact and energy use .

Mr Martin Dixon

January 2007

Memorandum submitted by Dr Lorraine Whitmarsh (CRED 21)

Please note: Unfortunately, I am unable to attend the public hearing on 31 January 2007, but wish to give the following written evidence for the Environment, Food and Rural Affairs Committee’s inquiry.

PUBLIC AWARENESS AND PERCEPTIONS OF CLIMATE CHANGE

There is a wealth of literature concerning public perceptions of climate change, demonstrating a wide general awareness of the issue. For example, only 1% of the English public have not heard of either “climate change”, “global warming” or the “greenhouse effect”; indeed, most people say they know the main causes of climate change and are concerned about it.¹ Studies suggest that whilst most people accept that individuals are having some influence on the climate, some of the more specific details are misunderstood. For instance, there is still widespread association of the hole in the ozone layer with climate change.² Furthermore, in the context of other issues, even many environmental issues, climate change takes a low priority.³ Furthermore, only a minority of the public take measures to reduce their energy consumption.⁴

OBSTACLES FACED BY PEOPLE AND HOUSEHOLDS WHO ARE TRYING TO MAKE A DIFFERENCE

Tyndall Centre researchers (Irene Lorenzoni, Sophie Nicholson-Cole and Lorraine Whitmarsh) have recently explored the constraints that individual members of the UK public perceive to mitigating climate change, including changing their own behaviour. Drawing on three mixed-methods studies (employing surveys, interviews and focus groups), we found that participants identified a number of common constraints to engaging with the issue—either at a psychological or a behavioural level. We have categorised these into two main areas—individual and social—which reflect the levels at which the barriers are perceived:

<i>Barriers at the individual level</i>	<i>Barriers at the wider social level</i>
<ul style="list-style-type: none"> • <i>Lack of knowledge</i> about the causes, consequences, potential solutions • <i>Uncertainty and scepticism</i> • <i>Distrust</i> in information sources • <i>Externalising responsibility and blame</i> • <i>“Drop in the ocean” feeling</i> • <i>Technology will save us</i> • <i>Climate change is a distant threat</i> • <i>Other things are more important</i> 	<ul style="list-style-type: none"> • <i>Reluctance to change lifestyles</i> • <i>Fatalism</i> (too late to act/ can’t do anything) • <i>Lack of action by governments, business, industry</i> • <i>Free-riding</i> (due to policy preference for voluntary measures) • <i>Social norms and expectations</i> • <i>Lack of enabling initiatives and facilities</i> (e.g., regular/affordable public transport)

POLICY IMPLICATIONS

The findings indicate a need for a comprehensive range of policy solutions to foster engagement amongst the public because of the diversity of barriers identified and the various levels at which they operate. In sum, targeted and tailored information provision should be supported by wider structural change to enable citizens and communities to reduce their carbon dependency.

¹ DEFRA (2002) *Survey of public attitudes to quality of life and to the environment: 2001*. Department for Environment, Food and Rural Affairs, London.

² Hargreaves, I, Lewis, J and Speers, T (2003) *Towards a Better Map: Science, the public and the media*. ESRC, London. DEFRA (2002) *ibid*. Poortinga, W, Pidgeon, N and Lorenzoni, I (2006) *Public Perceptions of Nuclear Power, Climate Change and Energy Options in Britain*. Understanding Risk Working Paper 06-02. School of Environmental Sciences, UEA, Norwich, UK.

³ eg Poortinga W and Pidgeon, N (2003) *Public Perceptions of Risk, Science and Governance*. UEA/MORU, Norwich.

⁴ DEFRA (2002) *ibid*; Norton, A and Leaman, J (2004) *The Day After Tomorrow; Public opinion on climate change*. MORI, London.

Information provision

There is a need for basic information provision to overcome lack of knowledge about climate change and its implications for individuals. For those willing to mitigate climate change, this will encourage them to channel their energies into appropriate activities. Informational approaches can also explain the reasons for the introduction of climate change policies (eg, regulation) in order to increase their acceptability. This information needs to be communicated through channels perceived to be credible—this will depend on the audience—and in a manner that is transparent. Communication on climate change needs to be sustained on a regular basis, irrespective of media cycles of attention, to keep the issue prominent in people's minds.⁵ This could include adapting marketing techniques to create awareness, acceptance and norms in respect of climate change action among social groups and their networks.⁶ Furthermore, information needs to be provided in context, according to its consistency with mainstream scientific opinion and in relation to previous findings.⁷ At the same time, there is a role for science education (formal and professional) to promote understanding of the scientific process, including the inherent uncertainty. Bibbings⁸ also suggests a need for media awareness education, specifically developing skills to think critically about media content and advertising.

