



House of Commons
Communities and Local
Government Committee

Existing Housing and Climate Change

Seventh Report of Session 2007–08

Volume II

Oral and written evidence

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Communities and Local Government Committee

The Communities and Local Government Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Department for Communities and Local Government and its associated bodies.

Current membership

Dr Phyllis Starkey MP (*Labour, Milton Keynes South West*) (Chair)

Sir Paul Beresford MP (*Conservative, Mole Valley*)

Mr Clive Betts MP (*Labour, Sheffield Attercliffe*)

John Cummings MP (*Labour, Easington*)

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Mr Greg Hands MP (*Conservative, Hammersmith and Fulham*)

Anne Main MP (*Conservative, St Albans*)

Mr Bill Oler MP (*Labour, Nuneaton*)

Dr John Pugh MP (*Liberal Democrat, Southport*)

Emily Thornberry MP (*Labour, Islington South and Finsbury*)

The following members were also members of the Committee during this inquiry:

David Wright MP (*Labour, Telford*)

Martin Horwood MP (*Liberal Democrat, Cheltenham*)

Powers

The Committee is one of the departmental select committees, the powers of which are set out in House of Commons Standing Orders, principally in SO No 152. These are available on the Internet via www.parliament.uk.

Publications

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the Internet at www.parliament.uk/clgcom

Committee staff

The current staff of the Committee are Huw Yardley (Clerk of the Committee), David Weir (Second Clerk), James Cutting (Committee Specialist), Sara Turnbull (Committee Specialist), Clare Genis (Committee Assistant), Gabrielle Henderson (Senior Office Clerk), Kerrie Hanley (Secretary) and Laura Kibby (Select Committee Media Officer).

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Houses Under Threat Group

Reports from the Committee during the current and previous Sessions

The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

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Oral evidence

Taken before the Communities and Local Government Committee

on Monday 12 November 2007

Members present

Dr Phyllis Starkey, in the Chair

Sir Paul Beresford
Mr Clive Betts
John Cummings

Mr Bill Oler
John Pugh

Witness: **Professor Anne Power**, Sustainable Development Commissioner, gave evidence.

Q1 Chair: Can I welcome you, Professor Power. You are the first witness in our inquiry on Existing Housing and Climate Change. I wonder if I could start by just asking you this. The Sustainable Development Commission 18 months ago reported to Government on the developments you felt were required to improve the existing housing stock's energy efficiency. Do you think the Government has responded urgently enough to the recommendations you made and, if not, what do you think the Government should be doing now as a matter of priority?

Professor Power: The Government has not yet responded at all to the recommendations we made, even though they paid for and commissioned our work, and we have actually asked them to respond. There is a really serious hiatus in their review of the existing stock and, although they have issued a very slender initial overview that presented very much the basics, they have not yet come up with a plan for the existing stock, other than wanting to push Energy Performance Certificates, which is good but could be a lot better; carrying on the Decent Homes programme, which is good but could be a lot better; and generally wanting things to be more energy efficient. Different Ministers do refer to the existing stock as being an issue but they have not announced any special programmes, and in the Comprehensive Spending Review I think they announced £4 billion extra for further renovation of homes. They have not issued any details—we did ask them—and my understanding is that that is very much within the existing programme planning. I think there is a hiatus that could be filled. One of the problems was that the review of existing homes, when David Miliband went to Defra and set up the Office of Climate Change, Defra was then asked to carry through some of the review and they have come up with proposals for household incentives and helping householders to do more but it is one of those problem areas that I think is still between departments. Maybe they are planning more than we know but we do not get the impression that there is actually a plan, and they have not directly responded to our report.

Q2 Chair: What do you feel the Government should be doing as a matter of priority that they are not doing or that you do not know they are doing?

Professor Power: If I wanted to give it a very simple tag, I would say copy Germany, because in Germany the government announced in January of this year a very broad-ranging programme of upgrading all pre-1984 homes to a very high environmental/energy-efficient standard and it was going to take up a lot of complex building forms and multi-storey buildings, which in Germany are much commoner than here, but it was also going to take up schools and other public buildings and individual home owners, and they were going to count it as one of the very major contributors to hitting their 20% reduction target for carbon by 2020. It has been piloted in several ways over many thousands of units over the last five years, so they have gone a long way, and we could at least now start a pilot. They also do it through a mixture of loans and other incentives, although they do, of course, subsidise their whole renewable energy industry alongside. They are much further down the road than we are in recognizing the existing stock as a major source of both climate change damage and potential for saving.

Q3 Chair: What do you think are the main constraints at the moment on improving the existing stock and what do you think the role of the Government should be as opposed to home owners or owners of private rented stock, or local government, for that matter?

Professor Power: There are various constraints. The main constraint—and this is what when we were doing *Stock Take* originally we faced from all the Building Regulations people in government—it is very complex, very complicated, and when we were doing the Code for Sustainable Homes, which originally had been planned to start with the new and move on to the existing but it has stuck with the new, it was the same; it is very complicated. There are things that genuinely make it complicated. It is lots and lots of individual owners, and it is very varied stock. If you wanted to really simplify the stock prototypes, you would get it down to maybe 20 or 30 but that would be very crudely reducing the types of stock. That is a second complication. It is lots of small builders—50,000 or 60,000—and lots of different suppliers and, because we have not invested very much in

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that field, in skill-building and capacity-building in the building industry for that kind of work, I think there is a serious skills gap, but the really big thing is that building new is tax-free and repairing is 17.5% tax on what you do and I just think we cannot escape that very uneven playing field.

Chair: Can we just explore that last point?

John Cummings: I would like to pick up a point on the first question.

Chair: Yes, certainly, but perhaps we could go to the VAT point after that because the Professor has just raised that.

Q4 John Cummings: I think it is an extremely important issue because I understand that you report directly to the Prime Minister, the First Ministers of the devolved administrations in Edinburgh and Cardiff.

Professor Power: And Northern Ireland now.

Q5 John Cummings: You cannot go any higher than that, yet there seems to have been nothing done for 18 months. Do you not find this extraordinary? Are you upset about it, having put all of this very valuable work in, for it to perhaps lie on a desk gathering dust?

Professor Power: We try to make sure they are not gathering dust. We do keep pushing, and I think the argument has moved on quite a long way but I do find it frustrating and I think my colleague, Lizzie Chatterjee, who did a lot of the work, is probably even more frustrated but we try to be polite about it. If you wanted me to be impolite, I could be.

Q6 John Cummings: Do I detect that you are rather more than frustrated with the lack of a response from the Prime Minister's office?

Professor Power: I think we could be doing a lot better and it would be a cheap and relatively easy win. It would have massive social benefits as well as environmental benefits and it would deliver for the Government a lot of neighbourhood renewal as well as environmental benefit. It would also release a lot of infill land within the inner-city areas and the lower income neighbourhoods that need upgrading which could then be used for building so we could get a lot of new homes in as well. I think we could get a triple benefit if we did it: one, upgrading the existing homes, which would help a lot of moderate to lower income households; two, renewing neighbourhoods, because the minute you start reinvesting in an existing neighbourhood you get more diverse people moving in, you get little shops opening again, the bus routes become more frequented and the streets are cleaner, so there are a lot of benefits in the broader sense of neighbourhood renewal; and, thirdly, the infill sites, of which we have thousands and thousands of very small ones, half an acre and under, would suddenly gain value again so that you would not need these big sites and these out-of-town developments in the way we do now, or think we do. I think it would have a huge benefit. I cannot argue strongly enough for how big a benefit it would bring.

Q7 John Cummings: I get the impression that people are paying lip service to it. Would that be correct?

Professor Power: They are not giving it sufficient priority. They are really not paying that much lip service to it. They are not giving it sufficient priority.

Q8 Chair: Is that not giving it priority in terms of putting money into it or is it not giving it priority in terms of the policy instruments that would be required?

Professor Power: It is both. I did not really answer your question on policy instruments, which would go back to the VAT issue. Do you want me to quickly answer on that one?

Q9 Chair: Yes. On the VAT, would you give us an indication of what effect you think it would actually have if VAT were reduced or equalised.

Professor Power: For the areas where VAT has been reduced to 5% or even abolished, it has had a good leveraging effect, for example, in installing renewable energy, solar water collectors and that kind of thing, so it is a concession that is worth having. It is very constrained, so you cannot gain VAT reduction for do-it-yourself, which you can understand the logic for; they really do not want to lose tax, so somehow we have to try and get beyond a not wanting to lose tax/needing to renew homes balance because it is not a favourable balance and in other European countries, France and Germany particularly, they do not levy 17.5% VAT on this kind of work.

Q10 Chair: Have they ever done so?

Professor Power: I would find it hard to answer that question. In theory, I believe the French were supposed to, but in practice did not. I honestly am not an expert on VAT nor do I know, but I could try and check the answer to that.

Q11 Mr Betts: Professor, if we are talking about a seismic shift in attitudes and practice, is 17.5% really going to make the difference?

Professor Power: We had a piece of work done to put renewable energy and upgrade our house at £11,000 and the bill was £15,000. It makes a big difference.

Q12 Mr Betts: Does it?

Professor Power: Yes.

Q13 Mr Betts: I am not sure. I might be suggesting that if we are really going to incentivise people, grants, where people see cash coming, is much more likely to get their interest whetted and exploring what might be done but if you simply say we are going to knock VAT off, or part of VAT off, is that really going to change the attitudes of millions of people?

Professor Power: I had only got that far, but on its own it is probably not enough for the more advanced stuff that you need to do. The other thing that seems to be very successful is Council Tax

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rebates. The other thing that seems to be extremely successful is just clear regulation and when we were doing the Code for Sustainable Homes the builders were all screaming “We just want clear regulation on this. If we have clear regulation . . .” They were ahead of the Government on wanting clarity because then all builders would do it. What they were worried about was some kind of voluntary agreement or some kind of aspirational code that would not apply to everybody. So regulation definitely has a strong role in this, I think, and then bigger incentives in the way of rebates on other kinds of tax, like Council Tax. I can understand why the Government is very reluctant to introduce grants again. They did not have a very good history, they did have a very distorting effect and they did massively push up prices. You have to somehow balance it. What the Germans are doing is offering subsidised loans that beyond a certain point are remitted, which effectively turns it into a grant beyond a certain point. Again, I do not know the exact details of that but it means that you do not get people in with a grant, you do not get builders in with a grant; you get them in with a financial costing that makes sense to them. At the moment our financial costings on investing in renewing your home often do not make sense because people expect to move after seven years and you may get the payback after 15 or whatever. The way we mortgage those kinds of improvements could also be a very good incentive. The Green Building Council is looking at that.

Q14 Sir Paul Beresford: One of the theories is that if you offer sufficient grants for some of the more exotic stuff, like the solar electric panels, *et cetera*, you will increase the production such that it will reduce the unit costs. Are there any countries doing that and has that had any effect?

Professor Power: Germany. Their solar panels are half our price, their insulation of homes is much cheaper, their external wall cladding is half our price. So yes, if you incentivise an approach, it does over time.

Q15 Sir Paul Beresford: Any other countries?

Professor Power: I think Japan also has much lower prices on solar because it has a million solar panels programme. France has now introduced a programme but I think they have not really done very much of the implementing yet. The Germans have been doing it since 2003.

Q16 Sir Paul Beresford: Has it had an effect on production costs?

Professor Power: Yes, and the other thing it has had a very big effect on is jobs, which of course in Germany is a huge issue. They have created lots of jobs in renewable energy and places like Leipzig in eastern Germany have become the biggest solar producing base in Europe now, and now the Spanish are adopting it, so other countries do have a lot of experience of doing it. Barcelona

introduced a building code under Catalonian law—they have a lot of devolved power—and that has now levered the Spanish government to do it.

Q17 Sir Paul Beresford: What about any countries that are north of here?

Professor Power: The Swedes have been doing it for a very long time. I do not know about the Swedish costs.

Q18 Sir Paul Beresford: So the excuse that there is no sunshine in Britain does not hold?

Professor Power: No, it definitely does not hold.

Q19 John Pugh: Can I ask you about landlords? There are big landlords, housing corporations, councils and so on, who have some kind of incentive. It is in their interests almost to make sure their homes are more energy-efficient because they have wider social agendas, they want to stop fuel poverty and that kind of thing, but your private landlord, who maybe has a few properties, maybe slightly older properties, quite hard to heat and so on, why should he bother? He can simply not include the heating costs in with the rent, get the person renting to pay their own heating bill, and avoid the unnecessary capital expenditure which he will see very little return on.

Professor Power: The private landlord issue in this country is still pretty difficult because generally, we are short of private renting, so generally private renting goes at double the rents of social housing. It is very high-cost and people either get Housing Benefit for it or they have to pay high rents. If they have lower heating charges, significantly lower heating charges, at the same time, that would make landlords’ property more attractive to tenants. One of the outcomes of the German programme, which is targeting landlords very often, is that their rent income has gone up and their empty property has gone down.

Q20 John Pugh: Just on that, is there any evidence that that is the case, that when people are actually looking round for property, a landlord will say, “Actually, this is a very easy place to heat” and the tenant will believe that and say, “I will definitely go with that property rather than the one I was thinking of”?

Professor Power: No, but there is no reason why you should not have the equivalent of Energy Performance Certificates for rented property.

Q21 Chair: They are proposed for October 2008, I think.

Professor Power: It would make a difference because sometimes people are paying a very large amount in extra heating and extra Council Tax. The other way in which it would make a difference would be if the councils, which are now often running voluntary registration of private landlords, gave energy certificates to landlords and then Council Tax rebates to landlords who were more energy efficient. You would have to have a big incentive for public bodies to cut energy in their

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areas. If every council had this 20% goal that the Government has by 2020, the councils, certainly the urban councils would have a very big incentive.

Q22 John Pugh: But for some councils, where they have huge swathes of municipal or ex-municipal housing, it would be relatively easy to achieve the target. If you have a very mixed environment, a lot of private, maybe old property, it would be very hard to hit a target or even to fairly impose one.

Professor Power: We have imposed laws on multi-occupation, we have imposed laws on overcrowding, you are no longer allowed to rent without sanitation. I remember when we let out our basement and it was closed because the ceiling was only six foot up instead of six foot three. You can do these things if you are determined enough.

Q23 John Pugh: Just thinking about lowering ceilings, we could around this place obviously, and in the committee rooms put in a nice polystyrene ceiling and save an awful lot of the fuel costs of this building but there is an aesthetic trade-off there which most householders accept, but in terms of the levers that actually move most householders, most people look at the brochures, look at the figures, recognize intellectually, I suppose, that they would save a fair amount of money if they did certain virtuous energy saving things but, at the end of the day, the returns are not short-term, not very immediate, and the information they are getting about the savings they are making is not very immediate.

Professor Power: Most landlords are a bit longer term than most home owners, most home owners expect to move in seven years but most landlords do not expect to sell their property in seven years. Landlords actually have a better incentive under current regimes than private owners do. If you could introduce green mortgages for upgrading, then home owners could have a better incentive, green mortgages being special funding arrangements in order to fund improvements, and there is no reason why that would not apply to private landlords as well.

Q24 John Pugh: So the secret for home owners is to reduce the initial capital costs given that the spin-offs, the benefits they will get over the long term may not be there for them.

Professor Power: Yes, and the other thing that landlords could do—I have discussed this with the Housing Corporation—that would make a vast difference to what housing associations would be willing to do, if a housing association which owns, say, 10,000 properties upgrades them to a higher energy efficiency standard at a cost of £10,000 per home, it can borrow that money on the capital market but it cannot charge the extra rent that the tenants will gain in reduced heating costs. So at the moment there is no way of landlords, particularly social landlords, being able—and we raised this with Yvette Cooper at our recent meeting with her—to trade rent levels under the current convergence and rent control system with investing

in higher energy efficiency. VAT is one, but the rent issue is another, and then financial vehicles, the green mortgage issue is another and then the council rebate is another.

Q25 Sir Paul Beresford: What was her response?

Professor Power: “Very interesting point. We hadn’t really thought about it.” It is not quite true but she did think that was an interesting point.

Q26 Chair: Just to pick up something, you were suggesting the private sector landlords have a slightly longer view than owner occupiers, yet the private rented sector is the worst part of housing for energy inefficiency. How do you explain that?

Professor Power: Because, as one of your colleagues said, the landlord does not pay the heating bill and because there is a demand for private renting and because either the Government picks up the Housing Benefit cost and the Government does not bother about it or a tenant actually wants to live there and does not have an alternative so they are willing to pay it; nobody is pushed into doing it, and certainly private tenants move very rapidly so they certainly would not have any incentive to do it.

Q27 John Pugh: Just going back to the issue of the private and recalcitrant owner, I am somewhat like that really. I live in a Victorian house that is not particularly well insulated and I do not go out into the loft to check my lagging all the time.

Professor Power: You deserve to be persecuted! Sorry!

Q28 John Pugh: I am quite conscious when I walk in the room and I see Mrs Pugh with the electric fire on and things like that what effect that might have on my fuel bill but the effect is not immediate. You do not immediately get a letter from the electricity board saying “You have spent so much today.” There is an EDM down in Parliament at the moment, I think, about real-time metering. What I am suggesting, and I do not know whether there is a case for this, is does not a private householder need that sort of immediate feedback about what the energy saving is doing because the long-term vista may not be there for them or may be uncertain because they may be planning on moving?

Professor Power: Smart metering and immediate, direct metering and room by room metering and all of that kind of thing does have a dramatic effect apparently on people’s behaviour. When we put in our solar water collector—I am not trying to pull rank here—my husband used to rush into the bathroom every evening to see what the reading was. “It can’t be true that you don’t get solar gain in winter because look, we got up to 36° or up to 50° or whatever today.” So being able to see your gain is very important.

Chair: I can attest to that. We have it in my constituency office and we are much more careful with the kettle these days because it sends the meter through the roof.

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Q29 Mr Oler: I have a couple of cynical questions to start with. This is on the VAT reduction. I think the advantage of that will be momentary. As soon as it is off, the prices in general will rise, so you will really be back where you were before. That is my fear on that. One of the things I do not think you have mentioned is where there could be a really good gain on people living in clusters of either owner-occupied housing or rented housing, not looking just at an isolated property but looking at a group of properties on a group energy scheme. I agree basically with smart metering. I actually think we ought to be putting that in as part of the Building Regulations, particularly on new build, but some of the smart metering I have looked at has been the Fiesta of smart metering, Fiesta X of smart metering and a Fiesta Ghia of smart metering.

Professor Power: I do not drive a car and I do not own a car so any car analogy is lost on me.

Q30 Mr Oler: The analogy is lost on you then. If you have three sorts of models, which one do you say should be used as the norm?

Professor Power: A few things have come up there. Is it worth me quickly responding? One point is how you get messages to people as opposed to how you put up their electricity bill. Dr Pugh's wife needs a really powerful message on electricity consumption.

Q31 John Pugh: I would agree with that, yes!

Professor Power: I went to a conference in Austria called the World Sustainable Energy Conference. It was a very interesting conference. One of the presentations was from a Californian professor, from whom I did not expect we would learn a huge amount on energy efficiency. However, he is the world's leading expert on how you get people to cut electricity bills because California, believe it or not, is the world's leading region on reducing electricity consumption because, basically, they do not have enough electricity. According to him, pricing did not work, black-outs did not work and what worked was messaging. You just drive home again and again you can actually use half the electricity you are now using if you do this, that and the other and if your neighbours do it as well and if you all watch out for each other. We have a very good example of that. Hosepipe controls in London work. It is bizarre but everybody watches out for everybody else. "Don't you dare use your hosepipe. I saw you using your hosepipe." So that is one thing. We have to get the message over that people can actually make a difference, and you have to have a plan. California had a plan: we will reduce electricity consumption by 10% a year by . . . They have done it, apparently, and they are still doing it and it is still going down, which is extraordinary for one of the most extravagant places on Earth, apart from Dubai. That was the first thing. The second thing was the density and clusters, and Lizzie Chatterjee has been doing some work on district heating within existing areas and we are

hoping to produce some of that evidence and, as soon as we do, we would be very happy to share it with you.

Q32 Chair: That would be very helpful.

Professor Power: Obviously, there are complexities because the place is already built but there are big advantages too in that the people are already there and the homes are already there and you have a ready little market. We have had amazing presentations from people working on decentralised energy, showing that you can make 60% reductions just by having decentralised energy, even if you do not use terribly efficient methods of doing it. The third issue is how you impose on landlords or owners, people like yourselves. Building Regulations are basically not enforced on existing homes. They used to be in the period when conversions were the big thing in the Seventies, and now they are not enforced and that does seem to me a big mistake, to have a system which you do not enforce. The Swedes enforce, the Germans enforce, and I do not see why we cannot enforce. I do not know whether the French do, from what I have heard on their VAT issue; they seem to be a bit dodgy but you could enforce and we should enforce.

Q33 Mr Betts: I wonder whether we could learn a lesson from another major public policy success of the past, and that is the Clean Air legislation, where we decided what we wanted to do, we explained to people why we were going to do it, we told them what they could not do as individuals, we gave them a grant for what they should be doing, and we were massively successful. Is it a similar sort of plan that we need to draw up in this case, with some sticks and restrictions attached but also some carrots and incentives?

Professor Power: Definitely. People know what the basic list of six items is that we should include and if it was turned into a package, and if there was a funding vehicle and an agency that would handhold the householder, handhold the builder, handhold the supplier, that seems to be absolutely key in delivering it.

Q34 Mr Betts: That is very interesting. The other thing I was going to go on to talk about is advice. I remember going to Scandinavia looking at combined heat and power schemes about 20 years ago. I remember that there they had almost energy advice centres but they were bigger than that. They had the private sector in, so you could go and buy your boiler, your insulation material, you could contract with a builder at the place but you also had energy experts in there advising you at the same time. I just wonder whether that is something that you have thought about. People often just do not know where to turn.

Professor Power: Exactly, and when you turn, you might get the beginnings of advice but there is nobody paid to handhold you through the process, and that is, I think, the problem. Somebody needs

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to help you see it from A to Z and put the funding package together and get an accredited builder. Just to give one example, solar water collectors are very expensive to install because there are a few companies that have a controlling interest in the installation, and until that is opened up and it becomes the norm for plumbers to be required to learn how to put two plugs together in order to have a solar water collector working, which is basically what you need, we will be stuck on the

cost of installing solar water collectors. That could definitely help a lot. We probably have the infrastructure to do it but we just need to shift the incentives so it really works.

Chair: Thank you very much for starting us off, Professor Power. It may be that we might have some other questions we want to ask you in writing afterwards coming out of your evidence and maybe some of the other evidence we are going to get this afternoon. Thank you very much indeed.

Witnesses: **Mr Jack Pringle**, immediate past President, and **Mr Bill Gething**, Chair of Sustainable Futures Group, Royal Institute of British Architects, gave evidence.

Q35 Chair: I think both of you have been sitting there listening to the previous session so I imagine that may have covered some of the ground that you might have wished to but also may have raised some further issues. Can I ask you first broadly and briefly about where you think the Government should be going and how it should be investing to give direction to reducing or improving the energy efficiency of existing housing?

Mr Pringle: I think we feel that this is such a big issue in terms of energy for all the reasons that you have already been given in terms of the amount of CO₂ that is given off by the existing stock that it needs to be positively tackled. At the moment it is perhaps the Cinderella of the construction industry and the built environment. We would like to see a number of measures taken. We think for it to be tackled effectively there needs to be a systemic approach, a systems approach, that will wash across the building stock in an effective way. What that system approach is I think is a matter for debate but there are certainly some ideas, not least some that were given by Professor Power, that we would support too. For a start, the Code for Sustainable Homes we believe should be extended to existing homes as well as the new build homes. In many ways, the new build market is relatively easy compared to the existing stock but we are seeing in the new build area that the Code is already having some effect. It is still at a voluntary stage but we are seeing, for instance, the volume house builders voluntarily signing up to the Code and so it does have an effect when it is combined with raising awareness, a programme for raising awareness. We would certainly support the equalisation of VAT and although we heard the arguments perhaps against the equalisation of VAT, we see in projects time and time again that the imbalance between zero-rated on new build and 17.5% on refurbishment can skew the strategy of some projects and can inhibit the final spend, if you like, on elements that would be highly beneficial like renewable energy sources. So we think VAT is certainly a barrier to it. I think there are other matters that could be put in place but I think they are tactical rather than strategic. You might use section 106 agreements in the planning system to effect upgrading of existing stock by developers wanting to do new buildings. You might see the

Building Regulations being used so that when somebody wants to extend their home, they have a duty to upgrade the rest of their home while they are doing that extension, *et cetera*. Bill, do you want to add anything to that?

Mr Gething: I am not sure I should add anything to that. Interesting on the VAT issue: I wonder what would happen if you had the choice of paying the VAT or doing some energy efficiency improvement to your home. I am extending my house at the moment and if I had an extra £20,000 to spend on renewables out of the tax, that would be excellent.

Q36 Mr Oler: Or if you buy recycled materials.

Mr Gething: Exactly.

Q37 Chair: Can I just ask you briefly to expand about extending the Code to the existing stock. Are you suggesting that it should apply to the whole of a house if alterations were made to it, or that there should be a time frame for actually imposing it on all existing houses, whether you are doing any alterations or not?

Mr Pringle: We are suggesting the latter. Clearly, as in the new homes, it would start on a voluntary basis. We do understand that there are issues about fuel poverty going forward to make it mandatory, but it is something which is clearly understood. We already have one standard for one set of homes. Why do we not use the same standard for all homes? People can understand it in a very simple way and it is a very simple measure.

Mr Gething: The great thing about the Code is it has set a framework and that has been an absolute transformation in the new build world, that people know where we are going up until 2016, they know the steps, so there is absolute clarity and a long-term view, exactly as in Germany. There is a 20-year policy and everyone knows what we are going to do for 20 years with clarity.

Mr Pringle: That could suite with other measures, like if Building Regulations required you to do something, if selling a house required you to do something. You would have a set of measures to set it against.

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Q38 Mr Oler: Home Information Packs obviously have an emphasis on energy efficiency. Do you see those being used in the future as perhaps a sharper tool than they are now in encouraging energy efficiency?

Mr Gething: I think the strength of the Home Information Pack is that it does make your energy performance visible, and it is visible at a time when you are making decisions about what you do to your home when you sell it or when you buy it, so you can decide to spend some money. It remains to be seen whether it will work as a voluntary measure, whether in effect the market will generate the impetus to do things to improve your energy performance. You can easily see it being turned into a regulatory tool where it might be linked to your Council Tax, as a lever for other sticks. This whole issue is how many carrots do you have, how many sticks do you have and when do carrots become sticks, and when do we suddenly realise how serious this problem is?

Q39 John Cummings: You suggest that widespread introduction of complex and expensive products such as CHP or solar-powered heating may be necessary if the Government is to meet its targets. Do you believe that the necessary improvements can be made without such technologies?

Mr Pringle: There is work being done, particularly in the Oxford 40 Percent House, which shows that even if you insulate the lofts, the walls, replace the windows, the doors, *et cetera*, to get the whole target met you are going to have to introduce some of these renewable energy source techniques that you have talked about. The short answer to your question is we are going to need all of the tools that are going to be available to us to reach the targets.

Q40 John Cummings: If that is the case, how do you believe it is possible for the Government to persuade 17 million individual householders to insulate their lofts, fill their walls and upgrade their windows?

Mr Pringle: Indeed, that is the absolute question. What systematic way can the Government bring to bear in this?

Q41 John Cummings: Do you think financial incentives could be part and parcel of the package?

Mr Pringle: Professor Power talked about what is happening in Germany. We have looked at Germany too, and for the cost of about £1 billion a year, they are aiming to convert 5% per annum of the existing stock. That is one way, but I would like to point out that if you look back over the last, say, 30 years, the transformation that has already gone on in the housing stock, from coke boilers to natural gas boilers, the amount of double glazing that has gone on, how everybody has insulated their loft, vast change has happened in recent memory, so to say that by 2050 we can make substantial changes is not unimaginable. It is not unimaginable that we can make those changes.

Q42 John Cummings: So you really believe that it is possible for the Government to persuade home owners to invest in expensive products that will not provide any financial benefit for perhaps 10, 20 or in some cases 30 years?

Mr Gething: Did not the Stern review suggest that we need to change the market? In today's market of cheap energy the financial equations are not very attractive. Also, people are obsessed with paybacks, and I can quite understand why but you never expect a payback from your plasma TV, for example.

Mr Pringle: I would also like to point out that vast numbers of people have invested in the worst payback measure they could have done, which is double glazing and UPVC windows. As a measure it has the longest possible payback period, yet people have volunteered to do that. It is because of a view they have on the investment quality into their house and comfort standards, and I think if the rest of the packages can be tied to investment in the house and comfort standards, then you would get people wanting to do it too.

Q43 John Cummings: With windows you can see a positive benefit to the house. It becomes quite sexy to have a particular sort of UPVC windows or hardwood windows. It attracts people. I am not quite sure about wall insulation, which you cannot see.

Mr Gething: No, insulation is not sexy, but it is important.

Chair: I really do not think we want to get into a discussion about whether it is or not!

Q44 Sir Paul Beresford: In some countries both in the northern hemisphere and the southern hemisphere there is peer pressure, and that is combined with an understanding of some of the more complicated things, like heat pumps and solar electric roofing arrangements and solar water arrangements, *et cetera*. Can we move down that sort of way? It is certainly happening in some of the colder climates in the northern hemisphere but in some of the cooler and more temperate as well as some of the warmer climates in the southern hemisphere.

Mr Pringle: I think peer pressure follows awareness and you can see that happening already. It is happening in the vehicle markets. I think there needs to be an awareness campaign in the household market about what is a sensible thing to do, what is a smart thing to do, what is an intelligent thing to do, what is a responsible thing to do and then you will get peer pressure.

Q45 Sir Paul Beresford: Part of it is also to get an explanation over. If you say to someone "You need a heat pump system" and you are in Australia or New Zealand, they understand what you are talking about. If you say it here, you get the blankest look you could think of.

Mr Pringle: Indeed.

Mr Gething: But actually, here heat pumps are slightly "iffy" if you are on gas. There are some quite complicated technical arguments. One of the

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potential drivers will be the Energy Services Directive, which, as I understand it, will require energy providers to provide benchmarks. When you get your gas bill, it would say “You are using too much gas compared with the benchmark. How about considering these issues?” It could offer or point you in the direction of grants or finance. All this needs to be tied together in a co-ordinated package and it is trying to get the information to people at the right time and pointing them in very clear directions.

Q46 Mr Betts: Do you have a way you think that should be done? This is absolutely key. You in your profession ought to understand these things but many people put double glazing in on the strength of the salesman who knocks on the door and gives them supposed advice, hardly independent, and it may not be very cheap advice either. Some of these things are actually much more complicated for people to understand and which one you do, which route you go down. As you said, in some cases certain technology may not be appropriate for a certain type of property with a certain type of heating in it. How do you think this advice ought to be delivered in a way that will benefit people and make things happen?

Mr Pringle: I think there is a skills gap. There is an information gap and a skills gap. There is a skills gap in the profession at the moment because all the professions have existed in a world where they have not had to carry out low-energy designs, and yet almost immediately, within the space of one or two years, a completely new design technology needs to be brought to bear. That is one of the reasons we as an Institute have been investing in low carbon design tools for our profession, to say “If you are going to do this sort of project, these are the sorts of measures you need to look at, these are the sorts of technologies that you need to get hold of.” I think that also needs to go further into information that can be promulgated to householders about what technologies would be suitable for their type of house. Professor Power has said there are about 20 different housing typologies, from terraced houses to semi-detached to timber frame. Each of them needs to have a slightly different approach. It is quite complicated and I think we need to invest—and it will take a few million pounds to do it—in, typology by typology, the sort of measures that you could take to existing houses that both householders and professionals or builders could grab and say, “That is what I can do with that type of house. I now understand the way forward.” One of the issues we have in this country is that a lot of our existing building stock is quite historic and has quite a character to it. We do not have the convenience that perhaps parts of Germany have where you have rendered, in other words, plastered and painted, outsides of houses that you can very simply over-clad with thick insulation. We have an added difficulty here with our housing stock that we would not want to do that to brick elevations and to completely change the visual character of

neighbourhoods, so we have to do something slightly more complicated to the inside of the house to get the same return.

Q47 John Pugh: Can I just follow through on that point? It strikes me that we have to accept the fact that some housing is going to be more energy-intensive than others. If we all lived in thatched cottages with tiny little windows and very small rooms, we could save a hell of a lot of energy but there are not many of us who are actually going to make that choice, and some of us prefer large houses with patios and all sorts of things like that which are necessarily going to consume more energy. Given that people choose their houses because they like the houses, they like the living environment that the houses represent to them, is it not really incumbent on somebody to do models of best practice for particular sorts of housing? In terms of older housing, there are two things you can do. You can deface it utterly and turn it into something different or you can work with the grain. If you were a householder and you were looking not to change your house radically but, without changing your house radically, to make the best of it, where would be the best place to look for the perfect model of good practice?

Mr Pringle: We also think those models need to be drawn up, which is what I was talking about earlier. I turn to Bill: what do you think are the models of good practice?

Mr Gething: The Energy Saving Trust has done quite a lot of work and they have produced a very fine leaflet about best practice in energy efficient renewables.

Q48 John Pugh: That is precisely my point. They tend to say general things like reduce the size of your ceilings and so on. In certain houses you are not going to do that. In some houses you cannot reduce the size of the ceilings because the ceiling is low enough as it is. What you are looking for is selling more tailor-made to specific sorts of housing, whether it is older housing or whether it is housing of a particular sort you just simply prefer. The generalities we all know, do we not?

Mr Pringle: I think at the moment you come to an architect that specialises in that type of work for advice.

Q49 John Pugh: It is a very expensive way of finding out.

Mr Gething: Less than 17.5%, I think you’ll find!

Mr Pringle: The initial advice is not necessarily that expensive. If you want an architect to carry out the whole project for you, that is another set of decisions but you can get just advice about what would be most appropriate from skilled architects working in the field. I think it returns to the earlier point. I think there is a real need for exemplars for each building type, for each housing type, from your thatched cottage to your terraced house to your glazed, modern construction, and then householders need not go to what you would call expensive professionals; they would have a reference.

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Q50 John Pugh: I live in a town where practically all of it is Victorian and most of the householders are not going to go to their own bespoke architect and say “What can we do here?” What they really want to do is to go down to B&Q and buy what will work in their house that does not involve radical design, the loss of high ceilings and all that sort of stuff, and there is not that sort of ready-made advice, specifically tailored for them available, I do not think.

Mr Gething: I think you could do, as Jack has said, a systematic approach to this which could feed into exactly the sorts of things I was talking about earlier, like your advice when you get your energy bill. The other thing one should note is that the Energy Saving Trust did some work looking at what they call “extreme refurbishment” to try and find examples around the country of the sort of things we are going to have to do to our buildings if we are going to hit the 60%. They found six in the entire country.

Q51 John Pugh: What is extreme refurbishment of a pre-1919 house?

Mr Gething: Again, these tend to be done by enthusiasts and they vary hugely, which is interesting. Someone will put 250 mm of insulation in their floor, someone will put 400 mm of insulation in their roof, and some of the architectural consequences are pretty staggering: you end up with tubes to windows. Only one of those six has been monitored. One of the things we really do have a problem with is that we talk anecdotally about the problem and there is some information, the English House Condition Survey, there is some information out there but it seems to me that there is a lot more information out there on actual energy consumption in buildings and building types and statistical information which we do not pull together and therefore I think we are working a bit in the dark. We are guessing at the answers when I think there needs to be a more considered and consistent tackling of the issue.

Q52 John Pugh: My suspicion is we are not working sufficiently with the grain of human nature. People, certainly in smaller Victorian houses, will think of things which you would not recommend, such as knocking down a partition wall because they want a larger room and things like that, which of course will be more problematic to build. They will do silly things like putting in PVC windows because they do not need painting as often as the old wooden ones did. So there are plusses but to give them a whole series of handouts saying “There is lagging available, chaps” will not get them to do the practical things that are needed.

Mr Gething: Yes. This illustrates the problem of where to put the information out, because a lot of this work will be, in effect, the DIY market or the “white van” market and those are areas which are traditionally very difficult. There is no logical roll-out programme to get this information out to these people. Part of this will come from what we were saying earlier about making people aware that there is a push, that there is a Government policy to deal with this issue over the long term and we are starting now, but at the moment there is no feeling that there is a consistent approach that the Government is taking that we need to make progress.

Q53 Chair: Can I ask you finally, do you think there are some houses that are so inefficient and so unable to be made efficient that they should just be demolished and replaced?

Mr Pringle: There are some houses, clearly, listed buildings, that are so inefficient but so worth keeping that exceptions need to be made of them and at the other end of the scale I am sure there are houses which are beyond hope, and it might be better to take them down and rebuild them but I do not think they are in the forefront of our minds. We think most of the existing building stock is susceptible to treatment and, if it is not, it is probably pretty poor stuff anyway.

Mr Olnor: We spoke about housing and obviously that is what we are looking at but do you have a comparator as to how energy-inefficient industries, commerces, compare to households and do you think more could be done to perhaps target that to get a more sustainable withdrawal of using carbon dioxide?

Q54 Chair: Can I just turn that round, as we are supposed to be looking at housing, and say do you think that the contribution of existing housing to our energy consumption is sufficiently important that we need to be doing more about it, or are there other bits that we should be concentrating on first?

Mr Pringle: Undeniably, this is the most important agenda. If it is 27% CO₂ output at the moment and we are going to have 80-odd per cent of the existing stock still here in 2050, that means the existing buildings are going to be contributing, by my calculation, about 25% still in 2050. This is a huge proportion of our carbon output and it should be prioritised.

Mr Gething: I think there is a subsequent point that tackling the carbon challenge needs to be done across the piece and at the moment it is rather parcelled up and it feels like the building industry is being specifically targeted as potentially a quick win. I suppose if you turn the question round the other way, if you do not do anything with the existing stock, where do you get the 60% from? You would have to stop making anything, I suspect. Again, it would be good to see government joined up across the piece.

Chair: Indeed. Thank you very much.

Witnesses: **Councillor Ian Mearns**, Vice-Chair, Local Government Association Environment Board and Deputy Leader of Gateshead Council, **Dr Philip Webber**, Head of the Environment Unit, Kirklees Council and **Mr Oliver Myers**, Interim Head of Sustainability, London Borough of Camden and Chair, UK HECA, Local Government Association, gave evidence.

Q55 Chair: Can we ask you just to say who each of you is and what you do within the LGA?

Dr Webber: Philip Webber, Head of the Environment Unit, Kirklees Council.

Councillor Mearns: Ian Mearns, and I am Vice-Chair of the LGA's environment board and Deputy Leader of Gateshead Council.

Mr Myers: Oliver Myers. I am Interim Head of Sustainability at the London Borough of Camden. I also chair a national network of energy officers called UK HECA.

Q56 Chair: We do not want all of you to answer every question, and I will leave it to you to decide who answers what. That seems most appropriate. Can I start off, and obviously we are going to focus in this bit of the session on local authorities and their particular role. What would you say are the major policy tools available to local authorities to encourage more energy-efficient housing within their area and what more you think government should be doing to support you?

Councillor Mearns: Good evening and thank you very much for the invitation to come along. We had an environment board meeting just last Thursday when we outlined priorities for our work for the year as an environment board. We have obviously highlighted three areas, which are our main work programme, though I think all of them involve the agenda this evening. First and foremost, it is tackling climate change as an entity, the second one is housing and the third one is waste management, and they all have an impact on the climate change agenda. I understood that this evening's inquiry session was going to be focusing on the present housing stock.

Q57 Chair: Exactly. We are talking about the existing housing stock and its relationship to climate change, not the other topics that you mentioned. It is really in that specific area: what mechanisms local authorities have to influence that in their areas.

Councillor Mearns: I think local authorities have started to talk about climate change in a very serious way, and it is one thing talking about it and another thing doing something tangible about it. As you are probably aware, something like 280 authorities have now signed up to the Nottingham Declaration on Climate Change but it is a big thing, changing that signature of a declaration into actual action on the ground. Having said that, I talk from my own local authority perspective, and I would think ne'er a week goes by without our own Cabinet discussing climate change, carbon emissions, what we are doing as a local authority. Every week we are discussing issues with of that kind. For instance, a Warm Zone within our borough which has a budget of about £22 million funded by energy generation companies and which is putting cavity wall insulation and loft insulation into about 70% of the properties in the whole of the borough. That is vitally important from our perspective as a local authority in as much as it

is providing a great service to local people, tackling fuel poverty, but also making sure that there is a fantastic reduction in the energy consumption of the properties in our area. That is an example.

Q58 Chair: Is that your Decent Homes programme?

Councillor Mearns: No, it is separate to the Decent Homes work.

Q59 Chair: So it is owner-occupiers?

Councillor Mearns: As well, yes, and private rented and the social landlord sector as well. That is a "for instance" but, as a local authority as well, we do need to look at a whole range of issues: what are we doing ourselves in terms of energy procurement for the buildings that we own and run services from: schools, social services establishments, housing departments, *et cetera*.

Q60 Chair: We take it as read that there are lots of other things that need to be done apart from the issue on existing housing but if we could try and focus only on the issue of existing housing and climate change. Do the other two gentlemen have another point of view?

Mr Myers: There are some authorities who have been very active on energy issues for many years and there have been various trigger points for that going back 20 or 30 years: the oil crisis in the '70s—and there has been a bit of a cycle with expertise in local authorities dealing with it. A key driver was undoubtedly the Home Energy Conservation Act that came in in 1996. I think that led to authorities prioritising some more of their existing resources on their own stock. Undoubtedly, the most activity has taken place with their own stock. The next biggest area of activity has been bringing in other funding to their area, the Warm Front, previously the energy efficiency grants and latterly the energy supplier industry funding through the Energy Efficiency Commitment, and it is actually those programmes which have unlocked the most resources, spend on energy efficiency in local authorities' areas outside of their own stock, but some of it within their own stock. They have been the main tools for assisting with the other sectors.

Q61 Chair: The witnesses we have had before you this afternoon have stressed that a major issue is information and persuading people that there is a need to do things. Do you have any examples of where councils have done that, so it is not funding but persuasion or information?

Dr Webber: I could give examples of that where we have raised awareness of the availability of grants but, unfortunately, the latest low-carbon building programme has made it rather difficult for people to take advantage of those grants. It was much easier to get grants for solar photovoltaics or solar water heating in the past than it now is. That is definitely a

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problem. People like to be able to get grants but the current grant system is not easy for people to access as a householder.

Q62 Mr Olnor: Are there enough grants in the system? Coming, in a previous life, from local authorities, you try and persuade people to upgrade, particularly when they get ill and what have you, various things in their homes. There is always a huge waiting list to put a grant into being. Is that a problem you are suffering from on giving energy grants?

Councillor Mearns: I would suggest that at the moment, because of the weight of potential demand out there, it is difficult for local authorities to advertise greatly that there is a grant system available because we are already swamped within the existing grant system, well oversubscribed, with the grants we have available.

Q63 Mr Olnor: To what extent?

Councillor Mearns: It is very difficult to gauge. Because of the fact that we do not advertise the grant system so widely, it is difficult to gauge what the unmet demand would be but I think it would be quite vast, to be honest.

Q64 Mr Olnor: In percentage terms, how overstretched are you now, considering you have not advertised?

Councillor Mearns: In my own authority any grant that we have available is normally gone during the first three-quarters of the financial year.

Q65 Chair: Can I pick you up on that, Councillor Mearns. You were saying, because there is an unmet demand out there for grants, you do not advertise them. Does that not mean that the people who do not really need them and are really articulate probably get them and they would do the work anyway? Is that not why the Government is stopping the grants?

Councillor Mearns: We do try to target grants to particular areas and particular types of households, so we do have internal systems to make sure that the grant is going to be best used but, in my own context, I am very lucky because we have a Pathfinder so there is housing being upgraded through the Pathfinder and in conjunction with the Decent Homes standard, money for local authority housing, and we have the Warm Zone, so I am very fortunate from that perspective. It is not perfect but we are very fortunate.

Mr Myers: There are broadly two different approaches the local authority use. With people who are vulnerable there may be generic information campaigns but what they tend to focus on is engaging with frontline service providers who would have to be in contact with vulnerable households, be they healthcare, housing practitioners. In terms of engaging with the not so fuel-poor, as we call them, you are looking at much more hit-and-miss marketing campaigns to people across the community. There are some case studies of very effective take-up rates and there is a body of work

that organisations like the Energy Saving Trust do on practical help and they have got case studies on those kinds of effective approaches. Where that has fallen down is we have been in the position of sometimes finding those people and getting them to phone a helpline but that helpline or advice centre would just send out information and then leave them to navigate a route to contacting people, finding out costs and in many cases not actually proceeding. There is a general move at the moment to try and move away from just providing them with information to providing a more tailored, customised, hand-holding service, and a couple of places around the country are piloting that but it is costly.

Q66 Chair: Do you know which two?

Mr Myers: There may be more than a couple but certainly the GLA has got something called the Green Homes Concierge Service which is really trying to get to the top end, people who are asset-rich and time-poor, who are generally motivated to do something but feel they do not have the time and there are too many obstacles in their way. That is an LDA funded project.

Chair: And the other one? If you think of it afterwards could you let us know because specific examples are particularly helpful.

Q67 Sir Paul Beresford: I was going to follow on from that. The two previous groups of witnesses, experts in the area, one of the points they made was that people do not understand, they do not know what to do, they do not know what is available, *et cetera*. Obviously local authorities are the ideal vehicle for that, I would have thought, working with the private sector to cut the expenditure. There are plenty of people in the private sector who want people to take these approaches because they have got a financial benefit in it themselves. Surely the LGA should be picking this up and running with it rather than just having two examples? If they are not, should they?

Councillor Mearns: Absolutely, you are right. Individual local authorities have a duty to make sure that the information about what householders can do can be disseminated much more widely. At the same time, it would have to be said that the awareness of all of this agenda has really become much more into the public focus in the last year to 18 months and we are now at the targeting stage in terms of what we do next as local authorities. I think it is quite clear, by the way, that everybody is coming on to this agenda a little late in the day probably but there are an awful lot of converts out there and we really do need to make sure that the best practice is disseminated as widely as possible. The LGA is a perfect mechanism for doing that within local authorities, I do believe, because we have an awful lot of expertise out there, but we do need to pull that together. The Climate Change Commission which we have established, and which is now independently looking at what local authorities can

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do into the future, will be a very good vehicle for doing that and they are going to report to us on 5 December.

Q68 Sir Paul Beresford: So we can expect your board to come up with a policy to pull all this together, bring in the private sector, bring in the experts and produce the information on variations of actions that can be taken on different types of houses sometime in the near future?

Councillor Mearns: That is fine in terms of new development, but I thought we had to concentrate on—

Q69 Sir Paul Beresford: I am concentrating on that. I am talking about that. The point made by the previous witnesses was that the information is out there and is available but it is not seen by the public, the public are not getting enough of it. There needs to be work done on it and we need to pick the various types of houses, existing stock, and the different approaches that should be made for the different types of houses. That is not being done. Would the LGA environment board get on to this?

Councillor Mearns: Absolutely, but there is an awful lot of work being done in particular areas. What we have not got is that work being transmitted across the whole of the piece. In our Warm Zone, for instance, we are doing an awful lot of work and, as I said, 70% of the properties will benefit from that. We do have a particular problem with very old stock which does not have cavity walls, for instance, they will be really hard to heat and hard to insulate, so it is a problem we are trying to evaluate now in conjunction with the private sector. We are working with British Gas and Scottish Power on that in our own authority.

Dr Webber: I think it is worth going over the Warm Zone mechanism because in my local authority, Kirklees, we are knocking on every door offering a range of services. There are low energy light bulbs, a free carbon monoxide detector, water conservation advice, composting advice, fire safety benefits and debts advice, so it is a whole package. If you do that comprehensive offer ward-by-ward that raises awareness much more effectively than putting out adverts and getting people to apply for money.

Q70 Chair: Absolutely, but the only energy things in there are the light bulbs and possibly the water conservation.

Dr Webber: Everybody gets loft insulation or cavity wall insulation, and if they are eligible for it they can get central heating improvements. In most cases, that is the maximum uplift that is possible. In terms of emissions reduction, composting is very important, as is water conservation because there is an energy component there.

Q71 Chair: One of the issues that was brought up before you came here was about Victorian homes which do not have cavity walls, particularly in heritage areas where you do not want to go slapping a load of pebbledash on the outside, and whether local authorities would be a good mechanism for

targeting the information to owners of Victorian houses as to what they can do as opposed to the generalised information and then leaving those particular owners to realise that some of it is not relevant.

Dr Webber: When you go to a property with the comprehensive approach you are building up a massive database and, as such, you will build up the database of the properties that need doing in a follow-up. If we uplift the ones we can do relatively easily then we could target the hard to treat homes. That needs to be the next stage because the Warm Zone is good but we need to do a lot more if we are going to deal with all the stock. There are lots of hard to reach people and you will not get to them and they will not respond to normal advertising, but if they see other people on their street getting things done word of mouth is considerable and that is a very powerful mechanism to get people to take up all sorts of things. On top of that, we are now looking at a renewable energy loan scheme, so zero interest loans, and that is a retrofit.

Councillor Mearns: Additionally, the systems of exterior and sometimes interior cladding for those hard to heat pre-1919 homes are of mixed reception in terms of the people who have actually had jobs done. It is going to be a tough one.

Q72 John Cummings: What key themes for local government action on the reduction of emissions from housing have emerged from your Commission on Climate Change?

Councillor Mearns: The Commission, as I said earlier on, is going to report to us on 5 December at a conference in Leicester.

Q73 Chair: You have had an interim report.

Councillor Mearns: We have had an interim report. They want us to concentrate on trying to reduce energy consumption obviously.

Q74 John Cummings: Who are “they”?

Councillor Mearns: The Climate Change Commission. The Climate Change Commission has been set up by the LGA but is independent of the LGA and is reporting back to the LGA. Of course, what they also want us to do is to try and make sure where we do have public money in our use that we use that in the best way that we can to reduce emissions and use of energy in any way possible, and that might be through the Decent Homes standard, having a Decent Homes Plus standard, trying to make sure that double glazing is—

Q75 Chair: Can I just clarify. The interim report that you have had thus far, has it made any specific suggestions or highlighted particular areas? Obviously you want to reduce emissions.

Councillor Mearns: As I understand it there are no direct recommendations of that nature in the interim report.

Q76 John Cummings: When you are in a position to provide information to the Committee, will you do so?

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Councillor Mearns: We will be able to provide a briefing very, very soon after 5 December.

Chair: That would be extremely helpful. Thank you.

Q77 Dr Pugh: In your evidence you identify “household inertia”, or rather, “householder inertia” as one of the big problems you have to overcome, and I think you have suggested some ways in which you are endeavouring to do that at the moment. Is it fair to say that this area of work is not normally considered to be the core business of local authorities, you do not get chief executives tearing their hair out because they have not prompted enough saving in their area?

Councillor Mearns: I think it is mixed. You are absolutely right, it is very, very mixed. More and more local authorities are thinking about this to a greater extent. My own local authority chief executive is sitting on a regional body to tackle climate change from a regional local government perspective. There are a number of initiatives happening around the country, possibly duplicating each other’s work at the moment, but it shows the level of interest which has been created to take this whole issue very, very seriously.

Q78 Dr Pugh: When you are marked as a good, fair or improving authority, and your profile is in the national or local media, this is not an element taken into consideration, is it?

Councillor Mearns: It will be in the future.

Q79 Dr Pugh: It will be. In terms of what you actually do to overcome the behaviour of the citizens of your borough, all local authorities will do something and I am fairly confident that if we went to the website of every local authority in the land now we would see a little section on things you can do, grants that are available—

Councillor Mearns: I wish that were the case.

Q80 Dr Pugh: It is not the case?

Councillor Mearns: I wish it were the case but I do not think it is.

Q81 Dr Pugh: You used the phrase “best practice” earlier. There must be some areas where you can say they have done something, and not only have they done something but you can see the results, the thermal footprint of the whole borough is less than what it was before. Can you name any local authorities of which you can say that?

Councillor Mearns: There are a number. Woking, for instance, has been used as an example in terms of energy generation.

Q82 Dr Pugh: It does crop up rather a lot though, does it not?

Councillor Mearns: Yes, it does. I would like to think that my own borough within the next year to 18 months will be in that position.

Q83 Dr Pugh: Can you measure in your borough not what you have done but what have been the effects of what you have done? In other words, you could

have handed out an awful lot of energy saving light bulbs or things to put in the loo and all that sort of thing, and my local authority does that, but in a sense that is going through the motions, it is not really getting a result. Can you measure the results you have got locally?

Mr Myers: The monitoring framework we have had as local authorities has been the Home Energy Conservation Act and, unfortunately, that has been rather flawed and has led to the Government finally putting forward a concession paper that its preference is to repeal it. The problem was it did not come up with a standard methodology so it left a lot of room for local authorities to use their own method, but it also only counted a theoretical notional measure of energy efficiency and did not count real CO₂ savings. That is where we are now seeing a shift with the proposed new indicator in the local government performance framework that is due to come in in April where they are proposing to have a community-wide carbon per capita indicator which will be derived from actual fuel consumption which are statistics that are available to Government.

Q84 Dr Pugh: Did you say Camden is your borough?

Mr Myers: Yes.

Q85 Dr Pugh: You can go through a street in Camden and, as it were, plot its thermal footprint?

Mr Myers: We have not done it like that in Camden. We have done a sample telephone survey to obtain our results in the past, but Camden has not actually had to—

Q86 Dr Pugh: What are you asking people in the telephone survey, whether they have got lagging?

Mr Myers: We ask them what measures they have in place and what measures they have installed in the last 12 months to arrive at what the difference is and there is an underlying bit of software which calculates it.

Q87 Dr Pugh: You regularly sample?

Mr Myers: One of the two duties under HECA is to provide an annual report to the Secretary of State, but Camden is an excellent authority and excellent authorities have not had to submit the HECA report for about three years now, so there are some gaps in the data going back.

Q88 Chair: How is Camden assessed as an excellent authority?

Mr Myers: That is through the wider CPA process, comprehensive performance assessment.

Q89 Chair: You mean excellent across the piece, not specifically in this matter?

Mr Myers: No. There are many authorities which have got very strong reputations environmentally but are not an excellent authority overall, and *vice versa*.

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Q90 Dr Pugh: So if you are an excellent authority you do not have to record your success in this direction?

Mr Myers: That is right. There was something that CLG brought out about three or four years ago, which was *Lifting the Burdens*, so that authorities that were deemed excellent did not have to do quite so much reporting.

Q91 Dr Pugh: You could remain excellent and, as it were, knock off and do nothing about it?

Dr Webber: It would probably stop you being excellent eventually because you would not get an excellent CPA score.

Q92 Dr Pugh: But it would not be picked up by any of the data.

Mr Myers: You could stop there, yes. Camden has not.

Q93 Chair: If you are an authority that has to demonstrate your energy consumption you do it by a sampling survey, there is not a big meter in the sky that measures how energy is being used in Camden?

Mr Myers: That is one methodology. A lot of other authorities use that methodology but there are many other methods. Government has been very clear that it should not be used to compare the performance between authorities because the methodology is inconsistent, so even in a report to the Secretary of State it has got a big caveat, although some organisations have turned it into league tables which are very problematic.

Dr Webber: There is Defra data which gives you energy output on super output areas or postcodes, but it is quite difficult to then disaggregate what is going on in those postcodes. In Kirklees, we will measure the carbon impact of all of our measures in carbon dioxide terms. We will do that and we are gathering that data. We have also done a thermal imaging survey which gives us literally a snapshot of how much heat is coming out of individual homes, but there have been so many different rating systems it is quite difficult to know. You can work out what the energy in the building envelope is but you cannot tell what somebody is doing inside the house. They might be running a thousand plasma televisions or something.

Q94 Chair: Or a cannabis farm.

Dr Webber: Or they might be driving a very long way. Those are big emissions which you do not know about. I think it is something that people are starting to get to grips with. The idea of carbon footprinting has become much more accepted now and people are talking about it. A year or two ago, if you had suggested that people would be looking at carbon footprinting people would have said, "Oh, that's ridiculous", but I think there has been a real change of understanding so now we can start doing that and you realise just how much needs to be done actually. I presume you are going to come on to some of the things which might get in the way of that.

Q95 Dr Pugh: One final point. Implicit in the answer given by Mr Mearns, I think, and there was a reference to it, that you wish all websites of all local authorities had something about this, coming across in your evidence there is an enormous differential between local authority practices. I know some have gone very sophisticated and are looking not just at what they do but also how they can measure the effects of what they do. Are you really saying that this is, as it were, the cutting edge and there are a lot of local authorities that are way, way behind it and nowhere near doing anything like Dr Webber has just suggested?

Councillor Mearns: There are local authorities at many different points in the spectrum in terms of development towards this whole agenda and there are some authorities where the political leadership is still in denial about the whole agenda, so we have to accept that as a political fact of life. It is a democratic system that we are working in and for the authorities which do believe there is a problem and are trying to do something about it, we can do an awful lot of work on behalf of the whole local government family so that when people do wake up to the agenda there will be a lot of ready evidence for them to move forward.

Q96 Mr Betts: There has been discussion within the LGA, as I understand it, probably your Commission, about the possibility of council tax rebates or refunds for people who put in energy efficiency measures. Have you got any ideas about that? Is that something you are moving towards?

Councillor Mearns: I must admit, I have seen that portrayed as such but I do not think it is as such. People have been using energy saving grants from national organisations to give people rebates on measures that they have put into their own homes, but it is not council tax rebates. I am not necessarily sure if I would suggest that would be the way to manage things. We have got to try and find a horses for courses approach.

Q97 Mr Betts: Other forms of financial incentives?

Councillor Mearns: There are grant systems where people do get rebates on measures they are putting in at the moment.

Q98 Mr Betts: They should be expanded rather than looking at council tax rebates?

Councillor Mearns: Why not?

Q99 Mr Betts: Another area which local authorities have apparently been pursuing, and my attention was drawn to Uttlesford District Council, probably for the first time ever I have to say in a select committee, who have been looking at the issue of planning legislation and also building regulations and what can be done either with existing authority local government or the possibility of persuading Government to change the law so that when people come and want planning permission or building regulation approval for extensions and significant

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adaptations there is a requirement that they take energy efficiency measures at the same time. Is that something that you would favour?

Councillor Mearns: I certainly would.

Q100 Mr Betts: Is there an LGA view on this?

Councillor Mearns: I think it would be premature to say that we have come to a collective view on the issue but I certainly would back that.

Q101 Mr Betts: There is no pressure from the LGA then? I understand the Government initially was predisposed to look at changing the building regulations but got cold feet on it. Has the LGA not taken that issue up?

Councillor Mearns: We have not got a view on it but we are waiting for the report of the Climate Change Commission to look at planning and building regulation in conjunction with each other.

Q102 Mr Betts: So that is something you will be considering in the light of the Commission's recommendations?

Councillor Mearns: Hopefully.

Chair: Just before I bring Bill in, to correct the Select Committee record, we have heard of Uttlesford before. Actually they gave evidence to us in the refuse inquiry. I did not remember, I have just been told. That is to safeguard their honour.

Q103 Mr Olnor: We have spoken about how we try to make individual homes more energy efficient, whether they be owner-occupied or tenanted. Is there any stimulus for local authorities to do anything on a cluster basis where they look at a series of homes and put them into an energy saving area?

Councillor Mearns: We are always looking at innovation. From my own authority's perspective, we are seriously looking, in conjunction with Newcastle University, at clean coal technology which we can use within the confines of our own borough for combined heat and power systems into the future. We are always looking at that sort of potential and innovation. I do not think we would rule anything out. It is a very serious issue and we have to be adventurous about this.

Q104 Mr Betts: Just to correct the record on Uttlesford, I would not want to belittle them in any way because I think they should be given credit for going out and pioneering something which may be something larger authorities might wish to take up in due course. That is something we will be pleased to hear on from the LGA when you look at your Commission report and reach a view about that particular issue. I just want to come back to Decent Homes. I remember when we did an inquiry it was an issue that we pursued with the minister at the time. Do you think that Decent Homes is a missed opportunity in terms of improving the energy efficiency of houses? It did not really go anywhere, did it, in terms of raising standards?

Councillor Mearns: It has gone some way. For instance, in my own authority area our Decent Homes standard means where a normal window needs replacing it will be replaced with a double-glazed unit, but it is not universal across the piece.

Q105 Mr Betts: It was not required, you have chosen to bring that standard in.

Councillor Mearns: That is absolutely correct. To a certain extent it is a missed opportunity because with a little bit more money and, to be fair, in my own authority we have got £220 million towards Decent Homes standard work for something like 25,000 units, so a very, very welcome addition to the money supporting our council housing, but at the same time with a little more we could have taken a couple of steps towards making households completely energy efficient.

Q106 Mr Betts: Understanding the situation, the focus on climate change and reducing carbon emissions came about after the Decent Homes standards had been set and ministers were reluctant to change the standards halfway through.

Councillor Mearns: Yes.

Q107 Mr Betts: What our Committee said at the time was we are at where we are at, but as soon as we have got this programme finished and we can see the finishing post coming up in three or years' time we then ought to have Decent Homes Plus and a key element of that ought to be energy efficiency. Would you welcome that?

Councillor Mearns: I would welcome it but, at the same time, revisiting the same homes is not an efficient way of going about things.

Q108 Mr Betts: If most of those houses have not been brought up to the sorts of standards we would like to see, maybe some improvements have been done to their energy efficiency but not up to the standard if the standard was set today, have we not got to go back? We have not got any choice.

Councillor Mearns: Undoubtedly we will, but I am not going to say it is going to be cheap.

Q109 Mr Betts: I do not think anyone is asking about the cost, we are asking whether it is something that ministers ought to be giving consideration to bearing in mind that things always take a long time to plan and if we are talking about finishing this programme in 2011 rather than 2010, should we not all be gearing up for another round of taking things on from where they are at?

Councillor Mearns: It would be quite possible if there was a review at the moment to actually deal with the houses which are going to be done between now and 2011 to that higher standard.

Mr Myers: A lot of the way the review has been undertaken is to do with the extent of improvements that have been used under Decent Homes, but I am aware that in many authorities, although Decent Homes has been a minimum standard for levels of insulation or heating, say, since the 2004 Building Regulations that has meant those changes to those

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properties have had to meet much higher standards, so certainly in Camden where we have been improving insulation we have not just put 50ml in or topped it up, we have actually put in to 250ml of insulation because that is what the building regulations dictate.

Q110 Chair: The building regulations are mandatory so presumably every other council will have been required to do that.

Mr Myers: You would expect them to have, yes.

Q111 Chair: If somebody was keeping an eye on them, like their own building regs people.

Mr Myers: They should have internal officers who would have joined that bit up, yes. There has been no independent research on that but it would be a very interesting piece of work.

Q112 Mr Betts: That is where the authority was doing some improvements to insulation, there is not a requirement to improve insulation beyond the previous minimum standard as part of Decent Homes.

Mr Myers: If as part of Decent Homes they were improving the wall or the roof they would have had to have brought the insulation standards up to the prescribed standards in the 2004 Building Regulations. If they were not doing those works, some authorities would have done it because the opportunity would have been so great for them to do so, but I am conjecturing, we do not have a body of evidence on that.

Q113 Mr Betts: That may be something we ought to have a look at as well.

Mr Myers: It would be interesting.

Q114 Mr Betts: In the end it costs but it is possible to achieve improved standards in social rented housing because in the end you have got, hopefully, responsible landlords ultimately given the financial wherewithal to do something. What about local

authorities' responsibility in the private rented sector, to do something there, where often you find some of the worst housing conditions, often short-term tenancies and landlords who sometimes do not have a very great interest? Obviously there are some good private landlords but there are others who are probably less than desirable. What about the local authorities' responsibilities there? Where do you see that going?

Councillor Mearns: I cannot speak for the LGA, but from my own perspective I have campaigned within my own ward and my own authority for at least 16 or 17 years for the licensing and registration of private landlords because of a whole range of issues to do with antisocial behaviour, bad conditions, benefit fraud, *et cetera*. There is a real case for uplifting the opportunities that we have for licensing and registration to make sure that homes are fit and proper, they are well insulated, that people can live in a decent condition, but also to make sure that the landlord is doing regular maintenance and tenancies are let in a responsible way, properties are managed in a responsible way and we are not getting abuse of the housing benefit system by landlords to do a whole range of things which all of us would regard as not fit and proper.