Information should also be communicated in a meaningful way, linking to people's concerns and interests. A constructive way of doing this may be to relate climate change to local environmental issues and personal concerns, emphasising the additional benefits to reducing emissions, such as saving money, improved air quality, quieter streets and personal fitness. The causes of climate change can also be made more tangible and the climate change solutions more personally-relevant by providing information at the point of energy use, reinforcing the connection between personal action and impact on the climate. Providing immediate feedback on energy use, through household energy meters, can effectively reduce people's consumption.⁹ In this respect, communication can be effective in stimulating affective and behavioural, as well as cognitive, aspects of engagement.

Wider social and institutional change

The economic, social and structural barriers discussed above clearly illustrate that information and knowledge about climate change, and even the motivation to act, are important for engagement but not sufficient. There is a need for supportive institutions and infrastructure (eg, affordable and efficient public transport) to enable action at an individual level. Interventions can be designed to interrupt habitual behaviours and consider alternatives (eg, free bus tickets, congestion charging, bike-to-work breakfasts). Positive reinforcement (in terms of public recognition, social interaction, community encouragement, material rewards) can in turn encourage effective behaviours to be maintained.¹⁰ A sense of collective efficacy can also be engendered through community initiatives,¹¹ for example, the energy saving equivalent of "best kept town" award. Business and community champions, such as Eco-Team households¹² or sustainability officers in the public sector, can highlight good practice and play a role in fostering action within a social context. Demonstration projects of low-emission technologies, micro-generation, and carbon neutral or low carbon buildings can also show people what is achievable.¹³

For many people, this may not be enough and a stronger regulatory and fiscal framework may be needed to activate mitigative responses to climate change. We recognise that there are different responses amongst the public to climate change: while some may take up calls for voluntary action, others will be unprepared to make any changes without external pressure. In current society, regulation is necessary to drive fairer, collective solutions to climate change and highlight the seriousness of climate change and the necessity to act. However, regulation and economic measures do not necessarily change values underpinning behaviour.

⁵ Moser, S C and Dilling, L (2004) Making Climate Hot: Communicating the Urgency and Challenge of Global Climate Change. *Environment*, 46, 32–46.

⁶ McKenzie-Mohr, D (2000) Promoting sustainable behaviour: an introduction to community-based social marketing. *Journal of Social Issues*, 56, 543–554.

⁷ Social Issues Research Centre, R S, Royal Institution of Great Britain (2001) *Guidelines on Science and Health Communication*. Social Issues Research Centre., Oxford.

⁸ Bibbings, J (2004) *A High Price to Pay?* Welsh Consumer Council, Cardiff.

⁹ Boardman, B and Darby, A (2000) *Effective Advice: energy efficiency and the disadvantaged*. Environmental Change Institute Research Report 24, University of Oxford, Oxford.

¹⁰ eg, Staats, H, Harland, P and Wilke, H A M (2004) Effecting durable change: a team approach to improve environmental behaviour in the household. *Environment and Behavior*, 36, 341–367.

¹¹ Sustainable Consumption Roundtable (2006) *I will if you will: Towards sustainable consumption*. Sustainable Development Commission and the National Consumer Council.

¹² Global Action Plan (2004) *Eco Teams*. http://www.globalactionplan.org.uk/index.cfm?TERTIARY_ID=0&PRIMARY_ID=31&SECONDARY_ID=38

¹³ eg Centre for Alternative Technologies in Wales, UK; annual Housing Design Awards sponsored by the UK government: <http://www.designforhomes.org/hda/>

Long-term and deeply-rooted social change for sustainability can be promoted gradually through education creating community values and environmental citizenship,¹⁴ in combination with a framework of incentives. Other structural—and potentially equitable—solutions, currently being considered by the UK government, include allocation of personal carbon allowances as a means to reduce emissions at the individual level.¹⁵ In general, however, while the Climate Change Programme¹⁶ provides a number of measures geared towards incremental change, it gives little attention to the wider structural conditions and social norms that tend to perpetuate the *status quo* (ie increasing energy demand). Our research suggests effective climate change management requires a longer term perspective and systemic change.