Q115 Mr Betts: Do you think, therefore, that on the existing licensing arrangements, say for HMOs, we ought to be adding in the requirement at some point to put energy efficiency measures into those properties?

Councillor Mearns: Absolutely. I am afraid to say that there are good and bad in all but where private landlords are bad they can be very, very bad indeed but are still having significant amounts of public money through housing benefit paid into their coffers for the renting of those properties on a regular basis. It is public money.

Chair: Thank you all very much indeed. We would like to see a copy, if we could, of your Commission's report when it comes out, that would be extremely helpful. Thank you very much.

Monday 19 November 2007

Members present

Dr Phyllis Starkey, in the Chair

Mr Clive Betts
John Cummings

Martin Horwood
Mr Bill Olnier

Witnesses: **Ms Sarah Webb**, Chief Executive designate, and **Mr Richard Baines**, Director of Sustainable Development, Black Country Housing Group, Chartered Institute of Housing, gave evidence.

Q116 Chair: Good afternoon. Welcome to this session. I will leave it to the two of you to decide who will answer the questions. Can I ask first of all about your memorandum which is arguing that the Government needs to put much more urgency into the issue of improving the existing housing as opposed to new housing; and what would be the key steps that you think the Government should focus on in order to give more urgency to the existing stock?

Ms Webb: We do need the equivalent of the code for new build for existing housing. We have various codes and standards around at the moment, but first of all they are not good enough or robust enough, and, secondly, they are not mandatory. We can make progress on a voluntary basis, but our concern is that unless we have (a) a code and (b) a programme behind the code, we will not make the kind of rapid progress that we need to make a change.

Q117 Mr Olnier: It seems to me that the DCLG are moving forward quite well on new build, but there is an awful lot of existing housing that needs to be brought up to standard. If we look at the Sustainable Homes Code for existing housing do you think it should be mandatory instead of voluntary?

Mr Baines: I think it should. If you look at the work that has been done by people like Boardman at Oxford University, if we are talking about the 40% house what we need to do for the future is to get 60% carbon savings by 2050, and if you look at the size of the existing stock against what we are building new, it is an imperative that we go forward and so do something with existing housing. One of the key issues is whether there will be some sort of mandatory requirement, not just for social housing but particularly for private sector housing. How you do that, obviously you need to be careful.

Q118 Mr Olnier: Richard, I think you need to speak up.

Mr Baines: I have a terrible cold and my voice is going. I do apologise.

Chair: Perhaps if you could direct your voice at the microphone rather than looking at the Committee Member.

Q119 Mr Olnier: I am pleased that you agree but who is going to be able to enforce this? At what level will this mandatory code be enforced? Will it be left to the local authority or will it be mandatory or will it be voluntary? It is all very good the Government and

ourselves bringing up some very good ideas, but without a form of robust policing then it is not going to work.

Mr Baines: We have also said in our response that we believe that an 'MOT' for houses would be a good idea. How and when you apply this—

Q120 Mr Olnier: Wait a minute! I have got a motorcar and I have to have an MOT after three years, so if you are going to talk about an MOT for housing stock, what are we talking about in years—five years, ten years—or is it when the house comes up for sale?

Mr Baines: I do not have an answer for that yet. That would need debating.

Q121 Chair: Mr Baines, without having a settled view, what are the kinds of issues that should be taken into account in deciding how often it should be, or at what point?

Mr Baines: Firstly, you need to decide whether it is about sustainability, about environmental impact or just about energy. When you have decided on that, then you can have an idea of what you are measuring. Let us just stick with energy, which is to do with climate change and say if it is only energy, every year we know what the fuel bill is, so you could use the fuel bill as the trigger for saying: "We know how big the house is; we have the council tax banding; we know how much that sort of house should use in the range, in terms of people." Therefore, we have a view, by reviewing the fuel bill on a running basis, as to whether the building was efficient or not.

Q122 Mr Olnier: That is very rough and ready, is it not? Mrs Olnier tells us she washes six white shirts too many per week, but if we had had eight to ten children, then our energy needs would be much greater. There is nothing on my council tax bill and nothing on the energy bill that says where the energy is going.

Ms Webb: You have to separate out: both are important but you have to separate out the use that you make of the house and the appliances within the house (which we have commented should be part of this inquiry but is not, as we understand your terms of reference) and the energy that you are using in your house every time you put the central heating on, and whether there is one of you in the house or ten of you in the house.

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Q123 Mr Olnier: To get back to the original question, how often should the MOT certificate be sought, or is it only sought when the property is exchanged?

Ms Webb: The absolute simplest thing to do is to do it at the point of sale because we have to be pragmatic about the extent to which we can make these changes. However, we also have to recognise that if you only do it at the point of sale it will take us a very long time to reduce the carbon emissions of our existing housing stock. There is no right answer; it is a trade-off between the practicality of doing it and the cost to individual owners versus the overall impact on climate change.

Q124 Chair: Can I disentangle this a bit? The sustainable homes code is not just about energy efficiency. Mr Baines suggests that presumably your energy utility would send you a little reminder at the end of every year and say, "Your bill looks very large for a property of its size; would you like to look seriously at whether you have done this, this and this?" That does not really relate to the code, does it?

Ms Webb: The code is to do with the standard of the physical house, the level of CO₂ emissions that come from the house, irrespective of the appliances that are inside the house.

Q125 Chair: Are you suggesting an MOT, possibly via a fuel bill, would be one mechanism and then a mandatory sustainable code when the house was sold, which I am reminded would be roughly once every seven years?

Ms Webb: Yes, that approach would certainly work.

Q126 Mr Olnier: Before we completely leave this issue, I am a very firm supporter of smart metering and I think the Government ought to go further and make them mandatory in new properties. Do you have any views at all that we should and you should be putting to Government about retro-fitting smart meters, because that will give the consumer a lot of the answers they require whilst actually using energy?

Mr Baines: Absolutely. I was talking only last week to a manufacturer of a new metering system which can be retro-fitted to the house, and they are actually targeting wealthier households with this as a vehicle to communicate with them about how they are using their energy, so that they can start to see where the energy is going and therefore what they can do about reducing it. This kind of metering is essential, but whether you sell it as a fringe benefit or whether you make it a mandatory requirement and place the onus on the energy provider to retro-fit these meters is to be debated. However, I think both mechanisms could be applied. For example, social landlords could be in harness with the utilities to retro-fit, and the private sector could be motivated through the benefits of reducing their fuel bills by buying their own monitoring equipment. The two could go together.

Ms Webb: It is quite important to recognise that although we are using a crude analogy of MOTs, we do understand that there is a difference between somebody's home and somebody's car, so if your car fails its MOT you take it off the road—

Q127 Mr Olnier: If your car fails its MOT you cannot sell it.

Ms Webb: Yes, but we have to accept the practicality of the number of houses in this country that would fail that MOT as of today, and we simply cannot go kicking people out of their houses because we would have other problems.

Q128 Mr Olnier: That is a fairly good inducement for them to get—

Ms Webb: Well, I live in a house that would fail and I would prefer to—

Q129 Mr Olnier: What are you doing about it?

Ms Webb: Well, that is a very good question, but I would prefer to have incentives and support and help to do what I can to make it pass its MOT rather than be put in a situation where I was not allowed to sell it, or I was evicted from it. We are talking about the concept of getting more people in this country to understand the emissions that come from their existing housing, not in the business of throwing everybody out of their housing because it fails.

Q130 Mr Betts: You say there should be a sustainable homes code that identifies rough categories of property and what their energy use ought to be in ideal circumstances. Then they have the Energy Performance Certificate, which looks at where they are now, but also, as I understand it, is an indication to householders as to what they should be doing to improve their performance. Does that get us a bit further forward from where we are now? In a way they are doing that, are they not? They are saying where we are at and where you can get to with some reasonable investment?

Mr Baines: The difference is that with the MOT you can fail; with the EPC there is no failure; it just says where you are. I think there needs to be some sort of onus on improving property, not just voluntarily so that you can sell the house.

Q131 Mr Olnier: So there is going to be a penalty.

Mr Baines: But actually to save carbon—some compulsion. The question is how you do that without evicting people from homes, which was Sarah's point. One way you could look at this is the energy services approach. If fuel suppliers were to say, "We are big buyers and can provide a cost-effective solution to your energy losses, and make it more energy-efficient—your fuel bill will not change over the next 10 years but what we sell you is going to change; we are going to sell you 75% fuel and 25% insulation over the next ten years", the bill does not change but you use less fuel and you will emit less carbon, and you will achieve your Code for Sustainable Homes on existing homes.

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Q132 Mr Betts: Presumably, it would be the householder, the purchaser rather than—

Mr Baines: It could be the existing householder. If there is compulsion for the existing householder to improve the performance of their building, rather than saying, “If you do not do it we will condemn your house and you cannot live in it”, we could say, “Here are mechanisms by which we can help you to achieve what you have to do.”

Q133 Mr Betts: You are asking someone who has sold their house to put insulation in it.

Mr Baines: This is not about changing tenure; this is about saying—

Q134 Mr Betts: If you are only going to do this at the point where someone has put a house up for sale, then in reality you cannot sell it until you have done it—or “We are selling you a package of insulation and energy, as opposed to just energy, for the next ten years”, in which case you are asking someone to pay for something that they probably have already got rid of.

Mr Baines: I am trying to get away from doing this at point of sale, to say that if you own a house, like your car, if it is energy inefficient, you need to do something about it.

Q135 Mr Betts: When will this assessment be done, then? You have just told us it would be at point of sale.

Ms Webb: No, we thought that was one way of doing it that would have—it would be the longest way of doing it but in some respects it would be the easiest, because you have a mechanism to go in. If you do not do that, you need to create a point of mechanism to go in, and that is harder to do. That is why you probably need to look at a programme of bringing in existing housing. The MOT is a way of judging how far you are towards pass or fail but the programme is a better approach to—

Q136 Mr Betts: A programme linked to what?

Ms Webb: Linked to the code for existing housing.

Q137 Mr Betts: Paid for by whom?

Ms Webb: The issue of properties is the big one in all of this, is it not?

Mr Baines: It would depend on who owned the property as to who paid for it. If it is a registered social landlord you would expect the registered social landlord to pay for the improvements. If it is a private home-owner, then you expect, where reasonable, that the owner and occupier would improve the building. You could have a degree of compulsion, which said: “This is the standard you have to achieve; this is the code for existing housing; your house does not achieve that. It is going to take these measures to make it achieve that and they are going to cost this much. You can do nothing about it, and at a certain point we are going to have to take some action against you.” The analogy with the car is that we can take their car off the road but of course we are not saying that you can do that with houses, but there has to be a point at which you do

something about it to compel people who will not do it to do something about it. Most people will be reasonable and say, “Hang on a minute; if I do this, my fuel bill falls in the long run.” If all houses are meeting the code at a point in the future, fuel bills will be smaller. The way we have described doing it was to say the fuel bill could have an element of fuel and an element of energy efficiency, and that over a period of time would enable the investment to be taken with no extra costs to the householder. There would be grants for people who cannot afford to pay as there are now with Warm Front and the Energy Efficiency Commitment. There is a raft of mechanisms about us to help people to implement this so that it is not draconian. It will be hopefully revenue-neutral but we would get to the zero carbon neutral level much sooner in the existing housing stock.

Q138 Mr Betts: Who pays for the MOT itself—the householder?

Mr Baines: Yes, the householder. It could be through the fuel bill or it could be a very small addition within the fuel bill, part of the standing charge. These need not be huge costs. If we can do it on the basis of how much fuel is being used, that information is already held and it is only a matter of interrogating the database. That is not a huge cost. A lot of this information does come on the fuel bill already.

Q139 Martin Horwood: I want to come back to something that Mr Olnier said, shortly after he made the jaw-dropping suggestion that wives should wash their husbands’ shirts for them, but I will not go into that! He asked you about the issue of benchmarking these standards and you gave a slightly glib answer, but it is actually rather crucial, is it not? Basically, it affects the price at which you can sell your house. You could have two identical houses with completely different families next door to each other—there is a single man living next to me and we have a very similar house but with four people in it, with two small kids and we are often there during the day because someone is working from home. Do you aim for a scheme that tries to be very, very complex in its effort to be fair, or do you prefer something that is just simple and a bit unfair?

Mr Baines: You have introduced under-occupancy, which is quite a difficult subject.

Q140 Martin Horwood: No! Let us take the working from home example.

Mr Baines: There are two aspects to the fuel consumption in a house. There is what the building machine requires. You could say, “We will not heat it and we will redecorate every so often and get rid of the mould that way”; or say, “We will keep it warm and will not let mould in.” The building has a particular requirement for energy just to remain serviceable. There is a range of use of energy, particularly with very energy-efficient buildings, which has a relationship to the occupancy. The occupancy use is about appliances, which we have just said were to be excluded from the debate.

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Q141 Martin Horwood: Most of the carbon footprint of a house is to do with heating, is it not?

Mr Baines: At the moment it is, but if you say we want to get to 60% reduction in carbon emissions by 2050 the long-term goal is houses where the building does not use much energy.

Q142 Martin Horwood: That is fine for new-build, but it is very improbable, is it not, for existing stock?

Mr Baines: You either knock the houses down and build new ones, or you improve the existing ones so they get to zero carbon—

Ms Webb: It is extremely difficult, but just because it is very difficult does not mean it is not a really big issue. The appliances are an important part of this debate, but then if you took all the appliances out of all of the houses, you would still have—

Q143 Martin Horwood: I was not really talking about appliances. Can I ask you about cost? In your memorandum at 2.7 you have quite a long list of possible incentives including LibDem/Labour green mortgages but also equity release products and, effectively, loans. Do you know of anybody who has done any work on which of these might be the most cost-effective or practical options, because you have listed a lot and not really into much more detail.

Ms Webb: I think part of the problem of the debate is that we are just at the beginning. Everybody is just at the beginning stage and trying to work out the most cost-effective interventions to make. Probably some of the best, most effective value-for-money

interventions are those that have a high price up-front and payback over a longer period of time, which is obviously a problem.

Q144 Martin Horwood: Is cracking that problem more important than getting the right code or the right certificate sorted out, because it seems to me crucial in terms of making this happen?

Ms Webb: I do not think they are mutually exclusive, to be honest with you.

Q145 Martin Horwood: I did not say they were, but is this by far the most important part—

Ms Webb: Yes, if you want to solve most of these problems that involve spending money, then obviously the money is the most important part. If I had a choice out of somebody allocating a large amount of money in a spending review to greening existing houses versus introducing a code, I would go for money every time, but I repeat I do not think they are mutually exclusive. I think one reinforces the other.

Q146 Martin Horwood: From this long list, do you have any preferences?

Ms Webb: No, I think the answer has to be a mixture of them, I really do. Because our housing stock is so complex and the individuals living within the housing stock are so varied, we are not going to have one solution. We do not have one solution to most housing problems.

Chair: Thank you very much indeed.

Witness: **Ms Gill Owen**, Chair, Public Utilities Access Group, Fuel Poverty Advisory Group, gave evidence.

Q147 John Cummings: Your submission repeatedly notes the lack of serious engagement by the Department for Communities and Local Government in cutting fuel poverty and carbon emissions among those with low incomes. Can you advise the Committee what you think the Department is failing to do and what you would like to see?

Ms Owen: There are a number of key areas that we would like DCLG to address

Q148 John Cummings: Can you start with what they are failing to do, and then come on to what you would like them to do?

Ms Owen: It is the same really, and you can see it in different ways, but basically we have a problem at the moment, which is highlighted in our submission, about data sharing and the way in which local authorities share data. We think the DCLG has an important role there in helping to sort that out so that local authorities can do that. That is one of the key things we would like to see addressed. The second area is that we are very disappointed with the Decent Homes Standard and the degree to which properties can be improved to meet the Decent Homes Standard but still leave households in fuel poverty. Those are the two key areas.

Q149 John Cummings: Why do you think it is important for local authorities to share information? Who would collect it: the Department centrally? Then what would you expect the Department to do with it?

Ms Owen: At the moment local authorities, through their departments which handle council tax and housing benefit, know where the households are that would be eligible for the Government grants, and the two key Government incentive programmes: the Warm Front Scheme and the Energy Efficiency Commitment. At the moment those bits of the local authority cannot share that information with another bit of the local authority that might be running a local programme to encourage people to take up those grants. For example, a local authority might be working with energy companies or voluntary groups to do that, and they cannot share that information. We think that that is silly and that they should be able to share that information. We have been encouraging that to happen. It has not happened yet. In the Energy Bill that will be going through Parliament in the next Session, the Government will have a clause in that which will enable the Department of Work and Pensions, for example, to share some information with the energy companies which operate the Energy Efficiency Commitment. It is happening there, so we think it is

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ironic that two ends of a local authority cannot share information between themselves, without breaching obviously important concerns about data protection, but to make sure that people who are eligible for grants get them. Many low-income households, particularly the most vulnerable, do not take up grants and a lot of effort goes into trying to find them. There is a ready-made base here of people, but it is just the ways in which that information is shared.

Q150 Mr Betts: Was the Decent Homes Programme a missed opportunity?

Ms Owen: Yes, we think it was. The Decent Homes Programme basically sets standards within a number of things, including for insulation and heating standards. At the moment, a house can meet those standards if it has some insulation but not necessarily to the level that might be recommended today. It does not have to have loft and cavity-wall insulation; it could have one or the other. A property can meet the Decent Homes Standard with electric heating, and in many places that heating will not remove the household from fuel poverty. We really do think it is a missed opportunity in a number of areas. In tower blocks, for example, we might use CHP schemes and so forth, which are not likely to be done because of the cost implications. You meet the Decent Homes Standard in a lower cost way.

Q151 Mr Betts: What do you think should happen? We are much of the way through the Decent Homes Programme and many houses have been done, and some social landlords have met high standards. Where do you think the programme should go next? Should they change the standard halfway through or should we be looking at a new standard following on from this programme?

Ms Owen: I think it is right that a number of local authorities are going beyond the minimum. One of the things we would like to see the DCLG do is encourage local authorities. Obviously, it is difficult when you have passed the standard itself and it does not require you to go higher, but perhaps sharing information between authorities that have done. Our recommendation is that authorities should do as much as they can within the Standard, but we suggested that it should be increased from 2010, so there is an opportunity there to take it forward so that homes do come up to a 65 SAP rating, which by and large will take households out of fuel poverty.

Q152 Mr Betts: When the Committee looked at the Decent Homes Standards a few years ago it was suggested that there should be a Decent Homes Plus to follow on.

Ms Owen: Yes, I think a Decent Homes Plus—that is right, would follow on.

Q153 Mr Betts: You have established on Warm Front that it was actually higher than required in the social rented sector.

Ms Owen: Yes.

Q154 Mr Betts: Do you think Warm Front by and large is absolutely right in terms of the standards?

Ms Owen: Yes, I think so. Warm Front generally is putting in gas central heating where it can and raising insulation levels. There are some issues with Warm Front, obviously, because there is a maximum amount that can be spent on each property, and sometimes that is not enough, and so there are issues about how you finance that. However, the standard that it aims to set is aiming at the right level. Clearly, there are difficulties with solid wall properties where you cannot have a cavity wall solution, and that is difficult, but generally we think that is the sort of standard which will remove households from fuel poverty.

Q155 Mr Betts: Is there sufficient resource in Warm Front to deal with the number of properties? Are you finding everybody who wants the programme gets it or are some being left out?

Ms Owen: There are resource constraints, yes. We have recommended that Warm Front will need more resources, and we have had some concerns that Warm Front resources may not be maintained at the level that they have been recently in future years. Warm Front does need more resources, and there is also an opportunity to combine Warm Front funding with the Energy Efficiency Commitment funding that comes to the energy suppliers. Again, local authorities have an important role there in helping to pull those things together at local level; but there is clearly a need for more resources, particularly if the Government's targets are to be met.

Q156 Chair: Have you made an estimate of how much extra resources would be required?

Ms Owen: Yes, we have. I am not sure I have the figure with me, but we can certainly send it to you.

Q157 Chair: Can you let us have it, and make it clear how much you think is the extra that would be needed for Warm Front and how much for Decent Homes?

Ms Owen: Yes, I can do that.

Q158 Chair: Do you think that if Decent Homes and Warm Front were adequately funded that that would deal with everybody in fuel poverty, or are there any other groups that—

Ms Owen: They should actually, because Decent Homes will deal with the social housing sector and the Warm Front Programme will deal with the private sector. The main difficulty in the private sector is finding particularly people in private rented properties and getting them to take up the measures. If the other resources were there, through those two mechanisms I think we could cover all sectors. We would still have take-up problems, which partly comes back to this data-sharing issue about how you find people.

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Q159 Martin Horwood: Is there not a problem with Warm Front in that people who own the properties—talking about private landlords—are not even paying the fuel bills, so there is not much incentive, is there?

Ms Owen: I think that is right, and that is where use of the Housing Health and Safety Rating System is important in encouraging landlords to take up the grants. You are right, that tenants have to get the landlords' permission and the landlords are not paying the bill and are not terribly interested. The way in which you can influence landlords gets difficult without regulating that landlords have to take up this grant in some way or another.

Q160 Martin Horwood: Obviously, the idea of tackling carbon emissions using Decent Homes is very exciting and very interesting, but you have concentrated very much on energy efficiency as opposed to generation of renewable energy. I would have thought that had a lot of potential to reduce fuel bills even more than energy efficiency because you are talking about, with the right technologies, 40, 50, 60% reductions to people's fuel bills, which makes a huge difference to their household budget. In the process you are likely to stimulate the market for those renewable technologies and bring the price down for everybody else. However, you hardly mention renewable technology.

Ms Owen: We have looked at renewable technology as a group. Our view at the moment tends to be that, yes, we can see some potential, but obviously a lot of the technologies, a lot of the micro-generation is quite expensive at the moment, and some of them are not . . . the output and the efficiency of them is not well established, particularly micro-wind. How much you get out of them is still being established.

Q161 Martin Horwood: If you are talking about ground source heat pumps going into housing estates or solar thermal panels, they could make a huge difference to people's bills and would help to bring the price of these things down.

Ms Owen: Certainly in areas where there is no access to gas, we have certainly looked at that in those areas. Cost-wise I do not think it would be priority—is what we would recommend as action at the moment for tackling fuel poverty.

Q162 Martin Horwood: It would absolutely transform the market, would it not? Ground source heat pumps on a community level: I should think there is hardly any market for that technology on that scale, and yet if it went into the Decent Homes Programme, suddenly that would be the majority of the market, so the prices would drop like a stone. You could have a transforming effect on that market.

Ms Owen: It is certainly worth looking at.

Q163 Mr Betts: Talking about private landlords and the issue there, would you like to see local authorities moving towards licence arrangements and the whole area of energy efficiency as part of the licensing arrangements, so that where, say, a tenant is entitled to a Warm Front grant it would be a requirement that the landlord allow that to go through as part of the licensing arrangement?

Ms Owen: It is not something we have specifically mentioned in our evidence but it is the sort of measure we would be willing to consider, yes, particularly if progress continues to be difficult with the private rented sector; you might have to look at those sorts of actions.

Q164 Chair: Notwithstanding the data-sharing point you raised—although I have to say there is nothing to stop the benefits department sending out the information on Warm Front only to those people it knows are getting council tax benefit or whatever—do you think that local authorities are doing as much as they could in tackling fuel poverty? Do you have some particularly good examples that you could point to?

Ms Owen: It is variable. There are a number of local authorities that have been working with the Warm Zone concept, where work is done on an area basis and it is not solely addressed at people in fuel poverty; it tackles a range of areas and a range of households. Quite a number of local authorities around the country are working on those, often in collaboration with National Energy Action and a number of the energy suppliers. Some of those are a really good approach; but as with other areas of activity on climate change and energy, local authority practice is very variable and you have a few very outstanding ones, then those that are in the middle, and then a tail at the bottom that is not so good. There is some good practice out there.

Chair: Thank you very much indeed.

Witnesses: **Mr Brian Mark**, FCIBSE, Director of Fulcrum Consulting, and **Dr Hywel Davies**, CIBSE, Technical Director, Chartered Institution of Building Services Engineers, gave evidence.

Q165 Chair: Can I start by asking you what changes could be made to the Building Regulations to focus energy-efficiency improvement more strongly on existing homes rather than the current Building Regulations and Code for Sustainable Homes, which is on new houses?

Dr Davies: The biggest issue is that Building Regulations only apply to buildings when either controlled work or controlled services are involved; so they only come into play at the moment where

somebody carries out work on the home. Currently, it is about 2–3% of the stock that is worked on in any given year. The first question therefore is whether there is any way of expanding the scope of the Regulations to cover more properties. That then leads to the question of building control functions to supervise that work, and it also raises the question of what sort of a trigger would come about and what sort of work you might require. In a way it goes back to the first

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set of witnesses and the discussion about how you encourage people to carry out basic energy efficiency measures, because a lot of the existing stock we know needs to be made more energy efficient, and you need some mechanism to encourage people to do that if they are not already doing it.

Q166 Chair: Is it your view that Building Regulations, or I suppose a Code for Sustainable Housing, should be used in a way to require people to upgrade the energy efficiency in their houses at regular intervals, even if they are not intending to either sell or alter it?

Dr Davies: If you look at the carbon emissions from the existing housing stock, there are very high levels of emissions from the existing pre-2002 stock, and if we want to see a significant reduction in emissions we have to find mechanisms for getting people to do things. It is not a question of knowing what to do—there are many reports that identify what to do—it is how we encourage home-owners and landlords, whether social or private, to do what needs to be done. Whether that is done through a code and you start to set targets that people have to meet, whether it is done by intervention at point of sale, with some sort of incentive—and the Energy Saving Trust has done a fair bit of work about linking incentives to either council tax or Stamp Duty—but somehow we have to get more people upgrading their homes far more quickly, and preferably without upsetting lots of people!

Q167 Chair: As politicians we are very keen on not upsetting lots of people, or preferably not in our constituencies anyway! I am trying to tease out from you whether you believe that there should be more stick or more carrot or a bit of both.

Dr Davies: I suspect we need both. We have had thirty years of “save it” type campaigns, since the first energy crisis in the 1970s, and we can see how effective that has been from the figures that are in front of us today. We probably need more stick and more carrot.

Q168 Mr Betts: One of the ideas that came out of our last hearing was that if a householder puts in for an extension of their property, a reasonably sized extension on their property, or some adaptations, it might be a requirement that they take energy saving measures on the rest of the property as well. Is that something that you would like to see?

Dr Davies: It is a splendid idea. It was in the proposals for the last round of revisions to Part L of the Building Regulations. It received reasonably widespread support from the industry and was dropped, we understand, because Ministers at the time felt that householders had not been adequately consulted and might not be very happy with what were termed “consequential improvements”. The Institution was very disappointed that that provision was dropped.

Q169 John Cummings: The hassle factor of making improvements is often cited—indeed is cited continuously and consistently in submissions to this inquiry as a major barrier to bringing about change. How do you believe you can overcome this hassle factor in making small but important home improvements that cause some disruption without significant financial benefits?

Dr Davies: If you look at what happens when people do, they suddenly find it quite appealing to redecorate and do all sorts of works, so the hassle factor seems to be at its lowest point at the point of sale, and the new occupant is dead keen to do works at that point. I think we would say, why do we not go for that if that is when people are willing to do some work and can perhaps be persuaded that if they do things they want to, perhaps they should do a few other things like improving energy efficiency. That seems to be the way round the hassle factor.

Q170 John Cummings: How would you determine the hassle factor?

Dr Davies: How would I determine how much hassle something is?

Q171 John Cummings: Yes. How would you measure it? Everyone is talking about it. Do you all have the same definition?

Dr Davies: Well, you could look at what something costs in terms of money and what it costs in terms of householder time to make it happen. For example, we had some extension work done three years ago and we decided that we would have consequential improvements at the time, and so we had some additional cavity-wall insulation installed. Frankly, there is no hassle factor short of opening the garage door and the door at the back so that the pipe could go through and allowing two men to come in and do half a day’s work on the property. That is a fairly low hassle factor. If you say to somebody, “you have to have your loft insulated” and that involves clearing out twenty years of junk, I think the hassle factor is probably a bit higher. Again, when you are moving that is not a problem because you tend to clear your loft when you move. You could measure hassle factor in terms of how much effort the householder has to put in alongside the works that are involved.

Mr Mark: I think you could break hassle down—

Q172 John Cummings: It has to be—

Mr Mark: You can break it down. You need advice on what to do because nobody trusts the advice, and the advice is very sporadic at the moment across all areas. The householder needs time to do it and someone has to provide the money. But at the point of time the vendor is soon to expect lots of money; the purchaser has got into some sort of relationship with the bank and can raise money: the issue is the skills gap.

Q173 Mr Betts: There are probably a number of skills issues around that need addressing, are there not? The quality of work sometimes you get from

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small companies that might put the cavity-wall insulation that five years later is not there to be seen—the concerns people have about that sort of work being done in their home and the reliability of it. Secondly is the issue about the advice people get about the right sort of energy-saving rather than listening to a person who comes round knocking door to door and saying “I am doing this on the cheap”, which is the way people get double-glazing. Can you say something about the advisory side of different skills and the practical side of getting someone and then getting a proper job?

Mr Mark: I think the skills gap occurs at absolutely every level along the advice chain. It occurs amongst the consultant engineers as it does in the installers. There is not sufficient established wisdom in low-carbon systems, and particularly in renewable energy devices. We literally do not have enough perceived wisdom to build up the skills gap yet on known outcomes. Also, low-carbon technologies have only recently been taken up by the established house-building industry, in the last 18 months, mostly driven by compliance requirements for 2016. There has not been the normal fierce competition amongst the suppliers to give correct advice and sell reasonably priced equipment that is installed correctly—which will occur given enough time.

Q174 Chair: Can you explain why there has not been sufficient competition?

Mr Mark: Because there has not been a sufficient market.

Q175 Chair: If it is mandatory for new housing—I know that—

Mr Mark: It is mandatory to come. The difficult low-carbon systems are to be mandatory in the future for large-scale house-building. At the moment there are compliance requirements but they are not particularly difficult. We require competency schemes to be introduced at level of providing advice.

Q176 Mr Betts: I am beginning to think that if I wanted to look at some of the newer technologies and introduce them—I would have to think about planning and Building Regulations and the effect on the house itself; I would have to think about the impact that might have on energy and eventually the savings in costs and the pay-off periods and all the rest of it. I would probably be going to three or four different places to get advice on those points and maybe say “thank you very much . . .”

Mr Mark: You will get different advice at every level. Two of the areas where there is a competency lack are in building control and in planning departments. Planning departments have recently moved in under the Merton Rule PPS1, PPS22. Planning departments have taken responsibility for the provision of low-carbon schemes. It is not within the planning officer’s present competency. There are very few specialist planning officers in energy who have been trained. To be honest, the

planning department cannot afford to pay salaries that I would pay for such people, and I cannot find them. It is the same with building controls.

Q177 Mr Betts: It is about increasing training generally.

Mr Mark: Yes, at all levels.

Q178 John Cummings: Do you think you will be able to get them from Poland?

Mr Mark: With a bit of luck, because we are not breeding them here fast enough! No, I do not know where you would get them from. Obviously in Scandinavia they do have operatives who are trained, but there are just not sufficient Scandinavian professionals to service our industry.

Q179 Chair: How would that training be paid for?

Mr Mark: It depends at the level: planning authorities have to take responsibility, building control has to take responsibility, it is part of their remit now. But their officers are not trained sufficiently so that would have to be funded by local authorities. An interesting issue is that the funding that planning departments receive is just the same funding they ever received, which is the planning fee. Their remit is now much wider and they do not get any further resources. At the moment I see this as a huge barrier. It is very similar with building control.

Dr Davies: The Institution has been aware—and a lot of our members have been aware for some years—that building control officers tend to come from a background where they have specialised in structural issues. They are, rightly, more concerned about ensuring buildings do not fall down or burn down. They generally see CO₂ emissions as being a lower priority. For some time we have been trying to persuade the Department that the way to address this is an expansion of competent persons schemes; so that those who are competent can self-certify work under, for example, Part L of the Regulations. I hope I am permitted to say this here, but Scotland has gone that way. They have to some extent funded this by a reduction in the building control fee, which they call a warrant fee in Scotland, so that if somebody is a certifier and is competent to self-certify compliance with the Scottish equivalent of Part L, there is a reduction in the warrant fee. This has generated significant market interest in getting people approved as competent persons under section 6. Unfortunately, it is proving very difficult to persuade the Department here to adopt a similar approach at present.

Q180 Mr Betts: Why? Is there any particular reason?

Dr Davies: I could talk at far greater length than you want me to! We have been told that there are legal difficulties, although when we ask for a detailed explanation of the legal difficulties we are left rather bemused. We are not clear what the difficulties are and we are left wondering whether they are legal difficulties or something else.

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Chair: I am sure we can explore that.

Q181 Martin Horwood: Can I ask you a similar question to the one I asked the last witness and hopefully get a really expert answer. In your memorandum you talk about stimulating new technologies and the importance that that would have, but you do not go into a lot of detail. Which of the technologies do you think have the most potential? How does the balance in potential absolute reduction in carbon balance out between energy efficiency and micro-generation?

Mr Mark: If you follow the waste minimisation hierarchy, which applies to almost everything, you get by far the greatest cost benefit in terms of CO₂ saved per pound spent by reducing energy—

Q182 Martin Horwood: Can I just interrupt you? That is a very common thing, but I was asking you about the absolute reduction in carbon potential and the balance with micro-generation. We all know, pound for pound, that energy efficiency is better, but it may have limited application to existing stock.

Mr Mark: To apply micro renewables on an urban scale within a city, fixed buildings, can be very, very difficult and cross off a lot of the available opportunities. Micro wind generation does not work well in cities. Cities are built in a sheltered space where there is not much wind, and there are very tall buildings, which makes the available low mean wind speed even worse to extract energy from, so there are very few opportunities. Solar thermal panels: even though they might have a high cost per unit of CO₂ saved because you need to adjust all the plumbing for your heating system, they are actually easy to understand by householders, who are charmed by the idea that they get free hot water in summer without turning the boiler on. Even though it is an expensive option, I think there are 72,800 of solar thermal installations in Britain, which is orders of magnitude higher than the next renewable, even though it is expensive—which is an interesting point. Photovoltaic panels would work on any house. They have no commercial payback, given the tariff price of electricity. There has been a certain reduction in price from these, which comes from a designated Chinese manufacturer. That happened about six months ago. Various commentators believe that this price may continue to fall with take-up, but it may be that the Chinese market itself increases to such an extent that we do not see much further reduction in price. Burning wood is really the only other one—biomass—that is available for use in the city, and there is an issue about how much wood can be delivered into the city: is it sensible to run new buildings on burning wood and taking it from the rural community? I do not believe it is.

Q183 Martin Horwood: What about ground source heat pumps?

Mr Mark: They are effectively an efficient way of using electric heating. They do have their position. If you insulated a house, certainly to Code 6 of the Sustainable Homes Standard, your space heating/energy requirement would be effectively nominal, so the heat you need is to make domestic hot water. You can make 60% of your domestic hot water from solar thermal panels, leaving you 40% of domestic hot water energy. You can only make domestic hot water energy with a higher temperature flow from a heat pump. Heat pumps providing hot water temperatures have a coefficient of performance which means arguably they save less CO₂ than gas.

Chair: That was very helpful. We might need to write to you afterwards, once we have read it back on the transcript, and ask you some more questions.

Q184 Mr Betts: Picking up on your answer about solar panels, you talked about a dual rate and any surplus being taken by the grid. Is that something you think could be a significant change in policy if people paid what some people would regard as a fair rate rather than—

Mr Mark: It would hugely stimulate the uptake of electricity generating micro renewables, yes, similar to the German scheme, which has got an incredibly attractive grid buy-in rate for PVs, import/export meters in Germany. Import/export meters on a domestic scale are now possible in Britain. I believe that in 2005–06 only 14 were purchased and put in because of the red tape in getting hold of them.

Q185 Chair: There is not any technical barrier?

Mr Mark: No.

Q186 Mr Betts: You listed here the things that you think it could be doing in their order of priority, and the first is cavity-wall insulation, and everybody says it. What about the—

Mr Mark: Actually, the first one is draught-stripping: bung up the draughts.

Q187 Mr Betts: People keep referring to cavity-wall insulation but for people without cavity walls what can we do there, because there does not seem to be anybody taking that issue seriously.

Mr Mark: It is also a very fraught issue. There are two answers. You have to add insulation. You can either add it on the outside or on the inside. If you add it on the outside, technically this is far preferable. You actually then express the thermal mass inside and you can provide a thermal exemplar construction. You also, if you add it on the outside, can extend the life of the brick by keeping the rain off it with a rain screen, and you can attempt to move towards an air-tight construction externally. If you put it on the inside, which is called dry lining, you take away the opportunity of using express thermal mass to improve heating efficiency and give you cooling in the summer from night time ventilation—so dry lining takes away that opportunity and does not do anything to stop the rain coming into the solid

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brick wall. If the builders rip the vapour barrier, which you have to have if you have internal dry lining, you will get mould growing behind the dry lining, such as aspergillus. There are various moulds that are known to be prejudicial to health and they are actionable. Dry lining has huge technical issues. Over-cladding with insulation has huge advantages but there are the conservation acts, planning, historic buildings, to deal with, and I promised I would not say that you should over-clad with unemployed conservation officers.

Chair: Do not worry because that will be on the record!

Q188 Martin Horwood: Can I ask about one last technology that you did not touch on in your very comprehensive answer before, which is combined heat and power?

Mr Mark: Combined heat and power is not a renewable. It is a more efficient way of using a fuel. You obviously can have combined heat and power operating on biomass, a carbon neutral fuel. The problem with this is that there is an almost complete lack of a commercially available technology. Certainly at the individual household scale there is no wood-fired CHP unit. There may be a single unit you can buy, manufactured by Talbots, up to about half a megawatt of electricity (and even they will not say this is robust) that would be usable by, say, 200 homes. The only

robust wood-fired CHP system is half a megawatt and above. They tend to be made in Austria and are gasification-based, and they are not for individual households. There is a lack of technology in this area.

Q189 Martin Horwood: Earlier we were talking about Decent Homes programmes and looking at estates as well as individual households though. What number of households would it be efficient for, roughly?

Mr Mark: If you want a choice of robust equipment it would be in excess of 500.

Q190 Chair: Five hundred units?

Mr Mark: Yes.

Q191 Chair: You would have to have some space to put it as well, would you not?

Mr Mark: You would. There is another type of CHP. You can use biofuels. You can use biodiesel in a diesel-operated CHP engine. There are some maintenance issues with this. There is a need to de-coke more frequently and there is a general concern that the Renewable Transport Fuels Obligation will require biodiesel for transport and the price will rise to the point where the built environment will find it to be an expensive fuel.

Chair: Thank you very much indeed. As I say, when we have studied what you have said we might want to ask you some more questions.

Witness: **Mr David Salusbury**, Chairman, National Landlords Association, gave evidence.

Q192 John Cummings: Would you care to tell the Committee why private rented stock is the least energy efficient UK housing tenure?

Mr Salusbury: I cannot give you a definitive answer other than to agree the inference that that is an unsatisfactory situation. I can only surmise from my position of working with landlords day by day that the situation must have something to do with the fact that landlords generally do not live in the properties that they rent.

Q193 John Cummings: You have taken that on board. I may well come back to that. Who do you believe is primarily responsible for improving it, if you accept that there is poor performance in the sector? Whose responsibility is it for improving the situation?

Mr Salusbury: I do not think one can escape the conclusion that it has to be the landlord's primary responsibility for bringing about these improvements. I suspect that the majority of reputable, better landlords already do that but the problem of this particular issue strikes a chord in problems besetting the private rented sector as a whole in that it is very diverse and the quality of landlords is very wide and therefore the less effective landlords, ranging down to what we would describe in our association as rogue operators, ie, those whom we do not recognise as being landlords at all,

are probably as uninterested in this aspect of their lettings as they are in any other aspect of their lettings, so I agree that it is unsatisfactory.

Q194 John Cummings: You are a national association. Can I ask how many members you have? What proportion of the housing stock owners do you represent?

Mr Salusbury: Regrettably, and I perhaps sound a little bit negative again, relatively few landlords choose to join a landlord association. There are probably no more than 20,000 landlords who are members of an association in any form and an overwhelming majority of them are members of our association, so we are looking at somewhere between 13,000 and 14,000 landlords.

Q195 Chair: Sorry—13,000 or 14,000 who are not in your association?

Mr Salusbury: No, 13,000 to 14,000 landlords who are members, but they do have significant portfolios of lettings. The average number of lettings amongst our members is between nine and ten, so if you do the maths you find that we probably account for a good 5% of the sector.

Q196 Chair: Five per cent?

Mr Salusbury: A good 5%, yes.

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Q197 John Cummings: Do you offer advice? Do you collate information on behalf of your members in relation to energy efficiency, which appears to be the flavour of the month?

Mr Salusbury: We certainly take the view that energy efficiency is very important and we do encourage our members to do what they need to do to make their properties energy efficient, and we do work with a number of bodies to bring that about and use the means that we have at our disposal to publicise the need to be energy efficient, in particular in terms of the Energy Performance Certificates. For example, we work with the Energy Savings Trust Partnership for Homes on the Green Landlords Award scheme. We work with CLG on how to market Energy Performance Certificates for landlords and we work with local authorities, a bit of a general statement, I accept, to identify and promote best practice on energy efficiency. We can publicise the information through one of three means. We have a journal called *UK Landlord*, we have a very well visited website and we have an increasingly widely circulated electronic newsletter and we do all that to tell landlords that it is in their interests on a number of levels to take steps to make their properties energy efficient. In fact, it makes commercial sense as well as making sense for the other obvious reasons.

Q198 Chair: But, given that clearly most landlords and most private rented properties are not run by members of your organisation and are probably run by landlords who are most interested in just maximising their profit, what do you think needs to be done to, rather more than just encourage, make those landlords take their responsibilities seriously? Should it be further financial incentive? Should it be regulation? What mix?

Mr Salusbury: In terms of energy efficiency we would prefer very much to see the present recommendations remain as just that, recommendations. This we believe has created something of an atmosphere in which certainly the reputable landlords will be disposed to co-operate and gain a greater understanding and awareness of the advantages to them of making sure that their properties are as energy efficient as they can be, but, as I alluded to earlier, the private rented sector, being so large in absolute terms, not necessarily large as a proportion of the total housing stock, represents quite a lot of properties and a lot of people rely on it. It is very diverse. Landlords vary enormously. Many of them, for example, rely on letting agents to manage their properties and there may well be something that can be done through the letting agents' organisations, like the Association of Residential Letting Agents, for whom I have no brief, and the National Association of Estate Agents, and there could be some link made between acceptance of a property to rent on behalf of a landlord and energy efficiency. We have not thought it through but there is some potential linkage there. That would account for another pretty large swathe of the sector but what is going to present the single

largest difficulty is what we would describe as the rogue operators and above them those who choose to operate as far as they possibly can away from the view of the authorities, seeking to keep as low a profile as they can. It is becoming increasingly difficult for them to do that, and therefore I would say, in answer to your question, Chair, that the local authorities need to direct their energies at bringing into the net the less satisfactory landlords and leave the reputable landlords alone. They know who they are if they are doing their job properly, and they have quite a good stick with which they can beat them. For instance, the housing health and safety rating system is an instrument that can be used for bringing in energy performance efficiency and awareness. Also, many local authorities run very effective leasing schemes where the private landlord offers the property to the local authority and the local authority houses whomsoever they wish in that house. There is potential for linkage here. Finally, the local authority enforcement officers (they do not like that term because they like to be a bit more engaged, I suppose), the local authority environmental health officers, ought perhaps as a matter of policy to start saying, "We are going to concentrate on the rogues. We know who the good guys are. We have got all the ticks in the boxes we need for them", and therefore there is, if you like, at local authority level potentially a political issue as well.

Q199 Martin Horwood: Mr Salusbury, I am much less expert than you but I have been a landlord briefly in my past and I used an ARLA letting agent as well. This is pie in the sky, is it not? Your members are businesses. They would say that they have quite small margins, the letting agents probably have tighter margins still. They are never going to do this kind of investment without being basically forced to, are they, because there is never going to be a very good commercial rationale for doing this? They are never going to command better rents just because they have got energy efficient buildings. People are still going to be marketing on the basis of square footage and the area and the transport links and things like this. Without compulsory codes and forcing the playing field to be levelled this is never going to happen, is it?

Mr Salusbury: You are right to be sceptical. The approach I believe that Communities and Local Government is taking, which I think is broadly correct, is that we need to go down the route of incentives and encouragement first. I do not quite agree with your proposition that they are never going to do it. I am a landlord. I have been a landlord a little bit longer than you, and I am delighted you were a landlord, and I certainly take the view, as do my colleagues in the NLA, that a well insulated property offered for rent is more likely to let than an uninsulated one.

Q200 Martin Horwood: For how long are we going to try out incentives? We have been told we have got ten years to start reducing carbon emissions on a

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drastic scale. How much of that ten years should we use up in trying out incentives and the voluntary approach?

Mr Salusbury: Perhaps there are one or two incentives that one could try. The NLA would like to see fiscal incentives to make energy efficiency improvements tax deductible.

Q201 Martin Horwood: I bet they would.

Mr Salusbury: At the moment, for example, for a landlord minded to make energy improvements to his property, if he decides not to apply for a grant and tackle the bureaucracy associated with the application of the grant, the Revenue would treat it as just that, an improvement, and therefore the cost of the improvement would not be tax deductible under present arrangements. We have no broad criticism of HMRC in this matter. We think the range of reliefs and allowances that are offered for letting residential property is broadly sensible and balanced, but we do think there may be benefit in looking at—

Q202 Chair: Can I just stop you on that to clarify something? I am also a landlord, I have to say, so I know that you can deduct tax deductibles on improvements that you make to your property. Are you saying that you cannot do it for energy efficiency improvements?

Mr Salusbury: Broadly speaking an improvement counts as an improvement and the tax situation, as I understand it (and I am no tax expert), is that that relief will find expression when you come to sell the property in terms of calculating the actual added value.

Q203 Chair: But you can offset it against the income.

Mr Salusbury: Not so. You can offset the cost of repairs against your rental income but improvements do not count as an allowable deduction. However, I could not possibly comment on what landlords actually do in practice.

Martin Horwood: I do not think we will go into any more detail, Chair.

Q204 Chair: You can be required to do improvements through the health and safety rating system.

Mr Salusbury: I do hope I have not said anything there that is going to cause you to examine your practice as a landlord.

Q205 Chair: I am speaking generally on that last one.

Mr Salusbury: The Revenue does draw a distinction in general terms between improvements and repairs, and if you insulate the loft is it an improvement or is it a repair? Perhaps clarity from HMRC on that particular issue might be helpful because many landlords, myself included, would prefer to go down the tax relief route than go to their local authority and ask what grants are available and for them perhaps to say, “There are grants but you would need to get three tenders to do the work and here is a list of the recommended tradespeople”, and so on, whereas I would prefer to say to the chap who does all of my work, “Would you please get on with it?”.

Q206 Chair: Can I just ask one question, which is about Energy Performance Certificates? The intention of that was, and I am not sure if it still is, to introduce them for rental properties from 2008.

Mr Salusbury: Yes.

Q207 Chair: Do you think that that will at least start to provide some sort of stick or carrot to landlords to improve the energy performance rating of their properties?

Mr Salusbury: We have not taken any particular issue with this. We recognise that it is a European-wide issue, in fact it is wider than Europe, of course, and this emanates from the European Union, and, as I said earlier, we think that CLG is going about implementing these requirements in a reasonable way which has enabled us fully to co-operate. That is perhaps rather a circular answer but I think the simple answer is yes.

Chair: Thank you very much indeed.

Witnesses: Mr David Cowans, Chief Executive, and Mr Nicholas Doyle, Project Director (Sustainability), Places for People, gave evidence.

Q208 Chair: Can I check if you have been listening to the whole session?

Mr Cowans: Yes.

Q209 Chair: If as we go on there are comments you want to make from your experience as landlords and developers on some of the points that have been made by others would you slot them in where appropriate? I want to start off by asking how it is that your housing has got SAP ratings significantly higher than the national average for owner-occupied or rental property.

Mr Cowans: I will kick off and Nicholas can help me along. Several years ago we decided that we ought to adopt an affordable warmth strategy, which was

primarily around effectively insulating our property, and we struck a joint venture arrangement with Powergen, and I think it is a good example of how organisations should work together with energy providers to create more insulated property. I agree with the earlier speaker who has more technical knowledge than I do that the easy wins are the simplest things. In fact, I think an element of our submission is how you get those early wins into as many properties as possible as quickly as possible. We directed existing finances towards relatively straightforward insulation such as draught stripping programmes. As I have listened to the debate I think one of the bits that we should have reflected more strongly in our submission is the whole notion of area approaches to adopting energy efficiency. We

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are also very keen on micro energy production, but if you do not do that the scale then does not work, so area based approaches, perhaps to do bigger agency services, perhaps also bringing in some of those micro energy production operations, are needed, and our strategy has been to learn by doing. We have gone out and struck a deal with a solar panel producer and struck a deal with a wind turbine company and tried these things. That would be my view.

Mr Doyle: What I would add to that is that the deal with Powergen is through the Energy Efficiency Commitment and I think it is the exception that proves the rule in lots of ways. The Energy Efficiency Commitment is by far the simplest and most straightforward way of bringing investment into the existing stock. It works phenomenally well and if social landlords or other landlords have not used Energy Efficiency Commitment funding then they should do because it is very easy to do, it does all of the good things that you have been talking about earlier. It is dead easy to do, it is not bureaucratic. It is managed by the energy companies who make it very easy to do.

Q210 Chair: Is it open to large private landlords as well?

Mr Doyle: Yes. There are certain categories within it, so, for example, 50% of the funding in the Energy Efficiency Commitment in the current round has to go to those in priority groups, largely those who receive benefits, but that leaves 50% who are not.

Q211 Chair: Which would probably not apply to the large private sector landlords, from what we heard before, I suspect. Most of the measures that you have taken have been taken by your organisation rather than your tenants. Is that right? Have your tenants taken any initiatives at all or have they just been grateful?

Mr Doyle: In broad terms, no. Clearly there are individual cases such as where a personal commitment has meant that somebody has done something which changed their behaviour. I think the traditional relationship is that landlords are the ones who are responsible for improving the properties, and that should remain the case; we should be responsible for maintaining and improving the assets and improving what we are offering to residents. Broadly speaking, no, residents have not taken action themselves. The one area that we need to do more on is in resident behaviour and one of the things we have found is that by making the connection between people's behaviour and the cost or carbon reduction it makes an enormous difference. We have installed those display meters you were talking about earlier and it has had a dramatic effect on people's behaviour. You should see the difference in terms of the way the family operates. The children run around the house turning items off (or turning items on to begin with) but it makes that connection that we lost a number of years ago between turning a switch on and what the

cost impact or carbon impact of that is. It would be good to see those more widely used than they are at the moment because it does make a difference.

John Cummings: You have obviously trialled various measures. Can you tell the Committee which have been the most energy efficient measures—heat pumps, solar panels, wind turbines or district heating schemes?

Q212 Chair: And can I just remind you that this inquiry is looking at existing housing? I know that one of the schemes you have suggested does not exist in this new housing, so perhaps you could stick to the existing housing.

Mr Doyle: In some senses I would endorse what one of the other speakers said. There is a fairly clear hierarchy in terms of effective measures. I would probably put solar thermal at the top of that. It is easy, simple, it fits with existing plumbing by and large, and it is relatively cheap and straightforward. Photovoltaics—

Q213 Martin Horwood: It is not cheap.

Mr Doyle: It depends who you get it from.

Q214 Chair: We have already indulged our private experience. We had better not go down which builders we have used and which we have not.

Mr Doyle: Certainly photovoltaic is still extraordinarily expensive. The hope that the economies of scale would kick in has not materialised, largely because the rest of the world is installing PV at a phenomenal rate, so any increase in the manufacturing capability has been taken up by Japan, Germany and even the United States and Canada. Ground source heat pumps definitely have a role to play, a very specific role, I would say, certainly in electrically heated properties and totally off-gas properties. They probably do not compete particularly well with traditional gas central heating, again for the reasons that were pointed out earlier. Wind turbines offer something of a challenge. They have got enormous potential. It would be great to be sitting here in a few years' time saying that wind turbines, certainly in the urban environment, really do play a strong role. I do not think the products are there yet. I think there is a great deal of over-promise and under-delivery so far. I think, like lots of renewables, it is still very small, almost a cottage industry. They are feeling their way to the market. The market has not been sustained for long enough and wind turbines could be at serious risk of ruining their own market in the next few years if they do not start getting it right.

Q215 John Cummings: District heating schemes?

Mr Doyle: The order of magnitude in terms of capital investment is phenomenal compared to the others. Clearly we have got the heating plant itself, we have also got the heating infrastructure. It would be fantastic if the financial incentives were available to make that a viable option, but they do not exist yet. If fuel prices continue to rise as they do that may well solve itself.

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Q216 Chair: Can I just go back to wind power? Have you used wind power on any of your developments which are existing housing?

Mr Doyle: We have trialled the grand total of two wind turbines. They were the only two we have got on a building. The others that we went to see I would not put on anything, so we are trying them just to see the what the difference between promise and delivery is.

Q217 Chair: So these are little turbines, one per house?

Mr Doyle: On a flatted development.

Mr Cowans: There is a more general point for me in that one of the big impacts on existing housing is methods by which we can stimulate research and development for these technologies because they are very small producers often. We took an active stake in a solar power manufacturer, not only to demonstrate our commitment but to help them keep the business on, and we need to do a lot more of that R&D. Simply to introduce some big programmes against very uncertain technologies does not seem to be a very sensible strategy but we also take the view that this is an urgent matter, so we need to get those renewables and those technologies up to a robust level quickly, and one of the fastest things to do is just to learn what other people are doing in other parts of the world because they are doing much more than we are in all sorts of ways. We have tried to give you some examples in our submission and some of those things other people have mentioned. We have not got a lot of time, so rather than reinvent the wheel in that sense we need to look at what other people are doing, especially on the robustness of the technologies.

Q218 Chair: So are there other countries which have an existing housing stock which is as energy inefficient as ours and that they are trying to improve—as opposed to Scandinavia which has got very efficient stuff before they start?

Mr Doyle: I think there are probably plenty of examples. Ireland and Greece have just been mentioned to you. Even places like Canada do not have particularly energy efficient housing stock. They have better housing stock in some ways because the weather has pushed them down a particular route. Japan does not have particularly energy efficient housing. They have gone down the technical submission approach. We do not compare particularly well with some northern European countries. We compare reasonably well with the rest of the world.

Q219 Martin Horwood: Can I ask specifically on urban wind, are you saying that these little turbines are just more valuable as art rather than as energy generation, or is that the kind of model that does work?

Mr Doyle: I think they will have improved in the heat of battle but I think it is going to be a while before they prove that the capital investment is worth it in terms of what they offer. The urban environment is the worst place to put a wind turbine.

Q220 Martin Horwood: Just to shift the question round, you have talked a lot about the cost efficiency or the energy efficiency. In terms of absolute reductions of carbon, which is a slightly different question, does that change your analysis at all? Are there any that are just expensive but very good at reducing carbon in absolute terms?

Mr Doyle: Photovoltaic, but you could never look at it in isolation.

Q221 Martin Horwood: No, but we have to absolutely reduce carbon and the costs of not doing it are even greater than the efficiency costs.

Mr Doyle: Electricity is the most carbon intensive energy source that we have and that is the best way to do it, photovoltaics.

Q222 Chair: If I understood you about photovoltaics, you were saying that the productive capacity for them has increased but the potential market has increased so fast that the price has not reduced. Is that right?

Mr Doyle: A number of factors have made that happen. The UK used to be the world leader in the production of photovoltaics a number of years ago. I think Shell and BP still have interests in photovoltaic across the world but we lost much of that lead in the 1970s and the 1980s and other countries, especially Germany, America and Japan, increased their capacity. At the same time those countries have also increased the demand for those technologies, so what happened was that we came at the very end of a very long supply chain and we became the last customer. Once all of those other customers had been satisfied we would get what was left over and that still remains the case. We do not have a total manufacturing capability in this country.

Q223 Chair: So what is stopping us getting it if the technology is known and works?

Mr Doyle: Certainly a lack of investment in research and development on the supply side. I think we have exported our manufacturing capability to some extent. On the demand side critically what we have done is go down the traditional route of grant funding, which is stop/start, big/small; we will try this, this and then we will try something else, and lots of grant funding regimes have cross-cutting purposes and have not allowed the UK industry to build and understand that in ten years' time this is the capacity that we will need. We can take X amount of risk and invest Y amount of capital over that period of time and that will deliver a full scale industry. Because it has been stop/start we have just never had enough investment to do that.

Q224 Chair: So what steps do you think the Government could take that would create that sort of certainty if you are suggesting that grants are not a good mechanism?

Mr Doyle: Again, taking both sides of the equation, the supply side certainly we need to invest in more to make it a bit more attractive for people to invest in the production of new technologies. There have been

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various announcements that investment is being made, but I have yet to see that being delivered. On the demand side we certainly need to move to the German model of feed-in tariffs, which has dramatically changed the German market and has allowed German manufacturers the ability to predict what the market is going to be like over a sustained period of time, and they have invested accordingly, and the same with Japan.

Q225 Mr Betts: Moving on to another area where Europe seems to have been ahead of us and where you have been looking in your experiments at how we might move on to smart meters like the Electrisave meters you have been running as a pilot project, can you say how that is going so far and what the reaction has been?

Mr Doyle: Very well. I was slightly sceptical when we looked at this as a potential option, but we installed them in some of the most energy efficient housing that we have, a 229-unit development of EcoHomes “excellent” housing, so definitely at the upper end of energy efficiency. We installed 20 initially and had a control group of another 20. It had that initial “wow” factor for those residents, but what struck us most of all was that in six months’ time that had not changed. I could see that immediately because I tried one at home for a few weeks and other people tried them at home. You can see how it has that initial impact on people. By keeping it in the kitchen, for example, it sustains that connection you make between the decisions you make, such as whether you fill the kettle half full or just full enough for the cup of tea that you require, and all the other behavioural changes. It is a constant feedback you get and I think if we could move to having those on a widespread basis it would dramatically change people’s perceptions.

Q226 Mr Betts: Are you looking to extend it?

Mr Doyle: We are, at a cost. We would like to do them in far more houses. I know it is a legal requirement, or will become a legal requirement, to install them. The question is for us as a landlord how we make that connection between the energy supplier and their customers and us potentially brokering a deal between those two. It would be fantastic if we could go to an energy supplier and say, “We want 60,000 of these” and get them into our properties.

Q227 Chair: Why did you put them in the EcoHomes “excellent” houses because presumably those houses have relatively low heating bills? Do you have any evidence of putting them in houses and people altering their heating behaviour as opposed to the kettle?

Mr Cowans: Yes, we did; we trialled everything. We did that at first to see whether it had any impact, but we trialled lots and lots of people up and down the country. The most highly publicised was that couple with their three kids in Manchester, and it is that that Nick refers to, kids running round the house annoying everybody, turning everything off, and that was on regional television. It got really good

regional and national coverage and it is that sort of generation of marketing and excitement based on practicality that is so exciting about the Electrisave meters, because they are pretty cheap, and as a cost efficient way of changing behaviours they really work. We got these people to keep a diary of their bills before and after and there was a significant reduction in their energy bills. We are not suggesting in any way that it is a panacea. It is one part in a very large jigsaw, but as an efficient piece of behaviour encouragement there is no doubt it works.

Q228 Mr Betts: You have a role, Mr Doyle, which is very focused on these issues of energy and sustainability. It is quite unusual for a housing provider to have someone whose job it is to measure that sort of thing and to come to the decision that you have made as an organisation to go down that route. Not many of your fellow organisations, if I can put it that way, have got similar appointments, have they?

Mr Cowans: Very few, and you know them all. We decided to do this quite a while ago because it seemed an obvious thing to do. We needed some expertise around this area because I think there is very little of it about, and a few people have said the same thing. We also decided there was a very clear nexus between fuel poverty and environmental sustainability and technology, and could we create some sensible strategies around those three things, and that is what we tried to do. It is hampered by all sorts of things, not least the technology I have talked about. If we talk about the next situation, there was a very interesting discussion about Decent Homes and Decent Homes Plus. We are actually thinking that the next situation will be a Decent Neighbourhood Standard to capture all of the properties in the area, not just the affordable housing. The danger is that it gets to be a bit of a one-track approach and everybody else just seems part of the market and we will try and incentivise them. We think that rather more area-based analysis of a whole range of things about what makes a great place to live, one of which is obviously environmental sustainability, might generate the sort of scale that will get people into the market, because the one thing that any market needs is incentivisation in all sorts of ways, but it also needs scale to tool up, to buy things in, to create certainty, and without that we may well have lots of encouragement, lots of R&D but without the scale where is the market incentivisation? We think that that is the next place to go and within that will be some sense of, of course you have instantly better standards in your properties but within a larger environment, and that would also encourage the possibility of energy savings with service companies in larger places. You would get some sense of communities then trading power, which you start to see in some communities in America. Chicago has got quite an interesting experiment around these sorts of things. We have to be very radical and if we did not have a bunch of people led by Nicholas early on that got us all thinking about this maybe we would not be here intellectually.

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Q229 Martin Horwood: I have been lobbied by trade bodies who seem to find the actual design and specification of the smart meters unexpectedly controversial. Do you have any views on which smart meters and what specification, and if you cannot answer that now maybe you could write to us?

Mr Doyle: I am smiling because I can imagine the lobbying that has gone on because people do get upset by specifications and things that they do and do not do, and they want it to do other things or to be looked at in different ways. There are limitations to the product, absolutely, and certainly in the trials that we did they were not perfect. You could not have a cumulative total showing either CO₂ emissions or cost, which would have been useful. They are battery powered, so after a period of three months, depending on which setting they are on, they go phut and have to be reset and unless you know how to reset them, which is quite complicated, you can get next door's signal and things like that, so there are certain limitations to them. What we need to move to is something that is nice and simple that you can either plug in or is hardwired into the property, I would suggest in the kitchen, which simply you can switch between CO₂ emissions and cost, and I should imagine people are interested in cost now. In a few years' time, once people start to understand their carbon costs, they can switch between the two. Let us keep it as simple as that.

Q230 Martin Horwood: Do you think we need anything that can identify individual appliances or outlets in the home, or is the total enough to incentivise people to go round switching things off?

Mr Doyle: No. It is a classic example of people trying to over-egg the pudding. It works as it is. It is nice and simple. The technology is there. It is not more sophisticated than an alarm clock. If you start to try and understand which appliance is costing you the most or producing the most CO₂ emissions we would spend the next three years trying to work out which product to wire in, get some cash in for it and start to manufacture it.

Martin Horwood: Surely all you have to do is work out which plug has been used.

Q231 Chair: You can go to a private seminar.

Mr Doyle: There are plenty of these things where people can discuss things for a very long time.

Q232 Martin Horwood: But if it enables people to be more efficient in reducing their emissions it would be quite useful.

Mr Doyle: It is a classic cost and benefit, is it not? The Electrisave is right in the middle. They do not cost much but we could get lots of benefit out of them and once we start pushing it further down the line they are going to cost more money and get more and more complicated and then Joe Consumer will not understand the product and will not use it.

Q233 Chair: Can I finally ask about the planning system? The Government is going to make major changes to the planning system. What would you want it to do that would help organisations like you on the energy efficiency things?

Mr Cowans: The biggest issue for me in this whole debate is about business models because we have a development business model, whether it is in existing housing or new housing, that is intrinsically short-term, and this is a long-term business. All of this stuff is capital intensive and requires long periods of payback. What we are keen to do—and I will stray into new development because it is the same issues for existing ones—is take a long-term position on this. We will buy 2,500 plots, we will package it up, we will sell on 70%. We keep all of the affordable and 30% of the sale and all the commercial, and we will actively look at how we can make that scheme more energy efficient, if necessary by providing the energy services ourselves. We will require private equity developers to insulate to the highest standards, all that sort of thing, a bit like a private sector English Partnerships, I guess. That sort of approach implanted on an existing place could work as well. Clearly it would be different, so we would be looking for elements in the planning system that were about deliverability, about management of places and actively saw energy efficiency as a planning matter.