Dr Lorraine Whitmarsh

January 2007

Memorandum submitted by Alex Ross (CRED 22)

This is not an application to give oral evidence at the CRed meeting with EFRA, but a written letter explaining my thoughts.

I graduated from Nottingham University in 2005 with a degree in Classical Civilisations and now work full-time in Admin.

With regards to experience I have none except for being keen on “Green” issues, I am a member of the WWF and also donate monthly to Fareshare, a food charity that takes food destined for landfill and redistributes to the vulnerable and needy. I have a green energy tariff with Scottish Power H2O Green Fund, have a water saving device in my cistern, have energy saving light bulbs and so on, and have been using the CRed Norwich site for many months now.

I live in Leeds but was still encouraged to use the site by CRed as they wanted to expand into a nationwide project, which I would love to see.

An expansion of the CRed project would be excellent, it lets people see how their own actions can affect the climate, and offers various solutions on reducing energy use. It also shows how plenty of small actions can add up until you are saving thousands of KGs of energy going into the atmosphere every year.

An expansion of CRed into a nationwide scheme, or something similar, could see initiatives like this go into schools to teach children how to be more green in easy ways, from growing veg in a school garden, to understanding how to turn things off at the mains at home to save energy.

For the government to make “green” choices easier, it desperately needs to expand the recycling services available in the UK. Although it is excellent DEFRA have managed to oversee a doubling of the recycling rates in three years, we’re still far behind many places in Europe and I believe this is partly due to the amount of discrepancies in councils over what you can recycle, and also the inability to recycle many items such as batteries, light bulbs, tetrapaks (a big sinner) and so on. If people want to recycle these items then they have to pay themselves for it to be sent to the appropriate places.

I believe a real way to make a difference in people’s attitudes is for the government to act to reduce people’s cynicism with regards to climate change, from the people who believe it doesn’t exist, through to the people who believe green taxes would be used to line the treasuries pockets and there is nothing the individual can do. We need a “green awareness” proliferation on a bigger scale than the Y2K issue back in 1999.

Perhaps all it needs is the government to stress what it is already doing, and then do it more. There are for instance, energy saving light bulbs made cheaper through government grants, but I only found them after searching online for weeks, make these more readily available so people can see the cost-effectiveness of CFLs, similarly offer companies bigger incentives (and punishments for not doing it) to make energy efficient products, and increase recycling for old, out-of-date appliances.

I believe a lot of the framework is in place, it just needs fleshing out, so people can understand that every part of their lives has an affect on the environment and that there are very easy things they can do to make positive change.

One of the biggest problems I believe is that so much of the hyped solutions then turn out to be wrong, or not as green as initially touted, such as hybrid cars and so on, people need to understand “carbon footprints” more and they can only do that with proper help, such as from the government. If packaging (which needs to be reduced anyway!) had a list of energy used in every stage of production it would give people a clearer idea of how things were made.

People need to understand cause and effect more, caring about the environment can be done in lots of different ways, even down to using more eco-friendly products in the home.

¹⁴ Dobson, A (2003) *Environment and Citizenship*. Oxford University Press, Oxford.

¹⁵ Ekins, P and Dresner, S (2004) *Green taxes and charges. Reducing their impact on low-income households*. Joseph Rowntree Foundation, York.

¹⁶ HM Government (2006) *Climate Change: The UK Programme 2006*. HMSO, London.

I hope this has been of “some” help to you, even if it only shows how committed some people are and how much we’re supporting the government in all it does while pushing it to do more!

Thanks for the opportunity of consultation, I look forward to reading the results,

Alex Ross

January 2007

Memorandum submitted by Ms Anne Dismorr (CRED 23)

I am a member of CRed and have considerably reduced my carbon footprint primarily by localising my own personal economy.

Until governments accept the obvious and do everything they can to support localisation of economies then there is very little hope of averting or even modifying the imminent environmental catastrophe. I appreciate that the UK economy is fairly small beer in global terms but what is needed is governments that are prepared to set an example and provide leadership for the world community. The secondary benefit of localisation of the UK economy is that the UK will then be much better placed to deal with a post peak-oil world. The “Sustainable Communities Bill” is now before Parliament, why will the government not take the obviously sensible step of supporting the Bill?

I buy wherever possible locally grown food (we also have an allotment). I consider very carefully air miles whenever I buy products which have not come from the UK.

I use local services.

I will never travel by plane again because the damage the emissions do is so much greater than those produced at ground level. I think carefully about travelling even if it is within the UK. I have to be convinced that what I am travelling for merits the carbon I will expend.

I have done all the recommended things such as insulating the loft and installing an energy efficient boiler and low energy light bulbs.

I think the government is failing to inform the public about how serious the consequences of global warming are. The government is sending out mixed messages primarily by retaining the policy of expanding aviation. I keep reading that our economy depends on expanding the aviation industry. If this is the case then we must adapt our economy so that it does not depend so much on the aviation industry. The situation we are facing is more serious than any war. As George Monbiot has said in times of war economies can be turned round on a sixpence. Our economy is going to have to change given the facts of approaching climate chaos and peak-oil, it is only a question of whether we are wise enough to adapt to the new circumstances and try to manage the transition, or not. The government needs to adopt a “war mentality” with the enemy being our own greed.

It is misleading of the government to allow the public to think that we can basically continue with business as usual with a bit of tinkering at the edges. We have to move from a unsustainable, consumer economy to a sustainable, conservation economy. The best way to achieve this would be by carbon rationing so that people would live within the limitations of the planet.

Ms Anne Dismorr

January 2007

Memorandum submitted by Dr Douglas Crawford-Brown (CRED 24)

I submit the following comments as part of the “citizen’s agenda”. While I have returned to the States and cannot be there in person on 31 January, I hope you will consider including my thoughts here, as they represent an important example of the international implications of CRed. I am confident that one of my colleagues at CRed in Norwich would be willing to read these comments aloud on my behalf; I am including those colleagues as a CC on this email.

COMMENTS

My name is Dr Douglas Crawford-Brown. I am a Professor at the University of North Carolina at Chapel Hill (www.unc.edu) and direct our campus-wide Institute for the Environment www.cep.unc.edu). I also direct the Summer Field Site in International Energy Policy and Environmental Assessment, located in Cambridge, England (www.cep.unc.edu/cred). That field site has as its primary student project the task of helping the City of Cambridge move forward on carbon dioxide reduction strategies.

The Community Carbon Reduction (CRed) programme has become the primary tool for moving the Town of Chapel Hill in North Carolina forward on carbon dioxide reduction. Chapel Hill is home to the University of North Carolina at Chapel Hill, our nation's oldest public university. Last year I and my student team approached both the Town Council and the Chancellor of our University to make pledges to CRed and to begin moving our entire community forward in reducing carbon dioxide emissions by 60%. Both groups agreed to do so, and both have now completed the initial CRed steps of creating a carbon dioxide inventory and identifying the most significant sources of emissions. Specific policies have begun, including making buses free in town and on campus; reducing parking of single-occupancy vehicles; switching of public transport to biofuels; purchasing of green energy; and stimulation of green building practices through the municipal planning and permitting process. We believe this is the first case of an entire community—not just the government or one sector of that community—moving together into CRed, and establishes a home base for CRed activities in the U.S. Over the next year, we will be adapting the CRed system to this community-based approach, having identified key players in each of the sectors of our town (government, university, residential, commercial, industrial and transport) and assigned them the task of coordinating emissions reductions within their sector.

While we formed our partnership with CRed through our work in the City of Cambridge, the partnership has found its strongest home back here in Chapel Hill. The CRed staff can take great pride in the fact that they have become the nucleus for a truly international effort that is at once community-based and global in scope. I can tell you that our own community of Chapel Hill would still be debating the merits of claims of climate change, and making token adjustments to our emissions, were it not for the powerful organizing framework brought to the table by the CRed system. We are now ready to throw down a challenge to communities in the UK: which of you (and I am looking directly at Cambridge) will match the town and university of Chapel Hill in fully realizing the ability of CRed to organize reduction efforts in your community?