Mr Doyle: I suppose more on a prosaic level really, there is a huge disconnect between what local authorities want to do at a strategic level, which is very grand sometimes, and often in terms of renewable targets and what they want to do on a sustainability check list, all of these things, and the poor old planning officer at the bottom who has to deal with all of these planning applications, who has to turn them round in X number of days or whatever it is. They are hugely under-resourced, they have no confidence with which to make long-term decisions whatsoever, and they are really struggling, and until we start investing in planning departments or finding an alternative method, whether that is allowing renewables by default or whatever it is, we are going to have an enormous bottleneck in terms of installing renewables and other technologies in existing homes.

Chair: Thank you very much indeed.

Tuesday 11 December 2007

Members present

Dr Phyllis Starkey, in the Chair

Sir Paul Beresford
Andrew George
Mr Greg Hands

Anne Main
Mr Bill Olnier
Emily Thornberry

Witnesses: **Rt Hon Yvette Cooper MP**, Minister for Housing, and **Mr Bob Ledsome**, Deputy Director, Climate Change and Sustainable Development, Department for Communities and Local Government, **Joan Ruddock MP**, Parliamentary Under-Secretary of State, and **Mrs Jackie Janes**, Head of Climate Change and Energy, Household and Markets, Department for Environment, Food and Rural Affairs, gave evidence.

Q234 Chair: Welcome to both of you and to the civil servants you have brought with you. We have a great many questions we wish to ask arising from the previous evidence sessions we have had. We will try to keep the questions brief and we would be extremely grateful if ministers and/or civil servants would keep any answers brief. We are expecting responses to the questions from ministers, although we understand that if it gets very technical the officials may help. Could I ask you to introduce yourselves.

Mr Ledsome: My name is Bob Ledsome. I am a Deputy Director in Communities and Local Government responsible for climate change and sustainable development.

Yvette Cooper: Yvette Cooper, Housing Minister.

Joan Ruddock: Joan Ruddock, Minister for Climate Change, Biodiversity and Waste. Most of what you are concerned with today is in the portfolio of my colleague Phil Woolas, who of course is in Bali.

Mrs Janes: Jackie Janes, Deputy Director in Defra for Climate Change and Energy, Household and Markets Division.

Q235 Chair: Thank you very much. My first question is largely to DCLG. It is about the Sustainable Development Commission's report on existing housing stock and climate change and to ask why, when the Department commissioned the report, there has been no response thus far to its recommendations. Is that really consistent with the Department's view that climate change is the greatest challenge facing the world?

Yvette Cooper: We do not always do formal responses to the Sustainable Development Commission's reports. We do very much try to take on board its recommendations. I am very happy to talk through particular aspects of its recommendations because a lot of this is work in progress. Normally, when we do these Q and As, I do not make initial statements but there is one piece of additional information I wanted to give to the Committee. As you know, we have had a very intensive work programme around setting the framework for new homes. We did say that we wanted to then move on to existing homes. We have a lot of work underway, which I know you will ask us about, around CERT and the Green Homes Service and so on, but we do want to publish, alongside the launch of the Green Homes Service in

April, the Green Homes Strategy, which brings together a lot of the different programmes of work that we have underway into an overarching Green Homes Strategy for the launch of the Green Homes Service. Obviously I do not know what your timing is likely to be in terms of the publication of your report but it would be very helpful to have your report in time for it to be able to feed into the Green Homes Strategy as well.

Q236 Chair: We are hoping it will be published well before April. Is that strategy going to be the result of your review of the existing building stock or are we going to see something before then?

Yvette Cooper: We have put into the Library of the House one of the analysis documents from the existing buildings review that the Office of Climate Change did which sets out their analysis of the scale of the problem and where the gaps are. The central recommendation was the establishment of the Green Homes Service which we have already announced—and that was in response to that review—but obviously other work from that review will feed into the Green Homes Strategy as well.

Q237 Emily Thornberry: Public awareness of the need to make homes more efficient is still very low, and I am talking about the private sector in particular. According to the Sustainable Development Commission it is "alarmingly low". What is the Government doing to improve awareness?

Joan Ruddock: I think we are doing quite a lot. This obviously is a new departure: Defra has not been a campaigning department in the past but necessarily has to become one. Ninety-eight per cent of people are now aware of climate change and 80% are concerned about it, but we find that most people are confused about what they need to do and also concerned about whether, if they do anything, it will have any effect. The heart of our campaign, which is called "Act on CO₂" has been advertising. You may not have seen it—we have a small budget—but the consequence of advertising on television programmes has been to drive over 600,000 people to our carbon calculator. That enables people to see their own burden of carbon from their households and how they can reduce it. We give them advice on how they can reduce it. That is critical because over 40% of emissions arise from people's homes, what

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they do with heating and lighting appliances, and from their personal transport. This is a key part of the Government's campaign. It will continue to build. It is cross-departmental: we have worked with the Department for Transport and we work now increasingly with CLG and BERR. We also try to embed these messages not just from us to the individual but also through community actions. We have supported 83 community projects trying to convey the messages on climate change and personal responsibility for that through an £8.5 million programme.

Q238 Emily Thornberry: You have talked about a carbon calculator and people being able to work this out for themselves but is there any work being done to help people get someone in to audit their houses, in order to ensure that they do the right things to make their house more efficient?

Joan Ruddock: Yes, very much so. One of the recommendations is that people work with the Energy Saving Trust in order that that can help them to decide how to reduce emissions from their homes, how to gain access to grants, for example. Of course increasingly this will work holistically with the Green Homes Strategy, the programme that CLG and the Prime Minister have already announced. We do need people with expertise who can go to the householder, who have all the knowledge of how the householder can best benefit from whatever government has available.

Yvette Cooper: The Green Homes Service is particularly focusing on that kind of idea. It is the one-stop shop, which is also about whether you can then link to the grants that might be available through CERT (previously the EEC scheme), so that you are talking about being able to give people advice not only on what they can do with their home and their own personal circumstances but also, "Here's some cash to help you and here's stuff you probably were not aware of in terms of additional help too."

Q239 Emily Thornberry: Most of the witnesses we have heard from have said they do not think you are getting the balance right between new build and existing stock. Is there more you are going to be able to do?

Yvette Cooper: It is right that we started with a very bold framework for new build. Part of the reason for getting on with that quickly was because of the scale of the need for additional new homes. In order to make sure there was that framework alongside the very substantial increase in new homes—we could not really wait to do the new homes—we had to make it come alongside the programme for increasing housing. Secondly, the real prize for us with the new homes programme is that if the regulatory framework is set out it can trigger technological spin-offs that can be used to retrofit existing homes as well, then you drive investment and technological change. We have talked to some developers or some in the industry who are looking at things that you might be able to do which start off with a new homes approach but then might be

useable for existing homes as well. That is the real prize. It may not happen, but that was part of the reason for setting out the new homes programme first. You are completely right: you then need to have the same sort of intensity and focus around existing homes. We have a lot of big programmes underway and big investment with EEC and CERT but we want to take the next steps now in terms of pulling them together.

Q240 Mr Hands: What input have you had to the London Mayor's campaign on climate change on existing housing?

Yvette Cooper: We have a lot of discussions with the Mayor both on existing homes and on new homes. We have had a lot of discussions at official level but also at ministerial and mayoral level as well we have an ongoing discussion. Particularly, we have been looking at how we can link around the Thames Gateway. The Mayor has a lot of work around London as a whole, but we have also said we want the Thames Gateway to be a leading eco-region. Because it has so much new development, it can look at higher standards in new development but there is also a specific budget to support retrofitting and programmes to cut emissions from existing homes and I think £15 million was allocated for that. In terms of the programme and the way that money is spent, we will be working very closely with the Mayor and we would expect it to coincide with the work he has been doing around cutting emissions from London.

Q241 Mr Hands: Has the £15 million been given towards new housing in the Thames Gateway or has it been given purely to existing housing?

Yvette Cooper: The £15 million is allocated for community projects to bid for, for cutting carbon emissions from existing homes in the Thames Gateway. This is in addition to the programme for new build in the Thames Gateway. This is saying we want local councils, areas and communities to come forward with proposals. We want this very much to be community driven and locally driven, to drive innovation on their programmes and ideas for cutting carbon emissions from existing homes, but we do want that programme to link up with the Mayor's work as well.

Q242 Mr Hands: It sounds rather different from the current advertising campaign: *london.gov.uk/diy* which is all around London at the moment, advertising nowhere near the Thames Gateway. I am wondering what input you have had on that campaign.

Yvette Cooper: We announced the Thames Gateway delivery plan—

Q243 Mr Hands: No, except for the Thames Gateway. This is all over London, miles away from the Thames Gateway. You can see these ads at Earls Court, Hammersmith, *et cetera*. What input have either of the two departments had on that campaign?

Yvette Cooper: Our departments have been closely working on the overarching programme.

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Mrs Janes: Maybe I could add that we meet regularly with the officials in London to talk about their programmes and to try to co-ordinate. London is using the Energy Saving Trust as its key delivery body for this scheme. The Energy Saving Trust is the key body that will be rolling out the Green Homes Service across England so we try to make sure that we are dovetailing and that we are promoting synergies rather than overlap between initiatives.

Q244 Sir Paul Beresford: Your answers so far have talked about energy saving but you seem to have a “blind spot” which is not apparent in places like Germany and Sweden, and that is the reverse side of it, the microgeneration. I am thinking of solar thermal, solar electric, ground pumps, heat pumps, these sorts of things. We are abysmal at this, looking at the figures. What are you doing to try to encourage it, bearing in mind that the off-put for most individuals is the cost? Can you help reduce the cost to try to encourage people?

Yvette Cooper: We should recognise that you of course have to improve the energy efficiency of homes.

Q245 Sir Paul Beresford: I accept that.

Yvette Cooper: That is a pre-condition.

Q246 Sir Paul Beresford: It has to go hand-in-hand.
Yvette Cooper: I do not think it is wrong to say you have to get the energy efficiency programmes in right across the country—and that is the cost-effective side—but we do also have programmes to support increasing roll-out of microgeneration. A lot of this is the sort of BERR programme as well.

Joan Ruddock: I would like to emphasise the point that Yvette Cooper has made. We have to start with the biggest problems and we have to start with the fact that we are looking at millions of homes that are so poorly insulated that if they were to microgenerate you would simply be putting the energy into the atmosphere. It is a matter of tackling, first of all, the “low-hanging fruits” essentially: it is about insulation; it is about cavity wall insulation; it is about the most basic methods that can be applied to the largest number of homes. That is the basis of the Energy Efficiency Commitment which has been very successful to date and, going forward, with CERT coming in from next spring. Until that is done, it is very difficult to argue the case that it would be economically in the best interests of the whole country, the homes or, indeed, the energy supply companies, to focus on microgeneration. We know we need to do it: we know it is the key to the future and that by 2020 it will be supplying a very large amount of the energy of this country. It is the future and we will move towards that. We are consulting on how we move beyond CERT for the period post 2011 and, undoubtedly, there will be a greater emphasis on microgeneration at that point. There are grants available under CERT. The grants are substantial and important but it cannot be the main thrust of the programme because there is much more that is very basic that needs to be done.

Q247 Sir Paul Beresford: I am not arguing with that at all but I am hoping you are going to think about having a considerable proportion of new build and renovation—

Joan Ruddock: New build is a different matter because we are looking here at existing housing.

Q248 Sir Paul Beresford: And it is an opportunity to move into microgeneration with that hand-in-hand.

Joan Ruddock: It is.

Q249 Sir Paul Beresford: When we look at the figures we have, they only go to the end of 2004. Photo-electrics: the number of units stored is 1,100. It is pitiful.

Joan Ruddock: It is.

Yvette Cooper: This is a good example where the new-build market can drive the technologies and also cut cost through economies of scale. Microgeneration is a classic area which we will expect to see expand as part of the new programme. Because they are going to have to meet very substantial increases in targets in terms of cutting carbon emissions in 2010, 2013 and 2016, you would expect that programme to drive increasing take-up of, for example solar panels, but a range of different new technologies, and that in itself to help cut the costs, which also makes it more economic to retrofit as well. We have had the planning changes too, to make it much easier to introduce a lot of the microgeneration technology without having to get planning permission, so, in addition to the grants which are targeting microgeneration, in addition to the longer-term programme around the future of CERT, in addition to the framework which is to try to incentivise reductions in cost through new build, there is also making it easier to get planning permission which ultimately reduces the cost of installation for microgeneration for existing homes as well.

Q250 Chair: Perhaps we could revisit this when we come on to some of the later matters.

Joan Ruddock: One thing that is significant is that we have a requirement for energy companies to have tariffs for householders who want to feed into the grid. This is the first stage of encouraging microgeneration.

Q251 Chair: Can you clarify the level of that tariff and whether you believe it is adequate to encourage people to feed back in.

Joan Ruddock: It is a matter for each supplier. We have not decided as a Government to go down the road that has been adopted in countries like Germany, where the Government has fixed the price. This is because we are looking across the board at what is the best thing to do in terms of using the amount of money that can be made available nationally. Where can we incentivise and encourage and get the best deal for the most people? Of course we particularly have a focus here, in this country, on trying to tackle fuel poverty. Applying whatever funds are available across the board with a concentration on those who are in low income

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homes is an equitable policy that you would not necessarily achieve—in fact you would not achieve, I will say—if you went for microgeneration as your priority spend.

Chair: We might come back to that when we discuss financial incentives.

Q252 Mr Oliner: You mentioned grants that were available for microgeneration, you mentioned grants that were available for making older properties more efficient. Do we have an unlimited sum of money to pay these grants out? It worries me that, like in so many other things, you attract the interest and then there is not enough money to satisfy everybody who wants a grant. Have you given this some thought, because it is the local authorities who have to give the grants out who are going to get it in the neck?

Yvette Cooper: Of course there are limited budgets, so of course there have to be decisions taken about what is the best, most cost-effective use of those budgets. The key way in which we are trying to target the funding that we use is along a series of principles that we adopt. The first is to deal with areas where there is a market failure, effectively. Where people ought to be doing something, where it is in people's interests to be doing something but they are not doing it for whatever reason, you need to incentivise behaviour in order to get them to put in their own loft insulation or cavity wall insulation and so on. Secondly, and perhaps most importantly, are those who cannot afford the insulation or the improvements that are needed—and that links up with the Warm Front scheme as well as the EEC programme. The third area is around trying to drive the innovation, the new technology and the take-up. That is always a balance because you need to make sure that we are using the money cost-effectively. In using money to drive market change, you have to take a judgement about how much money you put into that when you also might be putting money into technologies that are not yet cost-effective, and there needs to be a set of incentives as well for them to bring those costs down through economies of scale. We do put money into supporting microgeneration but we also need to make sure we are putting money into things like insulation and getting the basics right as well.

Q253 Anne Main: On the fuel aspect and informing people, I notice there is a 600,000 take-up as a result of *Calculate your Carbon Footprint*. In discussions I had with the Energy Retail Association, it seemed that the Government was moving towards the concept of Smart metering, where people could see how much fuel they were using and a lot of people are of the opinion that that could be quite helpful. It appears that that may have slipped off the agenda. Could I have the latest view from the ministers on that, please?

Joan Ruddock: It has not slipped from the agenda at all and is under active consideration but we are advised that it would probably take about nine years before we could get a complete roll-out in the country as a whole. It is the difficulty of moving

quickly on Smart metering, which is a fairly complex issue. We do believe, however, it is possible to have displays where people can see in real time the energy they are using. That is a much simpler technology and readily available. We have said that between 2008 and 2010, where people are having new meters installed or they are buying new properties they could have such a display, and that, as soon as it is possible in 2008, the people who want them on request should be able to get them. That is important because we know from research that if people are made aware and can be made aware of what they are using they will think about it and they are likely to adjust. I know I would. It is important to get this in and not just to wait until we can manage Smart metering for everybody.

Q254 Anne Main: Industries of whichever nature which are hoping to make us more energy efficient are expressing concern that the Government seems somewhat to be leaving it up to the consumer to be convinced of the idea and then request them. Whilst you are going to continue with that you are not going to have the economies of scale that the Minister had discussed. I feel that the smarter metering you are describing will not provide the energy efficiency that would be hoped for by the industry. I just would like to urge the Government to be considering being a little bolder with the way it is considering people being able to make energy efficient choices, because just monitoring what you are using is not the same as the bigger concept where people buy into the cheapest and most efficient tariffs which would suit them and easily could switch between two. When people are in fuel poverty they need to get the best deal on fuel as well as keeping warm. I would like to leave it there: there does not seem to be the confidence that I would have hoped for when I was talking to the Energy Retail Association. Maybe you need to do some reassurance if that is the case

Joan Ruddock: I am sure we can look at that. It is important to stress that we know from our research that people are willing to do things; they want to do things; they want help in how to do it. To have the display meters we think is important and it will enable people to think about what they are doing and to try to make adjustments. As I have said earlier, we have many ways in which we can then help people to move beyond knowledge to action, through the calculator, through the Energy Saving Trust and so on.

Yvette Cooper: We are expecting to respond to the consultation around smart meters in the New Year.

Chair: Could we move on to the Code for Sustainable Homes.

Q255 Andrew George: In 2004, when discussing the then Sustainable Homes Bill, the Private Members' Bill, the Government certainly clearly stated that its intention was to bring in regulation with regard to new build, since when there has been a voluntary code. What changed over that period?

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Yvette Cooper: We have a framework for compulsory regulation which is in the Building Regulations. The Building Regulations will implement the Energy Efficiency Standards that are set out in the code, so the code becomes what will be the future regulation that will be embedded into the Building Regulations. In 2010 it will be compulsory for all new homes to be built to code level 3 in energy efficiency terms; in 2013 it will be compulsory to build to code level 4; in 2016 it will be compulsory to build to code level 6. That is the first thing we are doing. The second thing we want to do is to make it mandatory for there to be a rating, effectively, against the code from this April. That will mean that for every new home it will be clear what their rating is against the code, and if they have not had a rating done then it will be the equivalent of giving them a zero rating. That makes it very clear where homes have achieved higher than the basic minimum in terms of the building regulation standards and getting to higher levels of the code, and if they do not get the assessment done then they will automatically get a zero rating for the code.

Andrew George: In the evidence you have presented you have said that the target is for all new homes to be zero carbon by 2016.

Chair: We are talking about existing housing, not new housing, so could you move on to the existing housing implications of the code.

Q256 Andrew George: Yes, of course. I intend to do that because, clearly, we are looking at not just the question of new housing but also, as you have said in your evidence, by 2050 two-thirds of all stock will in fact be existing stock, as of now. Given that that is the case, to what extent will you then introduce either a code or mandatory requirements with regard to the sustainability of existing homes in future?

Yvette Cooper: The framework that we have set out around existing homes is around information and incentives and support for people to be able to increase the energy ratings of their existing homes. I think that is the right approach to take for homes that are in a very varied state. We have a kind of compulsory programme in social housing and a regulated programme in social housing, which is that all homes have to meet the Decent Homes standard. It is quite interesting, if you look at the energy efficiency improvements in homes over the last ten years, that the biggest improvements have been in social housing. There has been quite a jump—I think an improvement of over 21% in energy efficiency in existing homes, compared to a 12% improvement for private sector homes. We have a kind of regulated position for social housing. We think at this stage the right approach around private sector housing in existing homes is to adopt an approach which is around information and incentives.

Q257 Andrew George: In terms of monitoring the success of the current code and its implementation through builders and developers, has the

department undertaken any kind of monitoring of the implementation of the code with regard to new build?

Yvette Cooper: Obviously it is only just coming in really. It has only been in place for the last 12 months and it will only come in on a mandatory basis to have a rating from this April. We will be doing monitoring but it is obviously at an early stage in the process.

Q258 Andrew George: Mandatory implementation will be from April 2008.

Yvette Cooper: Yes.

Q259 Andrew George: Do you have a timetable for the introduction of the implementation of the code on existing homes?

Yvette Cooper: You could not use the same code that we have for new homes for existing homes. The code for new homes is focused around new buildings, it is based around the construction approach and things like that, and so you would need a completely different approach if you were going to do that for existing homes. It is one possible approach that you could take. We do have Energy Performance Certificates. They are now a standard approach and are now in place for homes being bought and sold and will be rolled out to the private rented sector and so on later next year. That provides an opportunity for a serious focus around energy efficiency of new homes and we have a lot of potential to use that more effectively as it is rolled out.

Q260 Andrew George: With regard to existing homes, if you are introducing either voluntary or mandatory measures with regard to reflecting the existing code, have you reflected on the fact that some of the stock will be of historic and architectural value and that therefore there will be some limitation on the measures you can implement given that that will contradict some of your other targets?

Yvette Cooper: I think that is right. That is why the framework we have adopted for existing homes is one around information and incentives as a way to do that. It does recognise that you have very different kinds of homes. There is a lot still we can do: for example, cavity wall insulation for those homes that have cavity walls, but we also have huge numbers of homes that have solid walls, built before 1919, which are the least energy efficient of the stock. There you are really looking for a technological solution. You just need more cost-effective and easier solid wall insulation. I have previously described it as “magic wallpaper”. You need something which is only the thickness of wallpaper, rather than some sort of solid wall insulations, and you need it to be much more cost-effective. In some of these areas you need very different kinds of things for different kinds of homes. That is inevitably the historic legacy that we have. We need to be sensitive to that. You also need technological improvements to be able to go further on some of these homes as well.

Chair: Could we move on to Building Regulations.

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Q261 Emily Thornberry: Concern has been expressed to us by some witnesses that the industry was supporting the idea of consequential energy efficiency improvement for householders and the Department dropped it at the last minute. Why?

Yvette Cooper: This was a few years ago now. One of the things at that time was that there was no analysis of the impact of the consequential amendments, for example, on different kinds of households with different kinds of income. It was also a time when we were simultaneously looking at the Disabled Facilities Grant and the need to expand the Disabled Facilities Grant. We just did not have any analysis on whether you would have households who needed to do extensions to put in a new downstairs bathroom or something like that through the Disabled Facilities Grant, or for aids and adaptation reasons and things like that, who would then, as a result of the consequential amendments, have to make costly changes to the rest of their house. From memory, I think there was a 10% improvement approach that was taken to the rest of the house. That is not to say that this is not a very sensible approach and that there is not the potential to do things like this, but at that time we did not feel that we had the right information about the impact on different kinds of households. We had been clear all the way along with this that you need to take equality issues into account and you need to make sure you are not creating additional problems for those on lowest incomes. The approach we said we would take at the time is to look at this more widely in the context of the review of existing buildings. That is what we have been doing and the question is: What is the way forward? The next time we will introduce increases in the overall Building Regulations will be for 2010 and we will need to set out some time in advance what the framework will need to be for that. That is the point at which we will introduce the code level 3 equivalent mandatory for all new homes but we will need to look in advance of that point at the impact for consequentials and things like that as well.

Q262 Chair: In the review of existing housing stock that has been published, does that include the sort of analysis that you are talking about as to the likely effect of this particular change on different types of households?

Yvette Cooper: The one I referred to earlier, that I said we were putting in the Library of the House, is an analysis pack. It does not have a specific analysis: "Let's try this particular measure and what the consequences are for it."

Q263 Chair: When are you going to publish that analysis so that you will be able to come to a view about the consequential energy efficiency improvements?

Yvette Cooper: That is part of an ongoing programme of work that we will need to do in advance of the next wave of increases in the Building Regulations.

Q264 Chair: 2010?

Yvette Cooper: Yes.

Q265 Chair: Not earlier.

Yvette Cooper: We have not ruled out any changes earlier in terms of existing buildings. At the moment the programme is around the Building Regulations for 2010.

Q266 Chair: You are not seeking the data which would enable you to take the decision you declined to take last time, in 2006, because you did not have the data.

Yvette Cooper: We have said that for any proposals that we decide to work through around existing buildings consequentials—and there are some other options as well around this that you could look through—you would need to do a kind of impact analysis on different kinds of households and low-income households as well.

Q267 Chair: That impact analysis has not been done.

Yvette Cooper: We do not have a specific proposal on the table at the moment. We will need to do the consultations on the 2010 changes significantly earlier than 2010 because you need to give industry and so on a lead time. You need to do that before 2009 as well. Effectively the programme of work you would expect would be to detail the programme in the course of 2008 in order to support this, so that you can then do the consultation in order to implement for 2010.

Q268 Emily Thornberry: We heard evidence from one of the district councils, Uttlesford District Council, that they have required consequential improvements in an area on a voluntary basis. Are you likely to be encouraging other local authorities to be doing the same thing? It sounds like you are not because you need to look into the impact on people on low incomes first.

Yvette Cooper: I think that has considerable potential as an approach. The Building Regulations already cover things like an extension. They cover the new work that you do to a house. The issue is whether you require, at the same time as doing new work to the house, some further action on retrofitting the rest of the house at the same time.

Q269 Emily Thornberry: A major refurbishment of the house?

Yvette Cooper: Major refurbishments of the house would not necessarily engage Building Regulations; it depends on whether it is structural refurbishment or painting and decorating and things. We are talking about the changes that would be implemented for April 2010, which is just over two years away, so you would expect to spend 2008 doing detailed analysis and 2009 to have the consultation, in order to be able to implement in 2010.

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Q270 Emily Thornberry: The next questions I have are about the training of these planning and building control officers. From the evidence we have heard, their priority has always been to making sure these buildings do not burn down or fall down. Certainly when they came and gave evidence to us they felt that they were not getting sufficient training on this. They thought there was a developing skills gap. How are local authorities going to attract these kinds of experts that they are obviously going to need?

Yvette Cooper: I think this was an issue that came particularly to light with the 2002 increased improvements to the Building Regulations. These are the Part L Building Regulations. They were not sufficiently well enforced and that was a difficulty. As a result, for the 2006 new Building Regulations standards we introduced quite a lot of additional training and work across the country to try to improve the enforcement around that. We have also been doing some further work around overall enforcement as part of Building Regulations. Bob, I do not know if you are able to give any more detail about that? It is something that Ian Wright has been working on in our Department.

Mr Ledsome: Firstly, we will be reviewing the implementation of the 2006 changes as part of the ongoing monitoring of the effectiveness of implementation, enforcement and compliance. That is something we will be doing next year. Also, there is the broader review of the building control system which will be looking at these broader issues about how to ensure effective compliance and enforcement arrangements.

Q271 Emily Thornberry: There is also the skills gap. The skills gap is quite a major problem. If we do not have building regulators with sufficient skills to be able to implement all these new changes, how are they going to happen?

Mr Ledsome: Obviously skills are very important. There is work we will be doing as part of the development of the roll-out of the programme in the new build which is all about skills as well. It is something which the Callcutt Review of housebuilding referred to. There is a programme of work with the Department for Innovation and Skills and the relevant sector skills bodies as well to look at these skills issues.

Yvette Cooper: It is a real challenge because you are increasing standards so rapidly over a period of time and also technology is changing so rapidly and we are trying to force technology to change rapidly as well, so of course that means there is continually a skills upgrade issue. It was a problem after 2002 to try to put those things in place but we are going to have to gear up in order to meet the 2010, 2013 and 2016 timetables.

Q272 Emily Thornberry: Part of the evidence that we have heard has been that these building control officers understandably fall back on what they feel comfortable doing and what they understand. To keep pushing the envelope on this stuff is rather difficult for them when they do not feel sufficiently confident in this new area.

Yvette Cooper: Also, you do not want them to stop doing the fire stuff!

Q273 Emily Thornberry: Exactly. You do not want the buildings to fall down!

Yvette Cooper: No. It is on top of that. I am happy to send you further details of the training programmes that we put in place for the 2006 roll-out and then things we are considering in terms of the next steps as well. I think that would be helpful.

Chair: That would be helpful. It would also be helpful to know which departments are responsible for upgrading the skills and what work other departments are doing.

Emily Thornberry: I think we will be investigating this at a later stage.

Q274 Anne Main: I was a little alarmed to hear the rolling back of the time frame for the consequential energy efficiency improvements. Are you confident that you have the budget and the workforce to be able to roll this out, to be able to do that detailed analysis of the impact on people in the lower income brackets and then to be able to roll out this programme efficiently within the timeframe that you have described? It sounds incredibly tight.

Yvette Cooper: There has been a traditional approach to Building Regulations which is a bit "last minute, give industry very little time to plan, consult on changes with hardly any time before they are to be introduced" and so on. Our attempt with the zero carbon timetable has been to get out of that approach and to get into a longer term timescale and framework so we can plan. The fact that we have said now that the next improvement is for 2010 means that already we are involved in detailed discussions with industry, through the taskforce that we have set up, on how those should be introduced and so on.

Q275 Anne Main: I believe you said to my colleague that you needed the report on the impact on the lower income families. If that slips, everything slips. Do you have an absolute time frame for delivering that information so that it can be fed back into the system?

Yvette Cooper: We would expect to be able to do that kind of analysis over the course of next year. Sometimes there are limitations in the evidence you can gather for other reasons that are not simply about budgets, investment and so on.

Q276 Anne Main: What are those other reasons?

Yvette Cooper: Sometimes information is not gathered in particular ways and so you have to make assessments and you have to do modelling to try to work out the impact, if you see what I mean, because data is not gathered on particular things. You always have to take those sorts of things into account, but at least we can do a best possible assessment of what the impact might be and we can do those sorts of analyses ourselves as well as looking at partners for work and consultation too.

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Q277 Anne Main: Would you have to liaise with other departments, such as the DWP to deliver this?
Yvette Cooper: I suppose you might do.

Q278 Anne Main: It is just that we have had concerns before that there has not been the greatest communication between the DCLG and other departments, and in fact it has been cited as a failing. I am wondering how much input there will be from other departments that may be concerned about the financial implications.

Yvette Cooper: I hope the fact that you see Joan and I sitting her cheerily before you demonstrates the close working that there is between our Department and Defra and between us and other departments on exactly this. Particularly around climate change we have been involved in very intensive working with other government departments. We could not do what we are doing around new build, for example, without it, and that has included, as well as with Defra, also with BERR around energy supply issues and also with the Treasury around things like the stamp duty relief for zero carbon homes. Our record around climate change is a very good one of cross-departmental working and we would hope that will continue.

Chair: Can we move on to Energy Performance Certificates.

Q279 Mr Olnier: Minister, you will know that the full roll-out of Home Information Packs (HIPs) becomes live this Friday. Along with that pack, of course, will be an Energy Performance Certificate, which I think is very much welcome, to measure the energy efficiency of the home that some person is going to buy. However, the downside of EPCs is that they are for a comparatively small number of annual house sales. We have 26 million properties in this country and fewer than two million sales per year. I am not very good on statistics but, apparently, houses change hands, on average, every seven years. That disguises the fact that it is probably newer properties which sell a lot better and it disguises the fact that, the older the property is, the less likely it is that the people living in that property will have an Energy Performance Certificate or know anything about the energy needs of their house. How are you going to get that energy efficiency information over to people who do not intend to move before 2012?

Yvette Cooper: The Energy Performance Certificates for the private rented sector will start from October of next year as well. I think those will be helpful too. There is an issue about how we make the most of the Energy Performance Certificates for those homes which are being bought and sold. We want to do more on that and we see the Green Homes Service as critical because we want to target on the F and G rated homes that are being bought and sold the additional advice and help and information about the grants they can get. For those homes that are not currently being bought and sold, this is exactly where the Green Homes Service will kick in to be able to provide that sort of information for homes that are not currently being bought and sold. There is the potential, for example, to be able to do Energy

Performance Certificates on those homes at a future date as well, and to have that kind of link to the Green Homes Service and other sorts of things as well.

Q280 Mr Olnier: Would you make that mandatory?

Yvette Cooper: I do not think that is our intention at the moment. However, we are looking, as I have said, at the framework around information and incentives at this stage. It will be mandatory for the private rented sector and for social housing. We have the CERT money and we think there is an awful lot of difference you can make. Joan has the figures on the number of homes we expect to reach through the CERT alone being very substantial over the next three years.

Q281 Mr Olnier: Could I ask you to explain the operation of this to me. Let us say I live in a relatively old property and I request an Energy Performance Certificate, (a) who will do that for me, and (b) if I get the certificate and it is saying it is in a lower band, will that be an automatic gateway to getting a grant to put it right?