Dr Douglas Crawford-Brown

January 2007

Memorandum submitted by Mr Andrew J Robertson (CRED 26)

I am an Environmental Energy University lecturer and consultant. I specialise in assisting households and architects working with existing housing and new build/extension projects to refurbish and design “greener” more environmentally friendly buildings that will reduce household carbon emissions. I have three issues I would like to raise:

- With the vast bulk of UK household carbon emissions being produced from older thermally inefficient existing housing stock, why are these houses not VAT exempt for energy saving materials and heating such as double glazing, insulation, biomass, solar and heat pump installations? Especially as the minority energy efficient new build houses are vat exempt for the same energy saving materials. Surely by targeting the majority existing housing stock and improving their thermal performance to meet new build insulation and air permeability standards, these households will make significant carbon savings.
- “Biodiesel Heating Oil, Sustainable Heating for the Future.” IPHE Technical Paper 7. This research suggests Biodiesel may be a suitable low carbon heating fuel to replace heating oil in existing oil boilers to reduce household carbon emissions. This fuel could reduce household carbon emissions by up to 14 million tonnes per year. Would the committee consider incentives for biodiesel heating such as zero rate tax on this heating fuel and funding the boiler conversion costs of £400 per boiler?
- The public are often put off installing low carbon technology due to high capital costs and long payback times. Could the grants for these technologies be increased to reduce the excessive pay back times. For example a household spending £500 per year on electricity can install a wind turbine to generate all of their annual electricity demand, this costs around £18,000 less £4,000 grant. The pay back period is 24 years. A solar hot water system typically costs £5,000 less £400.00 grant. The average family spends approx £150 per year on hot water, solar produces 60% of annual hot water demand saving £90 per year so the payback time is 51 years.

I look forward to the “citizens agenda” enquiry into climate change at the UEA on 31 January and providing “oral” evidence for the above issues to the committee.

Mr Andrew J Robertson

January 2007

Memorandum submitted by North Norfolk Environment Forum (CRED 28)

I am writing on behalf of the North Norfolk Environment Forum. Attached is our response to the recent government Energy Review which makes several suggestions as to how the government can work with people and industry to encourage renewable energy production and energy saving.

Suggestions—regarding present disincentives for householders who want to invest in energy saving/production.

1. VAT be taken off all energy efficient, energy saving and renewable energy equipment: For example from energy efficient light bulbs, insulation, wind turbines, solar panels, heat pumps and efficient fridges, freezers, etc.

2. Generous grants should be given directly to ALL householders who are prepared to invest in energy efficiency, energy saving, or renewable energy production. New regulations for new build houses will only have a very slow effect on carbon reduction. Incentives to improve the existing housing stock will be far more effective.

Also the present system of insisting that only certain companies can install new systems or insulation is too expensive. Some local people who have researched grants have decided that it was cheaper to do the work themselves, or use local workmen without a grant. One household found that none of the companies authorised to install a wood burning boiler would fit the boiler they had chosen.

Although their own research showed this to be the most suitable. The present grant system seems more for the industry than for householders. Possibly a grant could be in the form of tokens to buy equipment, and with the chance of a follow up inspection—to ensure that proper systems are being used and properly installed.

North Norfolk Environment Forum

January 2007

Memorandum submitted by Kerensa Martin (CRED 29)

I do not wish to give oral evidence at CRed on 31 January, but I have the following comments on the “citizen’s agenda” to ask government to help individuals make greener choices:

- Make businesses make information more widely available on “hidden” fuel costs—eg food miles.
- Encourage large businesses to reduce transport and fuel costs of all sorts.
- Change street lighting to be a sort that can come on only when people pass by.
- Put pressure on manufacturers and retailers to reduce packaging—thereby saving energy and waste.
- Make it easier and cheaper to install solar panels and wind-turbines in our homes—even with available grants, the cost is vast—there must be a way to reduce the cost.
- Make installation of electricity producing solar energy of the type that can put excess electricity back into the grid more easily and cheaply available—most schemes encouraged by local authorities are only for hot water.
- Promote innovative schemes for the use of solar panels, eg using the enormous surface area of many public and business building roof space.
- Continuance and furtherance of education in schools and the community of a greener lifestyle and philosophy of living—change needs to be less daunting.
- Promote green living as the norm, not just for those with plenty of money or a “hippy” lifestyle.
- Make local authorities and encourage local businesses to centrally collect used vegetable oil and recycle it for sale as car and domestic fuel.
- Give farmers incentives to grow fuel crops and encourage businesses to build up the infrastructure to sell it as car and domestic fuel.
- Is there a way to run aeroplanes on crop fuel or space to grow enough?
- It would be helpful for government to give information on how to use crop fuels—there is currently a lot of information for individuals to assimilate and this can be confusing/misleading/conflicting.
- Make easy to compare information on alternative building materials which can help reduce energy consumption and environmental impact.
- Encourage this as the norm.