Yvette Cooper: Currently your best way of getting an Energy Performance Certificate would probably be to ring up an estate agent and find out who they are using because you would get a domestic energy assessor to do that—and obviously we would expect access to them to be much more widespread once we have got the private rented sector and social housing programmes later in the year. Once you get your Energy Performance Certificate that would then be automatically available to the Green Homes Service. If you have an F or a G rated home, the Green Homes Service would then be able to contact you and say, “Do you know you are entitled to £200 to get loft insulation?” or “£150 to put in a new boiler” or whatever incentives there are available in your area. That would then give you the information both on your home but also what you could get done and what help you could get done. The next step in this process is to try to make it much easier for people to get the contractors and the services done. It is that kind of hassle factor—“Okay, now you’ve found out what it is you need to have done, how are you going to find a contractor to put it in?”—that we see the Green Homes Service moving towards, being the one-stop shop that can help you, that will make it much simpler once you have your EPC to get through the whole process.

Q282 Mr Olnier: When we took evidence earlier from the Chartered Institute of Housing they suggested—this is their analogy, not mine—that EPCs should in effect be the equivalent for houses of MOTs for cars. When asked the question how long would the MOT be in use for? they declined to answer. In an ever-changing world, what is a good grade now may become a bad grade later on. Do you have any thoughts at all as to how you do upgrade the standards, which will be better in the future?

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Yvette Cooper: For those homes that are being bought and sold, that is effectively what the EPC becomes, because you have to have one in place before you sell your home and that then effectively becomes an MOT rating or an energy efficiency rating.

Q283 Chair: It does not make the house uninhabitable, whereas if you do not get an MOT you cannot put the car on the road.

Yvette Cooper: That is true. Given our housing supply issues, I think it would not be a great recommendation to us to say that we should suddenly stop the huge number of homes we desperately need being lived in at the moment. But we do want the incentives to improve them. That is why we started with the F and G rating targeting. There is also the scheme for landlords as well. The potential from next October, when it goes live in the private rented sector, is to link this with the energy scheme for landlords, LESA, in terms of also being able to target private sector landlords with poorly rated homes and to be able to make sure they are aware of the additional resources, the additional tax relief effectively, that they can get in order to improve the premises as well.

Q284 Mr Olnier: I think Emily asked a very valid question about building inspectors and the availability of them. Is there really the availability of suppliers and installers? Is there not a chronic shortage of them? You mentioned a one-stop shop and the difficulty that residents have in finding proper people to do the work. Can you be as assured as you can be that you have enough people out there with the experience to be able to retrofit these houses?

Yvette Cooper: The energy companies are doing a lot of this already. That is what they do through the Energy Efficiency Commitment. It is part of their regulatory framework that they are required to do this and they have expanded services to do so.

Joan Ruddock: That is the way in which we have, as a nation, acquired skilled people to do it. We have put an obligation on energy supply companies: they have had to get the work done, they have had to train the people or find the people who could do the task. In some cases it has been a slow process and in some areas it has been difficult but there is expertise building up. We have doubled already the commitment we put on these companies, between the original programme and then the second programme which is just about to come to an end. We are doubling again the commitment they have to make in terms of providing energy efficiency advice and help to households, so we are constantly driving up the number of people who are able to do this work. The speed at which we are moving, the money we are putting in and the obligations we are making are all the result of intense consultations involving industry itself, so we will move at the pace that is manageable. There could be a ceiling but I think things are going in the right direction.

Q285 Mr Olnier: Given that the Government wants to double the amount of apprenticeships over the next few years, is there not also an opportunity to put a commitment on some of these energy companies to train more young people?

Joan Ruddock: I think that is an idea to be investigated.

Chair: Different department? We will take it up with that department.

Q286 Anne Main: Using the car analogy, are you saying that an EPC has to be obtained if a house is being sold? Where does that leave people selling houses for total renovation or even demolition?

Yvette Cooper: You still have to get an Energy Performance Certificate if you are going to be selling a home.

Q287 Anne Main: Even though it says, "This place is a draughty old barn" which is going to be knocked down or totally renovated?

Yvette Cooper: If you are selling a home for residential purposes then, as part of the Home Information Pack, you have to have an Energy Performance Certificate in place.

Chair: Presumably that would be at the lowest possible rating or even at the bottom.

Anne Main: It seems to be rather bureaucratic for something you can see is falling down.

Emily Thornberry: If it is being knocked down, it is not being sold for residential purposes, it is being sold in order to be a development.

Chair: Perhaps we could move on to financial incentives and VAT.

Q288 Anne Main: Many people do want to make substantial improvements to older housing stock. You have touched on some of the incentives, such as the zero stamp duty for new homes. Are you considering extending that principle to older housing stock and offering significant financial incentives—such as council tax reductions or rebates—if you have a greener home as a result of your improvements?—or even stamp duty rebates or reductions and so on? I could give you a list: income tax credits or specific grants that people can access. I would like to hear your views on some of those slightly more scoping thoughts.

Yvette Cooper: We will give the answer you would expect us to give: taxation is obviously a matter for the Treasury and for the Chancellor and I am sure he will consider all kinds of proposals as Budget recommendations or submissions. There has been a reduced VAT rate for refurbishments of homes that have been empty for two years. People have put forward proposals that all refurbishments and so on should be at a reduced VAT rate. The difficulty with that is the deadweight cost. Obviously there are a lot of refurbishments that already take place and therefore it would be a hugely expensive thing to introduce if this were to be done right across the board. There have also been reductions in VAT in terms of the installation of loft insulation and things like that, so those sorts of things have already taken place. Working with the EEC scheme currently,

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some councils have used the Energy Efficiency Commitment to fund what effectively they then present as council tax rebates. Some councils have worked with British Gas, for example, to do that and we think that is quite an innovative way of providing the kind of support to households as well. There are different ways in which you can approach this but the main financial incentive we provide is through the Energy Efficiency Commitment (soon to become the CERT scheme), which is a quite substantial financial incentive for people to introduce, primarily, insulation. In addition, we have the low carbon building scheme and the Warm Front programme as well.

Q289 Anne Main: In the interests of cross-departmental communication—which, I am encouraged to hear, seems to be going on—are you actively asking for these schemes to be looked at or considered—things like stamp duty reductions—on homes that have made significant improvements?

Yvette Cooper: As, again, you would expect me to say, taxation decisions are a matter for the Chancellor in the Budget but of course we have obviously had extensive analysis on something like the VAT issue, which was why we had the reduction in VAT for homes that have been empty for more than two years. That was obviously as a result of a lot of cross-departmental working. So too was the introduction of the stamp duty relief for zero carbon new homes as a result of cross-departmental working.

Q290 Anne Main: Do you think you should reconsider the reduction for homes that have been empty for two years, for example? In today's climate, where it is unacceptable to have homes empty for such a long period of time, do you think you ought to be looking at making that a shorter period of time?

Yvette Cooper: It is getting to quite difficult perverse incentives. You are balancing different things here. If you obtained the exemption after a home had been empty for six months, for example, then there might be an incentive on people to leave a home empty for six months, and you do not want that to happen because you want homes occupied as early as possible. It is about getting the balance of incentives right. That is why we have gone for the two year figure.

Q291 Chair: Some of the witnesses have suggested that giving grants to encourage people to install wind turbines or whatever has disadvantages because you get a kind of stop-start system which does not give the stability to manufacturers that is required if we are going to build up our capacity to deliver these various technologies. Have you done any analysis of the effectiveness or otherwise of the various grants regimes?

Yvette Cooper: I think BERR has.

Joan Ruddock: I certainly do not have any information on this.

Q292 Chair: But you think BERR might have.

Mrs Janes: The Low Carbon Buildings Programme, the main grant programme supporting microgeneration, is coming to an end. In its place, the Carbon Emission Reduction Target, which will commence from April next year and run until March 2011, will provide some incentives for microgeneration under that framework to encourage the build-up of that industry in more capacity over the next three years.

Chair: I think this might be an issue we would wish to explore in writing, to find out whether there is a body of evidence somewhere in government about this. Could we turn to Decent Homes.

Q293 Emily Thornberry: Moving on to Decent Homes, as I understand it there was not a specific thermal efficiency improvement target in Decent Homes. We have heard evidence from the Fuel Poverty Advisory Group. They were not particularly impressed by this and said they felt this was a missed opportunity, in that making it easier to heat your home more does not necessarily reduce anyone's fuel bills and does not necessarily reduce carbon outputs either. Was Decent Homes a missed opportunity to do more energy efficiency?

Yvette Cooper: If you were setting the Decent Homes standard now, you would probably do it differently, but we have the Decent Homes standard in place and it is important at the moment to get everybody to it. Our figures show that 90% or 95% of landlords have gone further than the minimum standard in the Decent Homes standard. For example, in the standard you can choose between doing loft insulation and cavity wall insulation, whereas in fact most landlords have been doing both and going higher than the standard. The Building Research Establishment did a survey out of the implementation of Decent Homes in the social sector. It was published in February 2007 and you may want to have a look at a copy of that. Their survey estimated that 90% were planning to install both cavity wall insulation and loft insulation in homes with gas or oil programmable heating, and that by 2010 around 80% of lofts in social rented homes will have at least 200 mm of insulation. They have taken very seriously the energy efficiency potential requirements. Those results are demonstrated in the progress that we have seen. In practice, social housing energy efficiency, the SAP rating that has come forward through social housing, is higher now than on average in the private sector. The increase has been much more substantial as well: 21% compared to 12%, since 1996, in terms of the improvements that have taken place. If you also look at the percentage of social housing and private housing that falls into the extremes of categories, then social housing is doing much better at being in the top category than you would expect, given the proportion of social housing in the stock as a whole, and, equally, is also doing much better at not being in the worst category. We can send you the figures which set out those improvements too. That is testimony to the fact that the Decent Homes programme has had a really substantial effect, and

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has not been backed by the fact that the standard itself was obviously set several years ago before the increased focus around energy efficiency.

Q294 Emily Thornberry: You said earlier in your evidence—I am sorry, I only wrote down half of it—that in the last ten years there had been something like a 50% improvement.

Yvette Cooper: The English House Condition Survey looked the period from 1996–2005 (so it does not even take account of the most recent improvements in the Decent Homes programme) and found a 21% improvement in energy efficiency in social housing and a 12% increase in efficiency in private sector housing, which means it is an average of 14% overall. Bob will clarify if I have those figures wrong because that is from memory.

Q295 Emily Thornberry: Decent Homes is not going to be the last word. Presumably there will need to be a Decent Homes Plus. Will whatever follows Decent Homes focus more directly on environmental standards and on carbon reduction?

Yvette Cooper: We have not taken any decisions on what happens post Decent Homes. At this stage we need to complete the Decent Homes standard and I think we would conduct the assessment of where we go from there in the context of the next spending review—because obviously the programme runs over the course of this spending review—but I think we would certainly expect to have a much stronger focus around energy efficiency in terms of where we go from here.

Q296 Anne Main: I would like to take you back to Smart metering on social housing. Would it now be something you will be looking at introducing into social housing, given that you are expecting your private home owner to avail themselves of the technology? Is this something now, as we move forward, given the 21% efficiency savings you have just described, for improving the structure of the property?

Yvette Cooper: We have not put that into the Decent Homes programme. That is not a requirement of the Decent Homes programme. As part of the wider work around Smart metering, it is something we will want to look at as part of the work that Defra is leading on.

Joan Ruddock: I think things will change dramatically across government when we have our Climate Change Act because we will have an independent Climate Change Committee of experts who will be constantly advising government and inevitably looking to sectors and trying to see how to drive down emissions right across the board. Over a period of time, I think the impact of having a Climate Change Act with a mandatory emissions cap for the whole nation will inform how every government ultimately will perform.

Q297 Chair: Could I ask about the Carbon Emissions Reduction Target, which is replacing the Energy Efficiency Commitment in April, and it follows on from the debate about Decent Homes.

What discussions have you been having with the energy suppliers on adopting a more holistic, whole-house attitude to energy efficiency rather than the piecemeal approach which has been occurring thus far?

Joan Ruddock: We have and we do but I think a number of things will condition how the energy suppliers behave. They have an overall commitment that we impose upon them and they can choose how they reach that and how they make it. As I said in answer to one of the earlier questions, while there are still many cavities that need to be filled, while there are many lofts that need to be insulated and so on, they are not going to look at putting into every home everything that might be possible in terms of energy efficiency but at putting in what are the most cost-effective measures and doing them to scale. We believe that makes sense. We think, for example, that by 2020 we would expect all cavity walls and lofts to be insulated, so as we move forward they will have to look at doing some of the more difficult and some of the more expensive things. Because we are constantly ratcheting up, and we are already, as I have said, consulting about how we move beyond 2011, they will have to do more things and take a different approach as time passes. While there is still basic work to be done, clearly they will do it and we want them to do it.

Q298 Chair: One of the issues raised with us about EPCs, for example, and about houses at the point of sale, is that both sellers and buyers are more likely to undertake works at the point of sale than when they are living in it. At the lowest level, your loft is going to be empty anyway, so stuffing in some insulation is less of a hassle. If energy suppliers are encouraged at that point to do a lot of work, you might be more likely to get it done.

Yvette Cooper: I specifically met with the energy suppliers exactly to discuss that issue and what more they could do directly to target—because they would get new customers as well, they would have new accounts being signed up so there is a trigger point, effectively, for them to act on. The general view is that targeting sellers is probably not very effective because people are thinking about cosmetic improvements to their home and they are not really thinking about the loft insulation. Over time, depending on the impact that the Energy Performance Certificates have and the attitudes of buyers to what is in an Energy Performance Certificate, that might change, but, initially, the best impact is to target buyers or new buyers once they have bought their homes. That is why we want to do this in two ways: firstly, the Green Homes Service will be targeting new buyers with: “This is what you could get through the CERT scheme” and then putting people in touch with energy suppliers through the CERT scheme, but, secondly, we want to encourage suppliers themselves, when they are setting up a new account, to target people in terms of energy advice and efficiency improvements and so on at that point. They have all said that they were keen to do that and to look at ways they could link

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their targeting and marketing, for example, with the Energy Performance Certificate information and approach as well.

Q299 Chair: I would like to return to this issue of fuel poverty reduction as well as energy efficiency. A feeling that again has come through from some evidence is that having both the fuel poverty objective within CERT as well as the Energy Efficient Commitment is getting in the way, one with the other, and that, for example, people may be getting some work done on EEC or CERT and then another bit of work done on either Warm Front or Decent Homes. Is there a reconsideration of the way in which those different objectives interlink at the moment?

Yvette Cooper: The point about having the Green Homes Service for the spring is to try to pull all of these programmes together. They do target slightly different groups and for different purposes. The Decent Homes programme is very much about social housing; the Warm Front programme targets those who are in private sector housing. Of course there will be overlaps and there will be different times when they need to work together, but, if you only had one you would miss out groups of people who would need to benefit from the others as well.

Joan Ruddock: On CERT (the Energy Efficiency Commitment as it has been) the costs to the companies are thrown back onto the consumer ultimately. All consumers theoretically ought to have the potential benefit of being within that scheme. That needs to be run in the way it is run and it needs to be done comprehensively by the energy supply companies. Warm Front itself is specifically about equity. The biggest programme has been on

central heating, so that people get into their homes something very fundamental—and they are the people who, if it were not for that scheme, undoubtedly would not be able to afford it. They do have different strategic purposes, however, because of the way in which the benefits of the Warm Front programme are delivered, there are of course carbon benefits and energy efficiency benefits as well. As Yvette Cooper has said, it is through the Green Homes Service that we will be best able to bring home and to enable people to work together. Indeed, we have very recently established a special fund, the Community Energy Efficiency Fund, that has been directed to bring together these two programmes in areas of greatest need, where you have the lowest number of low income households and the greatest deprivation. There are 50 projects already across the country, which the Government has specifically targeted as places where bringing these programmes together will create the greatest efficiencies and the greatest gains.

Q300 Mr Olnier: How are you going to roll that out in public? It is a wonderful idea that Warm Homes can also do the Green Homes check as well without duplicating, so hopefully that would be the basis of the one-stop shop.

Yvette Cooper: The Green Homes Strategy that we want to do alongside the launch of the Green Homes Service is very much the opportunity to pull all of those strands together and to set out the way forward. Although they are already working together and very much pulling in the same direction, we do think this is a good time to try to pull everything together and accelerate progress.

Chair: Thank you both very much indeed.

Written evidence

Memorandum submitted by Centrica plc

ABOUT CENTRICA

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 six million electricity customers in the domestic sector and around 900,000 customers in the Industrial and Commercial sector.

DOMESTIC ENERGY EFFICIENCY—A SNAPSHOT

Gas and electricity used in the home are responsible for around a quarter of the UK's carbon dioxide emissions. Every home in the UK creates about six tonnes of carbon dioxide each year. Using less energy will help to reduce carbon emissions, enhance the security of our energy supply and reduce fuel poverty.

The UK Government's long-term goal is to reduce the country's carbon emissions by 60% on 1990 levels by 2050, with significant progress by 2020. Energy efficiency continues to be an important element of UK energy policy and is regarded as the most cost-effective way to meet energy goals.

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.

In general consumers do not understand the cost benefits of installing energy efficiency measures, and the savings that can be made. In our view, there is more scope to encourage energy efficiency measures as money saving initiatives, rather than specifically carbon saving initiatives.

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 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.

BRITISH GAS AND DOMESTIC ENERGY EFFICIENCY

Green Streets

British Gas is aiming to launch an 18 month social experiment in the autumn which will bring households in eight different locations come together to collectively reduce their energy usage and carbon emissions using a variety of means including behavioural change, insulation and microgeneration technologies.

British Gas will provide more information to the Committee once the campaign is launched in the autumn.

The Energy Efficient Commitment (EEC)

Under the Government's Energy Efficiency Commitment (EEC), electricity and gas suppliers are required to achieve energy-saving targets by promoting improvements in domestic energy efficiency. The primary objective for EEC is carbon abatement to tackle climate change. Within EEC there is also a social element targeting the vulnerable and fuel poor, with half of the energy savings targeted at the "priority group"—households receiving income-related benefits or tax credits.

Our residential business, British Gas, is committed to helping Government deliver these targets. We have customer relationships with over 13 million UK households and therefore have the reach to make a significant contribution to driving carbon emission reductions in the domestic sector. We work with a range of commercial partners, voluntary organisations, charities and the public sector to deliver energy efficiency initiatives, and the effectiveness of these partnerships is a key factor in our success.

We go beyond legislative obligations, however, to provide a range of energy efficiency and low carbon solutions for our customers. In 2006, British Gas subsidised more than 13 million energy efficiency measures, such as cavity wall insulation and low energy light bulbs, with an equivalent lifetime carbon saving of one million tonnes, benefiting more than six million households.

Innovation works: the British Gas Council Tax scheme

This British Gas council tax scheme has confirmed that linking energy efficiency to local council tax bills is appealing and cuts through customer apathy. It shows the important role of innovation in delivering domestic energy efficiency measures.

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.

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.

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.

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.

The scheme was initially trialled at Braintree Council, Essex in 2004 and has now been extended to 64 Councils across the country. The scheme is promoted through enclosures in council tax bill mailings and the local press.

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.

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.

Energy efficiency and vulnerable customers: here to HELP

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.

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 £10.4 million in unclaimed benefits, making a real difference to help improve people’s quality of life.

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.

Many local authorities and housing associations have signed up to the programme and have seen the difference it can make to their communities.

Our here to Help partners are Help the Aged, Family Welfare Association, National Debtline, Scope (includes Capability Scotland), Royal National Institute for the Blind and Save the Children.

Providing advice: the starting point

Energy efficiency is as much about a change of lifestyle and behaviour as about practical measures. Through our advice and education programmes we aim to show customers the financial, social and environmental benefits of being more energy efficient. Our Energy Advice Service (0845 965 0650) offers free advice and information on energy-saving ideas. Our highly trained advisers are qualified with a certificate in energy awareness from the City and Guilds of the London Institute. We are constantly reviewing our training programmes to ensure our advisers have the right skills to help our customers.

Our team of community energy advisers works with local authorities and housing associations to promote energy efficiency and generate referrals to our energy efficiency grant schemes. They help ensure that those customers most in need receive our support and assistance.

*Providing information: a first-step to behavioural change***The British Gas Energy Savers Report**

The British Gas Energy Savers Report, a bespoke home energy efficiency audit, has been completed by well over 1.5 million householders. This innovative service helps consumers save money and reduce their household emissions. The report gives consumers the energy rating of their home, and makes a range of suggestions to help improve that rating where necessary.

The Energy Savers Report is thought to be the biggest energy census of Britain's homes, has highlighted savings of around £175 per annum per household for those who have responded.

Energy Performance Certificates

In 2007, British Gas launched a service to provide the new Energy Performance Certificates (EPCs) to the residential market. EPCs give an energy efficiency rating to potential buyers in a market where approximately 1.4 million homes are sold annually. British Gas has an ongoing programme to train up to 500 engineers to become fully qualified and licensed Domestic energy Assessors to carry out the EPC surveys.

Delivering products: condensing boilers

The majority of our customers' energy carbon footprint is generated by our burning the gas we supply them in our homes. The most effective way to reduce these emissions today is to install efficient boilers. Currently, British Gas installs around 7% of all residential boilers. British Gas' energy-saving boilers release less CO₂ emissions than conventional boilers and can help to reduce our customers' heating bills by as much as 40%. British Gas currently installs over 100,000 domestic boilers each year. We have taken the lead in the market and now only install A-rated boilers with maximum energy efficiency that also have the capability to be linked up to solar heating equipment or other renewable sources of energy.

Delivering in partnership

We are working in partnership with electrical retailer Currys to offer customers substantial discounts and trade-ins for "A"-rated energy efficient appliances. In partnership with B&Q, we provide funding to promote energy efficiency products. Customers receive savings on a wide range of products, including loft insulation, low energy lighting and energy efficient appliances.

We are also working in partnership with retailers to increase awareness of energy efficiency at the point of purchase and provide incentives for consumers to buy products with high energy efficiency ratings.

FUTURE DOMESTIC ENERGY EFFICIENCY PROGRAMMES: CERT

The Energy Efficiency Commitment (EEC) has been extremely successful in delivering energy efficiency measures to the domestic sector. It is, however, very much an input, as opposed to output, based scheme. It is also effectively reliant on a limited range of measures to deliver the programme.

The development of EEC into CERT from 2008 gives an opportunity to improve the scheme and significantly increase the delivery of energy efficiency measures into the domestic sector.

The significant step change in activity proposed by DEFRA, however, takes the programme beyond current practical experience and into theoretical possibility. It is impossible to say with any certainty whether the programme is deliverable within the timescale or cost projected by Government. The proposed accelerated growth goes far beyond anything previously experienced in this sector and introduces significant uncertainty for all stakeholders.

Success will be dependant on all products and services delivering at their maximum theoretical capacity throughout the three year period. We believe the target can only be met by significant year on year growth to meet the desired capacity. If market conditions prevent this growth in any single year the target will not be achievable. All stakeholders, including Government, will need to align their efforts to ensure successful delivery.

Most particularly, we remain very concerned that the predicted level of consumer demand, currently unproven, will not emerge unless Government introduces a range of measures to incentivise demand.

FUTURE DOMESTIC ENERGY EFFICIENCY PROGRAMMES: SUPPLIERS OBLIGATION POST 2011

We would like to see serious consideration given to enhancing the Supplier Obligation Post 2011 to make it a more flexible and efficient mechanism, capable of transforming domestic household energy consumption. This should include the separation of the social and environmental objectives, recognising and rewarding behavioural change, encouraging investment in, and inclusion of, new technologies, and greater

integration between the post-2011 Supplier Obligation and other energy market emissions reduction legislation within a joined-up policy suite. In particular we would welcome the linkage between the Supplier obligation and the emission trading mechanism.

We support a more flexible, practical, outcome-focused approach to delivering greenhouse gas abatement in the household sector, but would stress the importance of a sensible transition from existing programmes to any post-2011 obligation.

We believe that in order to be sustainable in the longer-term, reducing emissions in the domestic sector needs to be consumer-led, rather than pushed through mandatory reduction targets. A balance needs to be found between customer-pull and legislative-push.

The imposition of targets in this sector without consumer understanding and support to reduce emissions could be counter-productive. We believe that consumer pull for the creation of low-carbon energy services does exist, and we have responded with the creation of a new business unit, British Gas New Energy specifically to lead our drive to offer green, low carbon products and services to customers who want to manage their impact on climate change.

Any suppliers' obligation that is introduced will need to establish clear objectives at the outset. Most notably, the industry response may change depending on whether it is primarily a measure to reduce greenhouse gases through a reduction in carbon intensity, or whether the primary purpose is to reduce energy demand.

Winning heart and minds: the important role of government

Despite a considerable growth in media coverage of climate change issues and growth in consumer awareness, this has not translated into a marked increase for energy efficiency products. Government must take an active role in encouraging householders to take action to reduce their household CO₂ emissions.

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.

National government has a role to play in setting improved building and appliance standards, reforming the planning regime to encourage low-carbon development.

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.

MICROGENERATION

The micro-generation market remains fairly small in the short term but post-2010 we believe that there is the potential for the micro-generation market to grow rapidly.

We have had a relationship with Ceres Power since 2005 to develop the world's first mass-market, household boiler powered by solid oxide 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.

In 2006, British Gas signed a £2.7 million contract with Ceres Power to accelerate the introduction of fuel cells into UK. The contract, part-funded by the Department of Trade and Industry, represents a strengthening of the partnership between the two companies. We hope to start offering solid oxide fuel cell boilers to customers as soon as technically possible, and we currently expect that the first prototype unit should be ready later in 2007.

Until earlier this year we had a separate relationship with Microgen to develop a domestic combined heat and power boiler for UK homes. This product utilised Stirling engine technology which generated heat and electricity from a domestic unit. Microgen is a subsidiary of BG Group, and the company was offered for sale by its parent company. As a result, Microgen staff are no longer developing MicroCHP boilers. British Gas remains committed to working with microgeneration developers and is open to working with any new owner of Microgen, or other developers, to take forward new technology where we believe there is scope for marketing on a commercial scale.

From March 2007, we trialled a solar proposition in six local authorities with existing experience of our council tax proposition. These are Braintree, Taunton Deane, Conwy, South Cambridgeshire, Runnymede and Salford.

The proposition for solar installation offers council tax rebates ranging from £300 for Solar Thermal to £500 for Solar PV. These rebates are in addition to existing grant schemes, for example under the LCBP Phase 1. Unlike the cavity wall installation proposition which is funded from our EEC budget, the Solar Thermal and Solar PV propositions will be funded from the suppliers product and installation margin, although we are hopeful that in time these propositions can be extended and funded through the EEC/

CERT programme. Our partners under the Low Carbon Building Programme consortium provide the technical expertise and installation capability. Worcester Bosch manages Solar Thermal installation, Sharp manages Solar PV installations.

SMART METERS

Centrica strongly supports the Government's ambition to deploy smart meters as rapidly and efficiently as possible. Smart Meters offer the opportunity to make a step-change in the efficiency of our industry materially improving customer service and reducing operating costs, whilst at the same time providing advice to customers on their consumption and spend patterns during the day.

British Gas has considerable experience of installing smart meters having installed 50,000 smart meters in a domestic trial in 2004. More recently British Gas Business has installed 16,000 meters, and we are trialling 115 domestic electricity prepayment meters in Manchester.

The recent Energy White Paper envisaged a domestic deployment of smart meters over 10 years. We welcome the ensuing consultation process which has sought to align industry and government views on how that can best be done. An industry consensus will be important to ensure an effective and efficient roll-out.

Our analysis demonstrates the considerable benefits that can be realised from a coordinated approach to rollout, enabling energy saving benefits for both gas and electricity customers. It is vital that an acceptable solution is found for the problem of meter asset stranding as a result of any government inspired accelerated meter deployment in the domestic sector.

There has been much interest in the use of real time displays (RTDs) as a driver towards greater domestic energy efficiency. We accept they are an interesting stop-gap for interested consumers until smart meters can be installed. Given the likelihood of mandated smart meters though, we don't see merit in mandating RTDs at meter replacement which will be expensive and will dilute industry focus in delivering universal smart meters.

For government to realise its ambition of an accelerated domestic smart meter deployment, a deployment "mandate" is urgently required together with a resolution to asset stranding. With this, British Gas and industry stand ready to deploy universally and rapidly.

Memorandum submitted by the Sustainable Energy Academy

My charity, the Sustainable Energy Academy, has been successful in engaging with homeowners, helping them to learn and be inspired to improve their houses, particularly Victorian and other solid walled housing.

Our success has been due to the way that we are delivering information. We have found exemplar houses that have already reduced their carbon content by around 60%. We have worked with these homeowners to make their houses publicly accessible. In the first month nearly 1,000 visitors have come to the houses, and in questionnaires an extraordinary 31% have asked us to contact them to help them to the next stage. 93% say that these touch-and-feel experiences are a good way of learning about solutions to reducing their carbon footprint. We aim to achieve 5,000 visitors within the next year.

This means of delivering information and inspiration at local level, from trusted sources, is in stark contrast with the current emphasis on Megaphone messaging. Houses are particular, individual and precious, and people do not respond well to mass messages. Our approach works because the messages are local, individual and from trusted sources ie the householders themselves, who have already gone through the process and speak from a position of knowledge, and who have no axe to grind: they are trusted sources.

This technique works very well in the short term: but will it work in the long term? We envisage the transformation process to be made up of three cohorts. The first cohort wants to reduce carbon because of Global warming: they want to save the world. This is a small group, but enthusiastic and energetic. They have shown that it can be done, and that Victorian houses can be transformed well and become fit for the 21st century. We already have 10 exemplar houses, spread through the UK in our Old Home Superhome alliance. During this time capacity starts to be built, particularly knowledge, materials and re-skilled builders. We aim to use this cohort to transform about 1,000 houses within the next five years, distributed so that there is equivalent to one per Tesco, so that nearly everyone is geographically within 20-30 minutes of an exemplar house. We are aiming for another 100 in the next one to two years.

The second cohort is being driven by fashion. Like Prius cars, people will show that they care by transforming their houses, giving them a 100 year tune-up. We already see signs of this, and we expect the trickle to grow within the next five years.

The third cohort will be driven by the Energy Performance Certificate. Victorian and other solid wall houses score an F or G rating, whereas when they are transformed they score B or C, and we believe that within seven to 10 years the poor performance of existing unimproved house will become pejorative and will

affect the asset value. After all, who would buy a fridge rated F or G? We believe that people will respond in the same way as having subsidence: you don't look at the cost effectiveness, you just find the least cost way of fixing it.

Why not just wait until the EPC effect kicks in? First, because the earlier stages build delivery capacity, which is essential if the whole process is not to be mired in catastrophic bad building work. Second, because we accelerate take-up by perhaps five years if we have exemplars and a transformation process well worked out and available, and that people accept that fixing the EPC is as important as upgrading a bathroom or kitchen (the costs are similar). Third, we inspire people so that if legislation is used in the later stages then it will be more accepted. And fourth, transforming existing housing is the key to energy and carbon saving in the housing sector. If all new housing is made carbon neutral, then by 2050 energy will be reduced by only 10–15%, whereas by concentrating on existing housing we can achieve 60% reduction. Plainly in the next 40 years we have to transform the existing housing if we are to achieve our goals.

What stands in the way? We have identified several pinch points:

1. We need more exemplar houses. Modest sums of money could achieve the 1000 required to get good coverage across the country. In particular, help is needed in the RSL sector.
2. We need build delivery capacity and a skills register, where householders can seek out trained builders. We believe that this could be done without significant cost.
3. We need to monitor projects and keep results on a database, so that we can reinforce methods that work and avoid those that don't.
4. We need a research programme to study specific problems such as avoidance of cold bridging around joists embedded in external walls.
5. And most of all, we need some financial grants or rebates to help take-up in the early years. Solid wall insulation typically costs £5,000–£10,000, but is much more cost efficient than on-site renewable generation, so we believe that it should be grant aided in the first few years.

More details are in the attached paper, *Old Home SuperHome—Transforming Housing for the 21st Century*¹. An example of an exemplar house at 73 Chester Rd Camden is also attached¹. Further information is available on the SEA charity web site.