On a personal level, my husband and I are wanting to convert our diesel and petrol cars to vegetable oil and bio-ethanol—but it is not easy to get a definitive answer on what alterations we might need to make or whether it would be suitable for our cars. Vegetable oil is not widely available in the correct form and quantity.

We would also like to have solar panels and a wind-turbine, but the cost is a stumbling block.

We are trying hard to reduce waste and recycle, but retailers do not make it easy for us—we don't want lots of plastic bags or unnecessary packaging.

Thank you for your attention to these comments.

Kerensa Martin

January 2007

Memorandum submitted by Mr Hugh Fraser (CRED 30)

I wish to submit evidence to the Parliamentary EFRA committee hearing on climate change, A citizens agenda. I am not able to attend the committee hearing. Thank you for this opportunity to submit written evidence.

As a journalist I first published material on aspects of environment 30 years ago. I have over the past two years thoroughly researched climate change, including a dozen of the best books on the subject. My affiliation with Climate Concern UK, which has supported me enabled me to become a trained presenter of a slide presentation on climate change which I offer to schools and local amenity and civic groups.

I have circulated this submission among contacts and have incorporated points and clarifications suggested by several of these concerned citizens.

Evidence now suggests the challenge we face as individual citizens is bringing about, over as short a timeframe as possible, within 10 or 12 years maximum, a comprehensive change in how we utilize carbon emitting fuels and energy derived there from, reducing use, then improving energy efficiency.

I am with those who see a 90% cut from 1990 levels necessary by 2030, which is 23 years from now.

That timetable requires an annual cut of less than 4%, year on year. If we can do it with inflation, we can do it with carbon, if we get organised! Each year lost will result in steeper declines later.

If for this submission we leave aside the emissions from industry, business, health and leisure sectors and concentrate on households, then having readily available a number of funded resources would permit householders to achieve high rates of energy saving and carbon reduction. These resources are:

- A “national wake-up call”—such as Al Gore to address the nation with the PM introducing it and committing on camera to doing whatever is necessary; so we all know where we are all heading and why.
- A national debate on climate change, its implications, our options and how we want to respond.
- All-party political consensus on how Parliament and government can best assist and promote the action needed.
- A national strategy on how we are going to avert the worst consequences of climate change.
- An international agreement on how we can best proceed toward a goal of survival for all, reduced levels of materials consumption, continued prosperity for as many as possible.
- An overall national plan, taking in all sectors, pushing for change at a similar rate in each of the sectors.
- A Well Funded Citizens Climate Change Action Programme with sequence of Topics of Focus, each to run for, say six months (in step with EC presidencies?), such as Home Insulation and Draught proofing, Road Use and Transport options; Home energy, renewables use and generation; aviation: leisure and holiday travel.

For each Topic of Focus could there could be:

- massive advance public education drives;
- local Action Plan meetings and presentations;
- help in forming neighbourhood groups for support, outreach and extension of CC education;
- same for groups around eg place of employment, profession, church, sport/leisure activity;
- schools participation, own buildings and student community outreach work;
- inter-group contests and rallies; and
- certificates, badges and prizes for participation on Climate Action courses.

A possible model for aspects of this might be the Red Cross work on First Aid courses for the general public.

Funding is crucial to avoid hiatus of the sort currently experienced by the Energy Saving Trust. Due to re classification of VAT items, EST has had to make cutbacks, which has meant in some areas the loss of post for their Community Liaison Officer, according to one local (South London) activist who has reported this to me. Gross Lapses of intent such as this must be eradicated!

Information, current with a regular update service, on:

- the *status quo* (9.5 tonnes CO₂/person/year);
- where we need to get to (in easy stages down to one tonne/person/year by 2030);
- what we are focussing on in the current (six-month) timeframe;
- how we are doing towards our next upcoming goal (by neighbourhood, borough, region and nationally);
- what we can do, or do more of, or less of, to contribute to timely achievement of the next goal;
- what we have achieved in past periods (by neighbourhood, borough, region and nationally);
- what we are going to be moving onto next and how best to prepare.