Memorandum submitted by Water UK

1. Water UK is the industry association that represents regulated UK statutory water supply and wastewater companies at national and European level. We are a policy-based organisation and represent the industry's interests with Government, regulators and stakeholders in the UK and in Europe. Our core objective is sustainable water policy—actions and solutions that create lasting benefit by integrating economic, environmental and social objectives.

2. We are pleased to have the opportunity to contribute to this inquiry. We welcome the inquiry and support its aims. We would particularly stress the link between water efficiency and the contribution of the existing housing stock to climate change.

3. The heating of water in the home (for baths, washing, etc—not including heating of water for central heating) contributes around 28 million tonnes of CO₂ equivalent each year. This is about 5% of total UK greenhouse gas emissions and around eight times greater than the contribution of the water industry in providing water and wastewater services (treatment, distribution, etc).

4. Improving domestic water efficiency can therefore have a significant impact on carbon emissions.

5. There are around 209,000 new households every year but perhaps two million existing households each year will have refurbished bathrooms and kitchens (approx 10% of the housing stock). Hence the greatest effect will be if water efficient fittings are also being installed into the two million properties being refurbished.

6. Water companies have had a statutory duty to promote water efficiency since 1996. Our members undertake a range of efficiency work with domestic and other customers, including audits, trials, pilots, campaigns, education programmes, provision of information, expertise and water efficiency devices, and so on.

7. Improvements could be achieved through a range of measures including minimum water efficiency standards for appliances and fittings such as taps, improved labelling of white goods, reducing the length of pipe runs supplying hot water and the inclusion of water efficiency requirements within Building Regulations applied to refurbishment of the existing housing stock.

¹ Not printed.

8. In relation to white goods, Government could amend Section 29 (2) of Schedule 2 of the Water Supply (Water Fittings) Regulations to lower the permitted maximum consumption of water for white goods (currently dishwashers: 54 litres/cycle; washing machines 162 litres/cycle).

9. Regarding enforcement, the Water Supply (Water Fittings) Regulations already require the water supplier to prevent undue consumption. Enforcement could be improved by (i) permitting a charge to be made for inspection of new premises for compliance, in the same manner as Building Regulations inspections can be charged for and (ii) introducing point-of-sale control of compliance. Other improvements could result from solicitors and mortgage lenders being obliged to refuse to authorise the purchase of premises unless the water supplier certified they were compliant with the water efficiency regulations.

10. The efficient use of water is a matter of behaviour as well as the design and construction of the building. It is important that people are provided with advice on how to use water wisely in the home in order to maximise the savings that can be achieved. Government has a key role to play, along with water companies and others, in providing such advice and information.

11. Finally, we would urge the inquiry to consider how best to promote rainwater and greywater systems. There are energy (carbon), health, installation and other considerations to take into account regarding greywater recycling and rainwater harvesting. However, to achieve extremely low mains-consumption levels or to balance a high water use, these systems may need to be considered, but the sustainability of such options will always need to be balanced with their energy consumption compared to mains supplies and treatment.

Memorandum submitted by the National House Building Federation

NHBC (National House Building Council) is the world's most established standard setting body and home warranty provider with over 20,000 builders on its Register and 1.7 million homes protected with its Buildmark home warranty.

As a non-profit distributing company with over 70 years' experience working with the industry and the consumer, NHBC is uniquely placed as an independent authority on the housing industry.

NHBC also supports the industry and consumer by providing essential services including building control, training, health and safety and environmental services and by investing in research, innovation and delivering industry solutions through the NHBC Foundation and National Centre for Excellence in Housing.

NHBC welcomes this Inquiry into Existing Housing Stock and Climate Change. NHBC's role is to raise the standards of new build homes and provide consumer protection to homebuyers. Our response is therefore focused on the aspects of this enquiry related to the new build sector but because of the breadth of our role and functions we have also commented on the industry as a whole.

NHBC established the National Centre for Excellence in Housing in partnership with the Building Research Establishment to look at policy issues facing new-build and existing housing stock. The National Centre has been appointed by Yvette Cooper MP, Minister for Housing, to act as the policy secretariat for the CLG Zero Carbon 2016 Task Force and would therefore be well placed to engage with the Select Committee as the Inquiry progresses.

RAISING ENVIRONMENTAL STANDARDS OF NEW BUILD

Background to NHBC Standards

NHBC makes a considerable investment in the NHBC Standards, the primary on site reference text for the Registered house builder, which more than 20,000 NHBC registered builders agree to comply with. These are updated continually and re-published annually to reflect changing trends in housing construction and our experience of problems, arising during, and in the ten years after, construction.

As housing technology advances, NHBC increasingly tries to be pre-emptive with the Standards—developing appropriate requirements and guidance before problems occur. Recent examples include:

- Light gauge steel frame housing—a new chapter was introduced in 2005 to cover this technology, which is rapidly establishing itself as the third most significant form of construction.
- Curtain walling and cladding—Chapter 6.9, also introduced in 2005, is especially relevant for the growing number of high-rise buildings under NHBC cover. The Chapter encourages the specification of systems that have been appropriately tested and introduced guidance on how interfaces between systems should be dealt with to avoid the problems sometimes encountered where these systems have been used in the commercial sector.
- The April 2007 edition includes a revised specification for flat roof coverings—it restricts the specification for acceptable materials to those which offer enhanced durability and responds to the sustainability agenda by including specifications for “green roofs”.

Existing Stock

Existing housing is far more significant in terms of energy use than new build and NHBC believes it is essential that the gap between the excellent performance of new build housing and the existing stock is closed.

Most of the solutions to improve the performance of existing stock are well established and there is a wealth of authoritative information available.

It is important that we find the solutions which are financially cost-effective. It is even more important that the solutions deliver an actual reduction in CO₂ emissions when proper account has been taken of emissions during manufacture, transport and installation.

District solutions should be investigated, eg the provision of district heat networks and combined heat and power. It is important that systems (boilers, renewable energy, ventilation plant) and controls are easily understood by those using them. If some people are not even able to operate their video recorders, there must be doubt as to whether they will be able to operate other equipment in their homes to achieve optimal performance.

Performance of new build zero carbon homes

With reference to new build, NHBC has specialist understanding of, and involvement in, the technical aspects of house building as well as unique knowledge of consumer protection issues through our Buildmark warranty.

NHBC supports the sustainability agenda and we are supportive of the Government's objective to achieve carbon neutral homes. However our concerns about this policy focus on:

Consumer: Ensuring the protection of the consumer

Science: Sound solutions based on credible science

Reputation: Ensuring consumer support and backing of the objectives

Implementation : Need for nationally applied consistent standards

Partnership : Ensuring industry, Government and Stakeholders work together

Consumer protection must be placed at the forefront of technological advances. We strongly believe that consumers must not be exposed to unnecessary risks and used to trial zero-carbon technologies and systems that have not undergone thorough testing and accreditation. There is currently a dearth of tested and certificated microgeneration technologies and systems. Asking consumers to pay for and maintain products and systems that are not reliable or fail to deliver the claimed benefits is inappropriate and could have damaging repercussions. There are also important lessons for us to learn from the past and from around the world.

In British Columbia a massive failure of new homes due to water penetration, rotting and eventual failure of inadequately designed and constructed timber frame housing systems affected up to 10,000 homes, in a market roughly the size of Scotland. The total cost to the British Columbia economy was between two and five billion Canadian dollars. The British Colombian warranty programme failed, many homebuyers faced considerable hardship and the house-building industry was seriously affected for a number of years.

Similar failures experienced in New Zealand and the USA illustrate that change must be well thought through, well managed, and the risks identified and eliminated to avoid causing great distress and cost to homebuyers.

NHBC has significant concerns about the role of planning in raising environmental standards. Evidence suggests that there is growing competition between planning authorities setting increasingly tougher, and sometimes ill thought through, targets in their planning guidance. Given that climate change is a national (and international) issue, we would question the logic of competing local targets being set: it makes more sense to have one, national, target.

The fact that planning authorities have different targets causes problems for architects and designers (often Small and Medium Enterprises (SMEs)), designing homes in more than one planning authority area. Differing targets are also a challenge for house builders and are likely to reduce their efficiency, reduce economies of scale and increase the potential for defects to occur, as well as having implications for achieving the output of new housing proposed in the Barker Review.

Based on the evidence we have seen, we would question the ability of the professionals working in planning authorities, especially smaller authorities, to deal with the technical aspects of sustainability. There is no doubt that building control professionals are able to deal with these complex issues. We are strongly of the view that most of these (with the exception of spatial issues) should be dealt with through building regulations.

Taking a national view, it would appear that each extra pound spent on further improving new housing may be better spent elsewhere, eg improving the existing stock. Instruments that allow offsetting in this way should be explored fully.

 ISSUES FACING THE INDUSTRY
Building Regulations

The implementation of building regulations has important implications for the industry. In recent times the industry has suffered from poor implementation of regulation, for example Part L of Building Regulations in 2006 and the current introduction of Home Information Packs. NHBC believes that a regulatory framework, where the Government sets objectives, but the industry works on methods and processes to implement those objectives, is the most successful framework and the most likely to deliver successful outcomes for Government and industry.

It is within this context and the debate about the quantity, role and implementation of regulation that NHBC can help play a vital role in the future. NHBC, in partnership with the Building Research Establishment (BRE), has set up the National Centre for Excellence in Housing, a new industry led partnership. The National Centre will work to identify practical solutions and address the challenges and opportunities facing the housing sector. It is establishing a group of experts and key opinion leaders to facilitate policy development and strategic thinking to help frame the research and policy agenda for housing in the UK.

NHBC believes the National Centre could provide the Government with an ideal platform to consult the industry on a range of regulatory and associated issues.

Skills and Training: Availability of, and investment in skills

NHBC provides strong support to the industry's skills development agenda with its provision of training and qualifications programmes. Our primary focus is on home building, with many of our programmes focussed on site based management staff, but we also offer programmes to the wider construction industry.

We are the largest provider of construction management NVQs in the UK. We also offer our own site manager accreditation programme which combines assessment of management and technical competence with a check on quality of work on site and an assessment of commitment to continuing professional development. Accreditation is renewable every three years and is dependant on managers continuing to deliver acceptable site quality and continuing to update their skills and knowledge.

In addition to our qualification/accreditation programmes we deliver approximately 1,150 days training per year. This provides around 12,000 person days training. Subjects include management skills, personal skills, technical knowledge and Health and Safety.

The availability of skills within the house-building industry was addressed in Professor Michael Ball's investigation and report for the HBF—The Labour Needs of Extra Housing Output: Can the House Building Industry Cope? One of the report's conclusions was that, while training issues are important in the expansion of house building, it can be concluded that skills shortages are unlikely to represent a barrier to expansion of the house building industry. ConstructionSkills, in its 2004 report "Skills Needs Analysis for Construction", estimated that the construction industry as a whole needs to recruit and train 88,000 entrants per year for the next five years (based on the "most likely" growth figure of 2.3% per year).

From our experience providing training services within the industry, NHBC believes that there has been substantial improvement in the last 10 years in investment and training. We have seen greater recognition in the industry that skills development rather than "hire and fire" does have a contribution to make to business success. The Major Contractors Group's (MCG) and, more latterly, the Major Home Builders Group's (MHBG), commitments to the Qualified Workforce initiative are further indications of this improvement.

The current structure in home building (and in areas of general construction), with largely sub-contracted labour, puts a lot of responsibility for quality control on the site manager or site management team. For this reason much of NHBC's training provision is aimed at assistant site managers, site managers, project managers and contracts/construction managers. Competence requirements for site management staff can be divided into two broad areas—technical and managerial.

Historically technical competence was less demanding with construction methods for low rise housing changing only slowly over time. More recently, and for the foreseeable future, there is a real need for managers to keep abreast of technical developments around the move towards greater use of Modern Methods of Construction (MMC), technical issues surrounding the sustainability agenda, and the move to more high rise apartment and mixed-use developments employing more complex and/or "commercial" methods of construction. It is very difficult to quality control methods of construction that are not fully understood. Structured training programmes are required to ensure managers are competent in the methods of construction they are overseeing. Work done by the HBF, concerning the increased use of MMC, in a response to the Barker Review also highlighted this need.

Equally important to site management staff are managerial competencies. The site or project manager role is complex and is becoming increasingly so with more apartments, more mixed-use developments and higher densities.

Research and Development

Two of the key challenges which the industry faces at present are developing new methods of construction and working to improve the environmental efficiency of new buildings. As discussed above, NHBC invests in research, innovation and delivering industry solutions through the NHBC Foundation and National Centre for Excellence in Housing.

The NHBC Foundation was set up in 2006 to address the “information gap” in the industry on a variety of topics. Chaired by former housing minister, Rt. Hon. Nick Raynsford MP, the Foundation has dedicated itself to a programme of pragmatic, delivery-based research of relevant to the industry. Its inaugural project delivered a web-based resource tool on MMC and subsequently it has delivered a research document offering a detailed guide to MMC and most recently a programme of research dedicated to the sustainability and zero carbon agenda. The latest finding focuses on Ground Source Heat Pumps. Throughout 2007 it will also be delivering research on renewable energy systems, site waste and other topics of relevance to the sustainability and zero carbon agenda.

The National Centre for Excellence in Housing, is also chaired by Rt. Hon. Nick Raynsford MP. The Centre, also independent, arose from considerable interest and support for a body with a wider function and a significantly wider remit. The Centre is focusing on enabling and inspiring excellence and improved standards in new and existing housing.

The Centre brings together stakeholders and interested parties to develop policy solutions to issues faced by the industry. The Centre is also currently focused on the sustainability agenda and in May 2007 hosted a series of focus group events specifically tasked to the zero carbon home target.

NHBC Standards play an important role in taking account of changes in materials and construction methods and require that new systems and materials be adequately tested and accredited. Leading on from this NHBC uses its technical expertise to carry out its own research to ensure it is best addressing the issues posed by changes in the industry and is working in conjunction with Government on relevant projects such as the current DTI/BRE project developing certification systems for renewable energy systems.

In addition NHBC Technical has carried out a review of renewable technology to deliver best practice guidance and information to the new home building industry. Both NHBC Technical and NHBC’s Building Control Services department act specialist advisors to Parliament on technical issues, Building Regulations and regulatory reform/changes.

ORAL EVIDENCE

NHBC is an independent expert authority on the house building industry. We would welcome the opportunity to share our expertise on environmental issues relating to new build, through oral evidence to the Committee at a later stage.

Memorandum submitted by the Royal Institute of British Architects

1. INTRODUCTION

1.1 The Royal Institute of British Architects welcomes this opportunity to comment on existing housing stock and climate change. We welcome the Committee’s inquiry and considers it an extremely timely and useful contribution to the current debate on need for urgent action to address the carbon emissions from existing housing stock.

1.2 The RIBA is one of the most influential architectural institutions in the world, and has been promoting architecture and architects since being awarded its Royal Charter in 1837. The 30,000-strong professional institute is committed to serving the public interest through good design. It also represents 85% of registered architects in the UK through its regional structure as well as a significant number of international members. Our mission statement is simple—to advance architecture by demonstrating benefit to society and promoting excellence in the profession.

2. BACKGROUND

2.1 Climate change brought about by man-made emissions of greenhouse gases has been identified as the greatest challenge facing human society at the beginning of the 21st century. Every individual, every industry and every profession will have a part to play in meeting the challenge.

2.2 The RIBA is encouraging architects to engage with the issue of climate change and to deliver low-carbon new buildings and low-carbon refurbishment of existing buildings. The institute is currently producing guidance to enable architects address the demands of increasingly environment-conscious clients and tougher regulation.

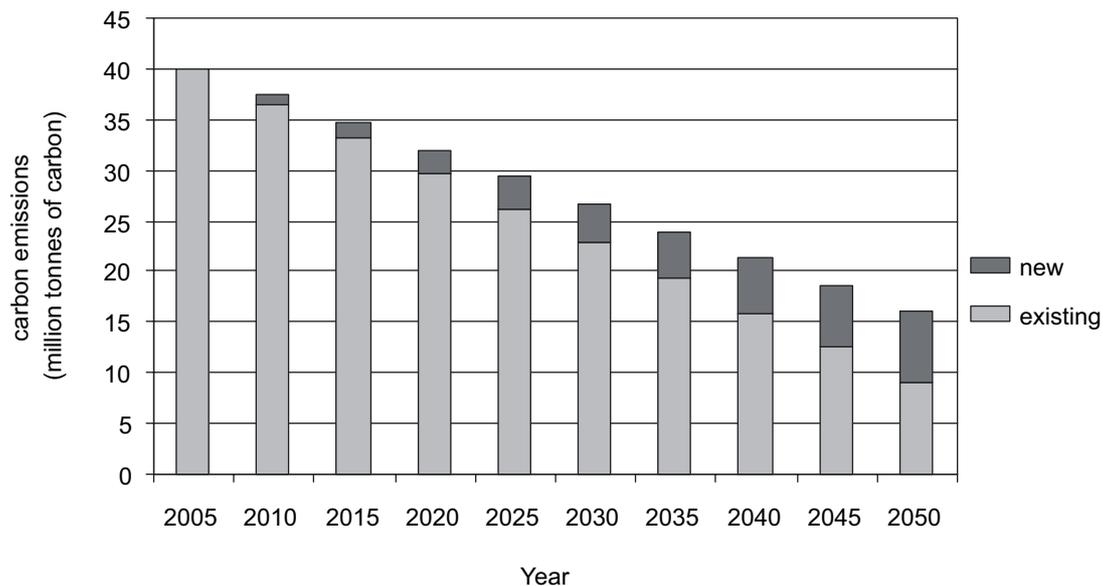
2.3 The RIBA's approach to reducing greenhouse gas emissions is known as "contraction and convergence". This involves emissions from industrialised nations reducing (contracting) and emissions from all nations converging to an overall target. The target would be set to stabilise emissions at a sustainable level, and the convergence process would promote equitable distribution of the benefits associated with the energy use giving rise to the emissions. To achieve this equitable distribution, each of us in the UK would need to reduce our average annual carbon dioxide emissions from 10 tonnes to two tons. Cutting the emissions from our homes would be one of the most important aspects of that reduction.

3. HOUSING

3.1 There are approximately 25 million domestic buildings in the UK. The stock has grown from 18 million in 1976 and is expected to reach 27 million by 2020—50% growth in less than 50 years.

3.2 Despite measures to improve the energy efficiency of dwellings, carbon dioxide emissions are rising, mostly because of a significant increase in the numbers of electrical and electronic appliances in homes. Increasing household numbers and a tendency to heat our properties to higher temperatures are also contributing to rising emissions.

3.3 The following diagram suggests the extent of emissions reductions that is likely to be required from the housing stock to meet the targets implied by a policy of contraction on convergence:



3.4 Average emissions per dwelling are around six tonnes of carbon dioxide per year. A new dwelling built to modern standards will produce around three tonnes of carbon dioxide emissions per year. A large, uninsulated, insufficiently heated dwelling could produce over 40 tonnes per year.

3.5 Emissions reductions on the scale suggested by the above chart are likely to require:

- insulation of all unfilled external cavity walls;
- insulation of all lofts with 300mm thick mineral fibre or equivalent;
- insulation of 15% of solid walls;
- installation of high-performance windows throughout the stock;
- installation of, on average, two low or zero carbon technologies in every dwelling. These could include solar water heating, solar photovoltaics or micro-CHP.

3.6 The replacement rate of existing housing stock is less than 1% per year. Emissions from the existing stock dominate—accounting for 99.7% of the total emissions from housing, whereas new dwellings contribute approximately 0.3% of carbon dioxide emissions.

3.7 At the current rate of turnover of the stock, 80% of the dwellings that exist today will still exist in 2050. To put it another way, two thirds of the dwellings standing in 2050 already exist. This means it is impossible for the UK to meet its carbon emissions reduction targets without an extensive programme of improvements to the energy efficiency of existing dwellings. This will require robust direction and investment from government, working in partnership with the built environment professions.

3.8 There may also be an increase in the rate of replacement, as existing dwellings that are most costly or difficult to improve are identified.

3.9 A side-effect of improving the energy efficiency of dwellings is the potential increase in summer overheating of well-insulated, air-tight dwellings with significant solar and internal heat gains. This presents a design challenge: to design dwellings in which acceptable internal temperatures can be maintained without resorting to air conditioning (which uses electricity and therefore generates more carbon dioxide emissions).

4. RIBA CLIMATE CHANGE POLICY

4.1 The Royal Institute of British Architects has adopted a robust climate change policy. Architects are centrally involved in a sector of the national economy that is responsible for between 40% and 50% of UK national emissions. The RIBA and its members therefore have a part to play and an opportunity to work with others to influence the future.

4.2 Tackling climate change requires concerted and focused action. This will include reducing carbon dioxide emissions by changing the ways in which buildings are designed, constructed, managed and used. The broad principles of sustainability or sustainable development are complementary to the measures needed to mitigate climate change, but addressing climate change has emerged as a matter that must be tackled in its own right.

4.3 Action to help mitigate and adapt to climate change is now starting to be undertaken by the built environment professions. The first step has to be towards raising awareness: not so much of the issue of climate change, but of the developing language and figures as they relate in particular to the built environment. Then it will be necessary to establish the scope of action accessible to architects and their clients, and the associated cost. From there, programmes of action, standards and skills for addressing for key tasks (eg improving the existing building stock) can be developed. Other components of the RIBA's Climate Change Tools package are designed to support this activity.

4.4 The RIBA's climate change policy is set within the over-arching framework of contraction and convergence, and includes a plan of action with four key components:

- Targets—the RIBA has adopted the policy of contraction and convergence as the overarching policy to guide targets for the reduction of greenhouse gas emissions associated with the use of energy in buildings. Contraction and convergence involves a globally balanced approach to the reduction of greenhouse gas emissions to safe levels, consistent with the aspirations of different communities to development and quality of life.
- Tools—the web-based package of Climate Change Tools is intended to provide critical, authoritative guidance for architects, their clients and their partner consultants about the standards and targets, measurement and assessment techniques, design principles, technical tools and skills that are necessary to the delivery of low-carbon buildings.
- Corporate behaviour—the RIBA is developing policies to guide reductions in its own impact, and that of its members, on greenhouse gas emissions, and to help them to take action.
- Campaign—The RIBA will continue to organise lectures and events to promote greater public awareness of the climate change threat, and will join with other institutions to lobby government and to influence other public and private organisations.

4.5 Other professional institutions (notably CIBSE) and organisations and agencies within the building industry are adopting parallel, complementary initiatives that have the collective potential to form the basis of a comprehensive industry-wide response to the challenge of climate change.

Memorandum submitted by the Chartered Institute of Housing

1. INTRODUCTION

1.1 The Chartered Institute of Housing is the professional organisation for people who work in housing. Its purpose is to maximise the contribution housing professionals make to the wellbeing of communities. The Chartered Institute has over 20,000 members across the UK and the Asian Pacific working in a range of organisations—including housing associations, local authorities, arms length management organisations, the private sector and educational institutions.

1.2 Whilst the current government emphasis to increase the environmental performance of new built is laudable, it is in danger of neglecting the biggest problem facing us—emissions from existing homes. We therefore welcome this inquiry with its focus on tackling emissions from the existing housing stock, which is pivotal in stemming global warming and moving towards the UK government's target to reduce emission by 60% compared to 1990 levels by 2050. Since new build accounts for only 1% annually, tackling the existing stock is crucial if significant carbon emission reductions are to be achieved. The issue becomes even more pressing given the fact that the vast majority (around three quarters) of current homes will still be in use by 2050.

2. HOME ENERGY EFFICIENCY PROGRAMME

2.1 It is recognised that the costs of significantly reducing the carbon footprint of existing homes are substantial. However, the threat of global warming does not leave much room for manoeuvre and we believe that there needs to be a comprehensive government programme in place, along similar lines of inner city renewal programmes in the 1980s. The current “piecemeal” approach does not address the scale of the problem. Such a programme should be devised within the next three years. Given the considerable cost implications, we would like to see an allocation of resources in the spending review, building up to significant allocation in successive reviews, as the programme develops.

2.2 As part of this programme, government should set similar ambitious targets / standards to improve the carbon footprint of the existing stock as it has done with new build, ie introducing a *Code for Sustainable Homes for Existing Stock*. This should be accompanied by a clear timetable and milestones (for example retro-fitting cost effective measure first). The *Passivhaus concept* could be adopted as a possible standard, since it has been shown that *Passivhaus* principles can be applied effectively and more importantly economically to existing housing².

2.3 The focus should be on those properties first which can be retrofitted cost effectively (for example there are still approximately seven million unfilled cavity walls). By doing this an estimated 4MtC/yr could potentially be saved, reducing the overall emissions from the domestic sector to just over 24%³. Government should publish a timetable when this is to be achieved. This should be done on an area by area basis in order to streamline the process and to make use of economies of scale. In the context of 2050 almost all existing housing and a significant proportion of “new” housing built up to 2016 will need to be upgraded, albeit only insulating external walls. Insulation upgrades should be to the optimum standard for 50°–60° North in one go. The aforementioned inner city renewal programmes could act as a blueprint for a potential home energy efficiency programme.

2.4 Whilst a great number of properties can be made energy efficient at relatively modest costs (ie cavity and loft insulation), a significant proportion falls into the “hard-to-treat” category, with a hefty price tag attached to potential energy efficiency upgrades. Such homes can have any or a combination of the following characteristics: solid walls, inaccessible loft space and not connected to the gas grid. For instance, in England alone there are 2.5 million pre-1919 terraced houses, which fall in this category. Building on the work carried out by the Centre for Sustainable Energy in mapping hotspots of hard to treat homes⁴ there needs to be a detailed audit of the housing stock at the neighbourhood level that identifies those dwellings that (currently) cannot be treated cost effectively. Tackling hard to treat properties will not only cut carbon emissions but will have significant impact on reducing fuel poverty numbers, since half of all fuel poor households occupy such homes⁵.

2.5 Fundamentally, residents / homeowners are responsible for their behaviour and the cost of fuel will have an influence over that. However, this does not necessarily translate into behaviour changes or an increase in the take-up of grants for loft / cavity wall insulation and minor / DIY energy efficiency improvements such as hot water tank insulation and draught proofing. The Energy Efficiency Partnership for Homes (EEPH) for example found that people’s perception on the costs of cavity wall insulation is rather skewed (ie £1,000–3,000). However, even when presented with the actual costs (around £400) those “able to pay” were still reluctant to pay for such measures. The big challenge will be to find ways to compel homeowners to improve the energy efficiency performance of their buildings. One possibility would be to operate EPCs in a more MOT-like manner, required on an annual or bi-annual basis, with comparable penalties. Such a system would however only work if accompanied by significant levels of grants and other government support for people on low and moderate incomes.

2.6 Government should overhaul the *Low Carbon Buildings* programme by setting up special loan facilities for energy efficiency measures, which could compel those homeowners to act who are “able to pay”. We would like to draw the attention to a programme the German government is running, which could be a potential model for a scheme in the UK. The *CO₂ Gebäudesanierungsprogramm*⁶ was established in 2006 and provides low interest loans to homeowners for energy efficiency improvements. Loans are administered through the government owned KfW Bank⁷. So far the programme increased the energy efficiency of around 265,000 dwellings and achieved estimated carbon savings of 900,000 tonnes. Furthermore, the programme supports economic growth and employment. For every €1 billion invested into the existing stock, it is estimated that around 25,000 new jobs are created.

2.7 Measures to increase uptake of energy efficiency measures might include:

- Council tax rebates on energy efficient properties.
- Low interest loans for energy efficiency improvements, such as the German *CO₂ Gebäudesanierungsprogramm*.

² <http://www.passiv.de/>

³ <http://www.communities.gov.uk/documents/planningandbuilding/pdf/154500>

⁴ <http://www.eeph.org.uk/uploads/documents/partnership/HTTH%20Mapping%20Research%20Mar%202006.pdf>

⁵ <http://www.eeph.org.uk/sector/hardtoreat/>

⁶ <http://www.energie-fuer-morgen.de/>

⁷ http://www.kfw.de/EN_Home/index.jsp

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- A significant reduction (or even abolishment) in VAT on micro-renewables and refurbishment work.
 - Equity release products to facilitate energy efficiency improvements.
 - “Green mortgages”.
 - Allowing microgeneration measures under EEC Warm Front.
 - Obligation on energy suppliers to provide smart meters.
 - Feed-in tariff (see below).

2.8 EPCs are an important tool in increasing both energy efficiency and reducing emissions from the existing stock. In particular EPCs help with a number of important issues:

- Raising general awareness of domestic energy efficiency.

As the majority of homeowners will not be aware of their dwellings’ energy use and carbon footprint, the proposed white goods type labelling will help with clarification.
- Increasing consumer demand for more sustainable homes.

With awareness of the environmental impact of housing likely to increase, EPCs can help to create consumer demand for more sustainable homes. Over time we hope that energy efficiency and carbon considerations would guide the buying process in the same way as say the locational factors do at present.
- Identifying homeowners eligible for financial assistance.

The latest 2006 estimates suggest that the number of owner occupier households in fuel poverty has doubled since 2004, putting the figure at 1.6 million. EPCs will help to identify those fuel-poor owners who have not yet sought assistance under one of the current schemes.

2.9 EPCs should be made mandatory for all homes and produced periodically, with additional information for more transparency (for example they should include figures of the actual annual fuel consumption and associated costs). EPCs could be operated in a similar manner to the MOT for vehicles, with obligations put on homeowners to implement any recommendations as set out. As mentioned earlier, in order for such a system to be fair and equitable, there needs to be a comprehensive grant and loan system in place.

2.10 It is important to make EPCs available to local authorities (LAs), so that they can build a comprehensive picture of the energy (in)-efficiency of the stock in their area. This will help in identifying those households who are eligible for grant assistance under one of the government’s fuel poverty schemes, as well as money available through EEC and the successor CERT. It will also support investment and strategic decisions of a prospective government programme. Any potential data protection issues which may arise from this need to be resolved swiftly.

3. DISTRIBUTED ENERGY GENERATION

3.1 Local and central government must also co-ordinate distribution services for heat and power to make more efficient power generation (eg from combined heat and power and photovoltaic) cost effective and functionally efficient. The co-ordination needs to address the appalling inefficiencies of energy utility infrastructure provision.

3.2 The energy companies need to solve the technical problems of distributing electrical power from distributed generators, since the current system does not work. This is an urgent priority, and a pre-requisite for a feed-in tariff system. Government may need to legislate to force energy utilities to accommodate power from distributed generators.

3.3 Government should explain that the cost of electricity generation is only about one third of the cost of electricity delivered to end users. The balance covers the cost of distribution and administration. These costs do not change if electricity is exported. Thus, under the current system, building owners and occupiers will never be able to sell electricity for the same price that they buy it.

3.4 However, electricity generated from micro renewables can make an important contribution to the overall energy mix. Furthermore, a system, which properly incentivises the export of electricity, has the potential to significantly expand the uptake of micro-renewables and reduce carbon emissions at the same time. The most effective way to do this is through the introduction of a feed-in tariff. Probably the most successful example is Germany. Under the Energy Sources Act electricity from micro-renewables exported to the grid is rewarded with four-time the market rate over a 20 year period (up to 64.4ct/kWh, approx 35p/kWh). This makes for a very attractive investment with pay-back periods of less than 10 years and with a return of 8–9%. Between 2000 and 2004, electricity generated from photovoltaic systems has seen a nine-fold increase. Germany currently boasts a solar power capacity of 200 times that of Britain. Increased take-up also leads to economies of scale, with a typical domestic photovoltaic system selling now for less than

£10,000, compared to around £17,000 in Britain. It is expected that costs for systems in Germany will halve within the next decade. The feed-in tariff is financed by all electricity customers, who are charged a premium on their bills⁸.

4. SOCIAL HOUSING SECTOR

4.1 The social housing sector has been at the forefront of the sustainability agenda for quite some time and is responsible for some of the most eco-friendly developments in the country and has also made significant inroads to increase the energy efficiency of its existing stock. Social homes are on the whole more energy efficient than their privately owned counterparts, with an average SAP rating of 57 and 46 respectively. The sector will also be two years ahead of the private sector in adopting the new Code for Sustainable Homes. Since the majority of our members work in the local authority and housing association sector, we do have a particular interest in the environmental performance of the sectors' housing stock. Moreover, given that the social housing sector makes up almost one-fifth of the UK housing stock, the potential carbon savings are quite significant.