Such a coherent, fully funded Citizens Climate Change Action Programme would instil public confidence, provide motivation for individual action and provide a call for action from individuals prepared to take a stand in reaching out to others within their immediate home neighbourhood area, their place of employment or profession, church, sport/leisure activity group.

I commend such a comprehensive programme of action to the Committee for its consideration.

Mr Hugh Fraser

January 2007

Memorandum submitted by Cambridge Carbon Footprint (CRED 31)

A. OUR BACKGROUND AND EXPERIENCE

Cambridge Carbon Footprint is a small, local, voluntary organisation concerned with climate change. Our aims are to make people more aware of their personal impact on climate change and to help people reduce that impact. We do this through encouraging people to reduce their “carbon footprints”. Using a simple questionnaire and computer program developed by the Centre for Alternative Technology, we calculate a figure in tonnes of carbon dioxide for each person and offer advice on how to make reductions. In the last 18 months we have calculated over a thousand footprints and 35 people have signed up for our courses.

Core activities

- Running “footprint” stalls at community events (for example fairs, fetes).
- Giving talks to interested groups.
- “Footprinting” people in interested organisations.
- Running ongoing small “Carbon Challenge” groups to help people reduce their footprints.
- Running the DEFRA funded “Akashi” and “Asian Voice” projects to raise climate change awareness in the BME community.

B. COMMENTS ON: THE OBSTACLES FACED BY PEOPLE AND HOUSEHOLDS WHO ARE TRYING TO MAKE A DIFFERENCE

We have found a huge level of public interest in climate change. Individuals are willing to take positive actions to reduce their emissions. The obstacles lie in the failure of government policy to facilitate these actions.

The biggest demands for action from government have been:

1. More consistency from central government. (Resolve contradictions such as that between DEFRA’s pursuit of sustainability and the DTI’s desire to expand airports.)
2. Better leadership from government on climate change, including on things which they fear may be unpopular such as environmental taxes, carbon rationing and restricting aviation.
3. Policies and actions which will enable individuals to reduce their individual footprints:
 - (a) Creation of an integrated subsidised public transport system. Many car users tell us they would be willing to reduce mileage/abandon cars altogether but find there are no alternatives for many journeys.
 - (b) Better support for householders in thermal upgrading of houses. We have found people are willing to take action but the advice provided by the EST is not sufficient to help people make the kind of long-term plans necessary while the fees of architects are beyond most householders reach and

most small builders are not well informed enough to provide advice. If we are to see the upgrading of the existing housing stock to meet the 40% emissions standard required by 2050, a large part of the changes will have to be made through small works. This will require:

- Providing affordable professional advice to home owners, in particular about strategic plans for the gradual upgrading of their homes.
 - Providing universal grants for thermal upgrades to pre-1996 housing.
 - Training of small builders and contractors to see the opportunities for thermal upgrading while quoting for other work.
 - Training building trades in the practice of energy efficient work.
- (c) Policies to curb and reverse the growth of supermarket domination. Many people would like to reduce their footprints by sourcing their food locally and walking to the shops but are unable to because of the destruction of local outlets by supermarket growth. They would also like to see food-mile labelling on products.

Cambridge Carbon Footprint

January 2007

Memorandum submitted by Mr Jim Elliot (CRED 32)

For 12 years I have co-ordinated the voluntarily staffed scrapstore Mini-Scrapbox, charity number 1050261.

For the last five we have run Community RePaint Norfolk and processed over 40,00 litres of domestic paint which otherwise would have gone to landfill. Some 28,000 litres have been redistributed.

What a waste and what a climate change effect it would have been if all that had gone straight to landfill.

It has saved Norfolk County Council thousands of pounds.

Our funding is ceasing and our patience has run out. Governments and councils cannot expect volunteers to carry out their climate protection and waste minimisation duties once the value of schemes like ours is established.

There are 62/3 other RePaint schemes nationally all doing sound environmental and social work.

Houses, schools, churches you name it they have had new extended life put in them by a lick of re-usable paint.

I want your inquiry to find out why Government is reluctant to acknowledge the worth of schemes like Community RePaint and put funding into them.

Nationally paint re-used by schemes is over 150,000 litres and growing and what is true waste is disposed of under hazardous waste licensing procedures and can be recycled (along with paint steel tins) at an Avonmouth processor.

Mr Jim Elliot

January 2007

Memorandum submitted by Mr Joe Burlington (CRED 33)

BACKGROUND AND EXPERIENCE

I am Chairman of South Somerset Climate Action, a group established a year ago which has met every month since. In April, we created an audience of 160 people to hear the journalist, Rosie Boycott, and Mayer Hillman, author of *How we can save the planet*.

All 150 seats at our local theatre will be filled for our screening of Al Gore's film *An Inconvenient Truth* on Saturday (13 January) and we have booked another screening for 4 February. Both will be followed by discussions.

I have a degree in Physics and have had a career divided between teaching and working for youth and third world charities including 100+ presentations to audiences.

THE KIND OF ISSUE I WOULD LIKE TO RAISE

Few parliamentarians appear to understand even quite straight forward scientific concepts. Both the Prime Minister and David Miliband have admitted their lack of scientific understanding and it shows; they do not know the questions to ask nor can they assess properly the information they receive. What is worse, they filter what they hear and ignore “inconvenient truths”. At least the Cabinet Minister responsible needs to have a personal grasp of the science.

The urgency of the situation needs to be stressed via a public information blitz (Clunk, click every trip; Is your journey really necessary?) SARS was a major threat to Hong Kong. A public information campaign was a crucial tool in defeating it.

We need something like a State of Emergency for Britain to take unilateral action in our own long-term interests. International negotiations might well be kicked into motion by appropriate actions which other nations would follow. Every country has its scientists, campaigners and concerned citizens waiting for an energy-profligate country such as ours to give a lead.

The proposal of a 90% cut by 2030 on a ski-jump profile is the only one which makes any sense. (Immediate large cuts on an urgent time schedule—It will get harder later.) It is stupid to wait for a catastrophe when we can create sudden dramatic change in our behaviour (a “benestrophe” perhaps, if the classics people will allow a mixture of Latin and Greek). This can have numerous benefits to the safety and health of our children, the strength of our communities, etc.

Dramatic proclamations are required of policies which will take immediate effect and have obvious impacts—ban flood lights, patio heaters, lighting on advertising hoardings; forbid retail outlets to show any lights unless vital for security and give local authorities the power to enforce the restriction.

Existing speed limits and building regulations should be enforced with the threat of dramatic penalties for infringements. As soon as practicable, lower speed limits and passivhaus building standards should be introduced as though our children’s lives depended on it—which they do! Lower speed limits can help break our addiction to long distance travel, allow young children some of the freedom which older people enjoyed in their childhood. Like the London Congestion Charge, they need to be introduced boldly with compensating measures to aid the transition. How many nurses and teachers travel from Watford to Dartford while their colleagues grind their way the other way round the M25? Could a computer agency sort out some of the nonsense?

AIRPORT AND ROAD CONSTRUCTION SHOULD ALL BE HALTED IMMEDIATELY

Carbon Rationing is the only sensible way forward that I have heard. Surely petrol coupons could be introduced within a month and a scheme for rationing gas and electricity via bills within three or four months. Even if the first efforts are crude, it will send out the necessary messages and improvements, based on credit cards perhaps, which can be introduced when they are ready.

I have heard that the first one metre rise in sea level will destroy 30% of the world’s agricultural land. We should be growing and storing as much as we can (See Joseph’s biblical advice to Pharaoh). 600 square kilometres of Somerset is below sea level (according to DEFRA).

We should also be supporting third-world countries along the lines of the Contraction and Convergence Scheme but we do not need to wait. Commonwealth countries could receive immediate assistance. Our future will depend on their cooperation. Our future will be impossible if they all try to drive and fly as much as we do.

We have had the European heatwave of 2003, floods and droughts in the UK and very much worse in Africa and now very seriously in Australia. All this with a temperature rise of 0.6 degrees above pre-industrial levels.

New Scientist magazine published an article some months ago which showed that temperatures will rise, on average, by something like 12 degrees if we burn all the fossil fuels on the planet.

Now would be a good time to stop!

Mr Joe Burlington

January 2007