4.2 Despite the inroads made, there is no room for complacency, since the threat of irreversible climate change is here to stay for the foreseeable future. It is also important to notice that the overall picture in terms of adopting high environmental standards and more importantly seeing environmental sustainability as a core business objective rather than an add on is quite patchy. What we certainly don't need are any more exemplar developments! We believe it is high time for the "green" agenda to become mainstream across the sector. Over the coming months we will be consulting with the sector on the most effective support structures to achieve this goal.

4.4 The Decent Homes Standard should be repositioned as the lowest acceptable performance standard (ie in terms of thermal comfort component) and not a target that is aspired to. Any potential post-2010 standard needs to be more explicit on energy efficiency.

5. ADDITIONAL ISSUES

5.1 The terms of reference of the Committee state that

“this inquiry will focus on functions which are integral or semi-integral to housing fabric such as heating and lighting” and “ . . . will not examine the environmental performance of individual household appliances”.

We believe that this is a missed opportunity, since the carbon emission potential due to consumer electronics and gadgets is immense. Although significant energy efficiency gains have been achieved with cold appliances, they have been largely offset due to the exponential increase of consumer electronics, such as digital boxes and plasma screen TVs⁹.

5.2 Equally, electrical power must be considered. The environmental sustainability consultancy arm e2S of Black Country Housing Group is developing low-power distribution and appliances concepts. Half of electrical power in many devices is wasted in transformer heat losses and fan-cooling. If devices only need low power than there is no reason why they should not be supplied with low power. A new low-power standard for devices would demand a separate circuit built into the home and appliances designed to work from it. We would be pleased to supply the Committee with more information on this if required.

5.3 The study should also consider the implications for future cooling of dwellings. Adapting to climate change is an important task, since we can expect the summer heat waves, which gripped Europe in the past years to become more commonplace in the future. The use of energy intensive conditioning units is, for obvious reason, not an answer. Thus, central government should sponsor research and development work into phase change materials that obviate the need for air conditioning systems.

Memorandum submitted by RWE npower plc

We welcome the opportunity to respond to the call for evidence. Our reply is organised as follows:

A brief background to RWE npower.

Some specific comments we believe are relevant to the inquiry.

⁸ For a typical three-person households, this amounts to around €2 per month (approx £1.30).

⁹ <http://www.eci.ox.ac.uk/research/energy/40house.php>

ABOUT RWE NPOWER

RWE npower has a diverse portfolio of generation capacity in the UK: npower renewables is one of the UK's leading renewable energy developers and operators, while npower cogen is one of the foremost developers and operators of industrial combined heat and power in the UK. npower is the retail energy supply business, which forms part of RWE npower. It is one of the UK's largest energy suppliers with over 6 million residential customers. npower has developed a considerable expertise in the delivery of the Energy Efficiency Commitment (EEC) since 2002. We operate schemes nationally with an extensive range of private, public and voluntary sector partners, and offer energy efficiency improvements both direct to end consumers and through community partnerships.

SPECIFIC COMMENTS RELEVANT TO THE INQUIRY

Current activity in relation to existing housing stock

RWE npower believes it is important to highlight existing activity to tackle carbon emissions within existing housing stock. Energy suppliers currently deliver significant volumes of energy savings measures. This activity is currently delivered under EEC and from 2008 the Carbon Emissions Reduction Target (CERT).

We believe over 95% of measures delivered under this scheme are installed in the existing housing stock. Defra's own estimates suggest the cumulative impact of measures delivered through EEC and CERT, this decade, will help stabilise carbon emissions from the household sector. This is against a backdrop of rising household energy demand.

The CERT programme as recently laid out in Defra's statutory consultation will see energy suppliers collectively install over 3.1 million cavity wall and 2.4 million loft installations in existing homes. As well as other measures such as microgeneration and fuel switching from inefficient to efficient household heating systems, suppliers will collectively fund the distribution of around 65 million energy efficient light bulbs. Overall, energy suppliers will be making a £2.5 billion investment into the household sector, around 95% of which will be within existing housing stock. This follows six years of EEC and further energy efficiency initiatives prior to that.

Low income households

Within the current EEC and proposed CERT framework energy suppliers are required to deliver a significant proportion of energy or carbon savings to low income groups (these are deemed as Priority Group and are defined as being in receipt of specified income benefits). This forms part of the Government's policy to tackle fuel poverty and ensures there is some equity in terms of the distribution of measures to households within the overall scheme.

RWE npower believes the blurring of carbon and fuel poverty objectives within a single framework is producing a sub-optimal outcome for both objectives. We believe the proposed 40% Priority Group allocation within CERT (which represents well over 50% of the costs¹⁰) will act as a significant constraint on the amount of carbon that could be saved from the existing housing stock for the same level of investment. We believe fuel poverty would be best addressed through other initiatives outside of CERT and within which we would be prepared to play a part.

Addressing consumer demand

EEC and CERT is best typified as supplier "push" rather than consumer "pull". By way of example, energy suppliers currently provide free insulation to the Priority Group homes (non- Priority Group are heavily subsidised). Despite the clear benefits consumer demand is extremely low and we believe Government could play a greater role.

The impact of EEC and CERT could be enhanced greatly if there were greater levels of consumer demand for energy efficiency products and services. Studies into the barriers to take-up of energy efficiency measures are extensive, but we believe consumer demand could be significantly increased through more effective Government communication and fiscal incentives, for example stamp duty and council tax reductions.

¹⁰ Defra estimate total CERT costs of £2.53 billion of which £1.357 billion (54%) will be to deliver measures to the Priority Group. (Source: Carbon Emissions Reduction Target April 2008 to March 2011, Defra Statutory Consultation Document, May 2007)

The role of Energy Services beyond 2011

While there remains significant opportunity for carbon savings within existing housing stock through standard measures such as home insulation, these measures will start to reach saturation during the next decade. We therefore welcome the direction Government signalled in its 2007 Energy White Paper which outlined a greater role for a commercial energy services market beyond 2011, in tackling household emissions and overall less reliance on prescriptive regulation.

We believe energy services can contribute to overall Government targets for carbon reduction by 2020 and 2050, but it can only offer a partial solution. Other sectors and players will need to play a part, for example the issues of appliance stand-by power and associated carbon emissions is best dealt with through tighter regulation on manufacturers.

In addition we believe carbon is already priced into domestic electricity through the EUETS. We believe the EUETS should be extended to all household fuels and could help stimulate consumer demand for carbon solutions from the energy services sector as well as bringing about other beneficial outcomes.

Finally, we believe the roll out of smart metering is a critical component in any solution in tackling household carbon emissions.

RWE npower would be willing to expand on any of these summary points if required and provide further assistance to the Committee's inquiry.

Memorandum submitted by the Building Research Establishment

Overview of T-Zero: This three year project has been part funded by DTI, with matched funding from the project partners. The main objective is to:

Reduce the life cycle impacts of housing through refurbishment, through:

- Showing refurbishment is a viable alternative to demolish and new build when certain standards of environmental performance are met.
- Helping decision making by quickly identifying the best mix of refurbishment options to reduce environmental impacts; from the point of refurbishment through subsequent use/maintenance and eventual demolition.
- Collecting data and using case studies to ensure recommended approaches are viable within the context of other drivers such as whole life cost, maintenance and preservation of heritage buildings.
- Addressing overall impact, including material resource efficiency and other life cycle impacts, alongside the main environmental priorities in existing housing of energy efficiency and renewable energy production.

In addition, T-Zero is working outside of the project consortium to understand the wider barriers and opportunities in achieving its objective. This includes a number of stakeholder events and discussions with key organisations in terms of exploiting the T-Zero outcomes. Further details of the latest workshop results can be downloaded from the project website: www.bre.co.uk/page.jsp?id=825 and are attached to this response (Annex 1).

T-Zero partners include:

Association for the Conservation of Energy
 Building Research Establishment
 Building Research Housing Group
 Empty Homes Agency
 English Heritage
 Guinness Trust
 Housing Corporation
 National Energy Foundation
 Sustainable Homes
 Construction Products Association
 zedfactory
 Price & Myers Consulting Engineers
 Scottish Federation of Housing Associations
 Crestel Homes

Key project outputs under development include:

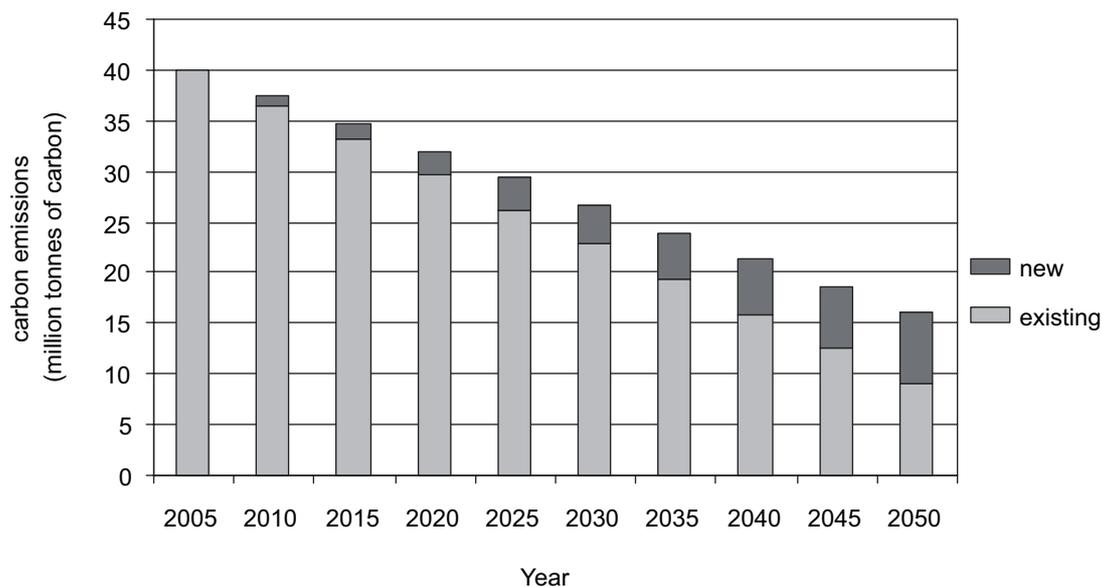
- Web based decision making tool for private landlords, homeowners and registered social landlords.
- Detailed pre and post refurbishment case studies.
- Training and other activities linked to generating widespread exploitation of the above.

Existing outputs include a review of existing evidence & projects (attached Annex 2).

SPECIFIC COMMENTS RELATING TO THE INQUIRY

The significance of existing housing compared to new build and the different levels of performance each display

The view of the T-Zero consortium is that existing homes will continue to dominate as having the more significant impact for the foreseeable future (2050 and beyond) when compared to new build.



The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency

It is clear that there is little consensus amongst these groups as to the best way to achieve significant improvement in environmental performance. This dilutes the efforts of all concerned.

Energy performance certificates. The provision of information for households and prospective house buyers, including energy performance certificates

The T-Zero web based tool will help these users identify the best choices when it comes to improving the environmental performance of homes. This will be determined from the current building performance, planned refurbishment work (eg changing a kitchen) and any constraints, eg cost, space, planning restrictions. This will complement EPCs by providing specific actions that can be undertaken before a home has an energy assessment or when there is no plan to sell the home.

Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

There is a lot government can do creating a clear policy/ regulatory framework. This would increase the confidence of the private sector in terms of investment in training, logistics and product development. Part of this leadership would involve improving the supply chain through implementation on publicly owned houses. However, there is a danger that the privately owned sector will fall even further behind in terms of environmental performance of homes. The cost v. payback scenarios have not been proven for many. T-Zero case studies should be able to provide data to support this evidence gap.

The technologies available to reduce emissions and the Government's role in facilitating relevant further technological development

The energy hierarchy is critical ie reduce consumption before increasing renewable energy production. The technologies exist to achieve significant energy reductions and create renewable energy. Further development in reducing load (eg appliances, lighting) is ongoing with EST and the Market Transformation Programme. Improving the performance and cost of existing technologies will have greater impacts, along with improved decision making, training and supply chain.

The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty

There seems to be a presumption that existing homes will be improved on an individual level. This might not be the best course of action to pursue. For certain technologies, a more efficient route is to consider community level implementation. This would also involve less cost, responsibility, awareness and risk to the individual.

The specific challenges which may arise in relation to housing of special architectural or historical interest

English Heritage (one of the T-Zero partners) have produced relevant publications, titled "Energy conservation in traditional buildings" and "Micro wind generation and traditional buildings" and can be found on the English Heritage HELM website. www.english-heritage.org.uk www.helm.org.uk

This inquiry will focus on functions which are integral or semi-integral to housing fabric such as heating and lighting. The Committee will not examine the environmental performance of individual household appliances.

T-Zero addresses wider environmental impacts, including water use and efficient use of material resources. Also, only so much can be achieved through technology. The way people use their homes and other lifestyle choices will have a positive/negative effect on the actual environmental performance of their homes.

Memorandum submitted by B & Q plc

SUMMARY

B&Q welcomes the opportunity to submit evidence to the Communities and Local Government Select Committee inquiry into existing housing stock and climate change. B&Q recognises the urgent need to improve energy efficiency of existing housing within the wider context of tackling climate change.

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 we are ideally placed to help influence individual habits through the promotion of energy saving alternatives and customer education.

In submitting evidence we have sought to outline the actions currently being taken by B&Q and to suggest government actions that could improve existing housing stock within the context of global warming.

BARRIERS TO BEHAVIOURAL CHANGE

B&Q's own research has revealed a number of barriers to stimulating the behavioural changes needed to tackle climate change. A key barrier is the perception of cost of undertaking home improvements for the purposes of reducing energy consumption.

Some believe that installation of loft insulation or micro-generation equipment is simply too high, or that energy efficient light bulbs are more expensive than the equivalent non-energy efficient products¹¹.

With specific reference to microgeneration, more than 97% of B&Q customers state that cost is an important factor in their decisions about whether or not to install wind turbines or solar panels. The additional costs of obtaining planning permission are therefore a considerable factor in deterring uptake. B&Q welcomes the Government's recent proposals to extend permitted development rights to microgeneration equipment and believes that planning costs should be minimised to maximise uptake of these technologies.

¹¹ Energy efficient light bulbs are priced higher than standard light bulbs, but a standard bulb has a lifespan of 900 hours compared to a life expectancy of 6,000 hours at the low end of the range of EE bulbs. Therefore, customers need to buy seven normal bulbs for every one energy efficient bulb.

There is also confusion over the effort required and the disruption involved in adopting energy saving technologies within the home, and confusion around the benefits for the environment as a whole or for the consumer individually. 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.

B&Q'S ACTIONS TO ENABLE BEHAVIOURAL CHANGE

On 6 October 2006 B&Q launched an increased range of energy efficient products in store. The accompanying communications campaign included new point of sale, new marketing material, a nationwide advertising campaign with full Public Relations support and new in-store literature.

The campaign reached an estimated 73% of the UK population. The TV 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.

B&Q's energy efficiency product offer now includes domestic wind turbines and thermal solar panels, all at the lowest available price-point on the mass market.

THE IMPACT OF OUR ACTIONS

The impact of B&Q's actions to affect behavioural change should not be underestimated. Research shows that more than three in every four DIY shoppers visit B&Q.¹² Therefore, we are uniquely placed to promote energy saving alternatives and conduct customer education.

B&Q's customers are increasingly keen to do their bit in the battle against climate change, in a number of ways, including installing microgeneration equipment. This is reflected in the uptake of wind turbines and solar panels by B&Q customers. Wind turbines became the biggest seller in-store by value following our energy efficiency focused promotional campaign in autumn of 2006.

However, many promising low carbon technologies require further investment to bring down costs and enable them to become a more commercial proposition. Research & Development 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 for investment. Public sector procurement has the potential to play a key role, with minimal risk, by using the forward commitment procurement techniques common in the private sector. It currently fails badly in this respect.

B&Q'S POLICY POSITION

VAT on Energy Efficient Products: B&Q welcomes Prime Minister Gordon Brown's commitment to lowering VAT on lower-energy products across Europe. We agree that now is the time to give new incentives to people who want to buy environmentally friendly products. In particular, we believe that the Government should reduce VAT on all energy efficient products, including light bulbs, to 5% immediately. Reducing / removing VAT from energy efficient 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.

Council Tax Rebates / Discounts: We are calling for HM Treasury to look at the benefits and feasibility of fiscal incentives including a Council Tax rebate scheme for EE homes as the most effective mechanism for delivering household energy saving through fiscal incentives. An example of such a scheme is the centrally-funded national scheme supported by the Energy Saving Trust. British Gas is currently working with 38 Councils to offer customers, who invest in their home insulation, a £100 Council Tax rebate. Also, most recently, the New Local Government Network published a report supporting B&Q's position on this issue, calling for a Council Tax rebate for houses installing microgeneration equipment.

High Energy Incandescent Light Bulbs: B&Q is delighted that the Government is to phase out the use of high energy incandescent light bulbs by 2011. We are continually working with suppliers to improve the range and quality of energy efficient bulbs. Switching light bulbs is one of the least expensive options for customers looking to improve the environmental performance of their home. We are working closely with consumers to make this phased switch as easy as possible.

Micro-generation Planning: B&Q customers see planning as one of the greatest barriers to take up of microgeneration equipment. We welcome recent Government proposals to grant Permitted Development Rights to wind turbines and solar panels but we do have a number of concerns about the detail of the proposals. B&Q believes that the Department for Communities and Local Government should re-assess proposals relating to noise requirements with specific reference to the stated aims of simplifying the planning process and adding clarity. Furthermore, government and industry sponsored standards should be used as a means to ensure only beneficial installations receive Permitted Development Rights. B&Q also believes that there must be a consistent application of an evidence-based approach to these issues, including the

¹² Verdict, 2006. *How Britain shops 2006: DIY* Published by Verdict Research, London.

requirement that the concerns of Government departments and agencies regarding noise and military and civil aviation are properly articulated and substantiated in a forum within which concerns can be resolved. Finally, we would like to see a clearly stated timetable for the implementation of these proposals to ensure implementation before the end of 2007, in keeping with assurances given to B&Q by Government.

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 until April 2007). In 2007 the amount is set to be £2 million and £1 million in 2008. By 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 Low Carbon Building Programme to the householder stream in order to ensure that the grants programme could continue running. However, this incident underlines the need for further money to be made available for the grant scheme.

Micro-generation Reverse Selling: The technical and commercial barriers to reverse selling have been consistently highlighted for many years. 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.

Government Procurement Power: 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.

CONCLUSION

B&Q has the power to inform and to enable consumers and as such has taken a lead in the field of promoting behaviour and products to combat climate change. However, during the course of our customer research and product development we have encountered a number of barriers to effecting behavioural change.

Bringing existing housing stock up to the standards required to combat climate change will require reforms to the planning system that open the way to microgeneration. Financial incentives should be strengthened to make energy efficient products the natural choice and public procurement must play its part in reducing the costs and mainstreaming new technologies. As the UK's leading home improvement retailer, B&Q looks forward to working in partnership with government in tackling climate change.

Memorandum submitted by EDF Energy plc

EDF Energy is a major vertically integrated energy company, with 5GW of electricity generation capacity, including renewable and decentralised generation. We supply electricity and gas to around 5.5 million customers, and manage the electricity distribution networks that connect more than a quarter of the UK population.

As a leading energy supplier we are deeply involved in the delivery of energy efficiency and carbon reduction measures to domestic properties throughout the UK, in particular, through the Energy Efficiency Commitment (EEC) programme. Therefore, we are very interested in this inquiry on the potential to reduce carbon emissions in existing housing stock.

It is our company's view that climate change is the most pressing challenge facing the world today. We are fully committed to reducing domestic carbon emissions, and have recently published our Climate Commitments, including a commitment to reduce the proportion of carbon dioxide arising from our customers' energy consumption by 15% by 2020. However, while we can encourage and support our customers to reduce their use of energy, as an energy supplier our potential impact is limited and must form part of a wider Government led approach to support consumer behaviour change through measures such as energy efficiency grants.

Furthermore, we believe that improving energy efficiency alone is not enough to address carbon emissions from existing homes, and decarbonisation of electricity supply must also play a key role. This is likely to be achievable at lower cost than some of the higher cost energy efficiency measures that are being proposed.

In support of this inquiry, the attachment to this letter provides further detail on a number of key areas of concern that we would wish to draw to the attention of the Committee. We hope that this submission is useful and can confirm that we would be prepared to elaborate on any of these points should the Committee require further clarification.

EDF Energy would like to draw the Committee's attention to a number of areas:

1. SMART METERING

The introduction of technologically advanced domestic energy supply metering can make a significant contribution to encouraging households to reduce consumption of energy (and carbon emissions). By allowing households both to review their consumption in a meaningful way in real time, and to interact directly with their supplier through the meter, householders can be both motivated to reduce their energy consumption, and supported to do so.

However, the current Government proposal to put an obligation on suppliers to provide stand alone "real time electricity monitors" will not deliver all of the benefits that a roll out of smart meters could do. "Real time electricity monitors can be used in the home to provide customers with an indication of electricity usage, but without a smart meter they cannot offer the additional benefits associated with two-way communication between the supplier and customer and accurate and timely billing data.

2. THE ENERGY EFFICIENCY COMMITMENT (EEC)

Since 2002, the EEC obligation on energy suppliers to deliver energy efficiency measures to UK households has made a major contribution to improving the thermal efficiency of existing housing stock. Now transformed from January 2008 into a carbon emissions saving programme and renamed the Carbon Emissions Reduction (CERT) programme, there is likely to be an ongoing obligation on energy suppliers until at least 2020, which can make a significant contribution to improving existing stock.

However, a significant proportion (50% in earlier programmes and now 40%) of this carbon reduction programme has to be targeted at households on means tested benefits (called the Priority Group), in order to address perceived issues of social equity. This means that a disproportionately high percentage of the UK's largest domestic household carbon abatement programme is being directed at households who generally use the least energy, and create the least carbon emissions. This carbon reduction programme is therefore being significantly undermined by trying to achieve both social and environmental objectives. We believe that the Committee should review the level of carbon savings that could be achieved with the same investment under CERT if it could be more accurately targeted, and capture more high carbon emitting households.

3. TREATING SOLID WALL PROPERTIES

Although the EEC/CERT programme has allowed us to vastly improve the thermal insulation of properties through cavity wall insulation, a significant proportion of the UK's housing stock cannot benefit from such insulation as there is currently no cost effective wall insulation solution for solid wall properties. This is widely recognised as a problem, and as an energy supplier with a large proportion of customers living in solid wall flats in the London area, we are particularly concerned that our customers have not been able to fully benefit from EEC investment programmes. We believe that this inquiry should advocate and support research into insulation solutions to address this problem in an affordable and sustainable way, possibly through BERR's new Energy Technologies Institute.

4. MICRO GENERATION

EDF Energy recognises the role that microgeneration can play in the residential sector, but is keen that it is only deployed in the most suitable locations to ensure that it delivers a true financial and carbon benefit to the consumer. Consumer confidence in this emerging industry going forward could be seriously damaged if deployment is not carefully managed.

5. ENERGY PERFORMANCE CERTIFICATES

EDF Energy has been one of the energy suppliers to agree with Minister for Housing and Planning, Yvette Cooper, that we will link our delivery of energy efficiency measures to households whose homes have had an Energy Performance Certificate, allowing them to improve the energy efficiency of their home with subsidised insulation and measures through the EEC programme. This joining up of Government initiatives will create synergies and target carbon reduction measures in a much more meaningful way for the householders.

Memorandum submitted by the National Energy Foundation

Thank you for the invitation to submit evidence to the Communities and Local Government Committee about how existing housing stock in England and Wales affects Climate Change. We are pleased to attach a short response, focusing in particular on the benefits of information and energy labelling.

The National Energy Foundation is a registered charity that seeks to empower individuals and organisations to take action to reduce their carbon emissions and counter climate change through energy efficiency and the use of sustainable energy sources. It has been active in domestic energy efficiency since its establishment in 1990 and undertook detailed energy monitoring on a number of low energy homes in the early 1990s. Among our relevant projects, we were responsible for the development of the National Home Energy Rating Scheme (1990–2004; since 1994 this has been operated by our joint venture subsidiary company and is the largest delivery mechanism for authorised SAP certificates) and which was the UK's first whole house energy labelling system. Our subsidiary is also a major participant in the fledgling market for Energy Performance Certificates, operating training courses and a certification scheme.

In the broader area of energy efficiency advice, we worked closely with the Energy Saving Trust from 1993–2000, managing their network of Energy Efficiency Advice Centres. Milton Keynes Energy Agency, an affiliate based at the National Energy Centre in Milton Keynes, continues to operate two Energy Efficiency Advice Centres. We have direct experience of operating telephone advice lines and have had a consumer-facing website since 1996, and it is thought to have been the first UK website offering domestic energy efficiency advice. The Foundation is currently a partner in the T-Zero project looking at creating a web-based tool providing a route map towards zero emissions refurbishment of existing dwellings.

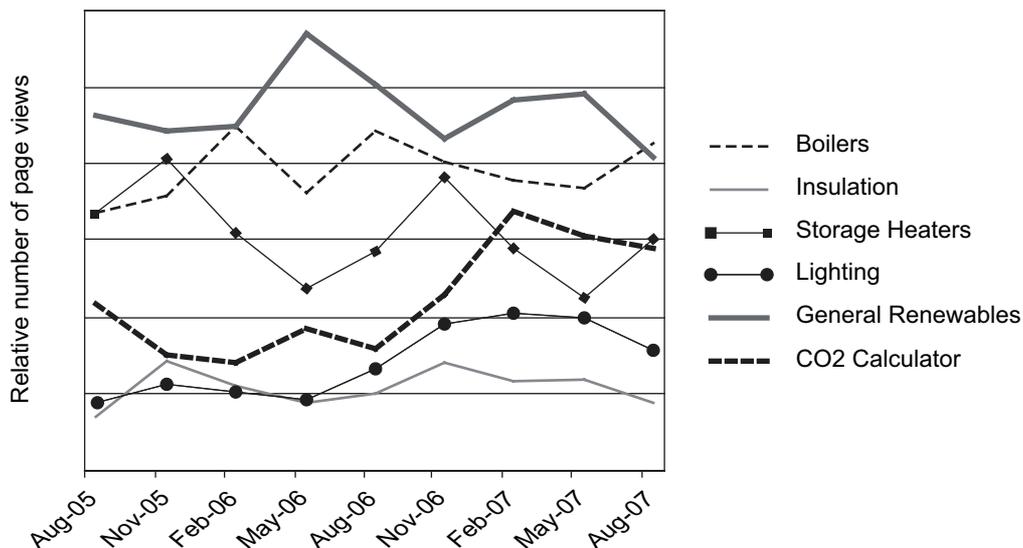
If the UK is to reduce carbon emissions from the domestic sector, then it is axiomatic that most of the savings must come from existing stock. Other submissions to this inquiry will undoubtedly point out that each year the number of new homes increases the total housing stock by less than 1%, and given the greater levels of energy efficiency mandated in new homes, it is safe to assume that over 90% of energy used in (and CO₂ emissions from) homes comes from those built before 1990.

Our submission will therefore focus on energy advice and labelling, and some of the barriers to the uptake of this advice.

1. What advice are people seeking?

We have been monitoring trends in the demand for advice for many years through our website and find that people still seek specific information about energy efficiency as well as general advice on saving energy or cutting their carbon footprint. Although trends can be hard to summarise with the regular refreshment and redesign of the site, which covers both domestic energy efficiency and small-scale renewables, the chart¹³ below shows how that there is still a strong consumer demand for specific advice on technologies such as boilers and storage heating. Requests for general information about renewables are also shown for comparison, although the specific demand for information on solar energy, including solar water heating, is a little higher.

**National Energy Foundation
Website Interest in Main Measures**



¹³ Proprietary data from www.nef.org.uk. Data relates to single months, not quarters, and is based on between numbers in the range 10⁵–10⁶ monthly page views. Total page views have risen by an average factor of 2.5 over the two year period, demonstrating an increased public interest in energy efficiency.

The one notable trend over the past two years has been a rise in interest in carbon footprinting through a carbon calculator, reflecting a much greater public awareness of the importance of carbon emissions as the primary contributing factor towards climate change. Obviously data depends on a number of factors, including our website's prominence in major search indexes such as Google, and the relatively low interest in insulation may simply reflect that other sites contain more extensive information than can be found on the National Energy Foundation's.

A similar result would be obtained from looking at the searches made on the internal search facility, except that "grants" (for which we do not maintain a dedicated page) is consistently the most commonly searched for term.

The quantitative data above does not indicate how satisfied people were with the information they found, nor whether they were looking for a greater level of detail than can be provided through a quite basic website. We sometimes receive unsolicited comments on the content, or requests for more detailed information. These suggest that people considering making energy efficiency improvements already know in broad terms what they want to do (eg install a new boiler, add some insulation), but are seeking more detailed information about "How?" and "Exactly what type is best?".

In other words, most people now appear to be broadly aware of the benefits of improving home energy efficiency, and very general advice only serves to remind people of its importance and to keep its profile relatively high. We also recognise that, as one of the ways to overcome barriers towards installation, people are often looking for recommended installers. This leads on to our next observation.

2. Generic energy efficiency advice is only a partial substitute for specific advice, but the motivation to receive advice is most important

We have, over the years, provided energy efficiency advice at many levels—advice offered freely through local radio programmes; simple web based advice (as discussed above) and fact sheets; tailored advice based on self completion forms, such as the Energy Saving Trust's Home Energy Check; telephone advice using both structured questionnaires and unstructured responses; and detailed advice based on a professional energy audit and BREDEM-based software¹⁴. Where it is has been possible under data protection legislation to retain contact details of the recipients, we have sometimes undertaken surveys and market research¹⁵ to find out how useful the advice was thought to be, and whether action has been taken on that advice. Typically it appears that one-third take action, one-third are "planning to take action" (but this may never happen) and one-third received the advice but did nothing further with it¹⁶.

However if people have been self-motivated to seek out advice, rather than having had it thrust upon them (or been persuaded to accept it through a gift of a low energy light bulb), the statistics showed better uptake levels. And, drawing on our comment in the previous paragraph, consumers are seeking detailed, relevant (and often quantified) information. This is where we have found energy labelling and tailored information adds value. The data collected in RdSAP is a good minimum data set, but where it is possible to override it with actual information, so that the consumer does not get told to do something that has already been done, then consumers receive better advice that appears more likely to lead to action¹⁷.

Although we are strong proponents of energy efficiency, we are also aware that many consumers initially approach us looking for information or advice on renewables. From this we draw two conclusions:

1. There is a need for well integrated advice on energy efficiency and renewables, that treats them impartially (eg as to payback periods and installation costs).
2. The minimum required energy efficiency standards before grants can be made under the Low Carbon Buildings Grant programme is generally helpful (although there has been some criticism that the minimum levels of loft insulation require top-ups to be made that have long payback periods where the applicant for a grant already has at least 150 mm installed).

We also would use this past experience to estimate the beneficial effect of the new Energy Performance Certificates (EPCs). We believe that these will become a major driver in domestic energy efficiency, especially once they are introduced for new build homes as well, so that homebuyers can see the major difference in standards between new and existing properties. We would also urge CLG to complete the process of requiring certificates from all existing properties; it is probably not unfair to describe the implementation so far as being "difficult" and as there are now more than enough trained Domestic Energy Assessors to provide certificates for all homes, the extension to all properties should be implemented without delay.

¹⁴ NHER Software.

¹⁵ For example through the work undertaken on behalf of the Energy Saving Trust in relation to the Energy Efficiency Advice Centres. However we suspect, partly based on anecdotal evidence, that such surveys sometimes over-estimate the impact of advice given, given the measured uptake of measure compared to the number of recommendations made.

¹⁶ To help overcome this inertia, we have recently implemented a "Carbon Workout" with energy saving pledges, and an automated mechanism to remind visitors to the website of their earlier pledges, to encourage them to take action if they have not already done so.

¹⁷ We have had some difficulty finding independent statistical research to corroborate (or refute) this statement, which is therefore based on anecdotal evidence collected over many years.

We believe that a wider introduction of EPCs will encourage the uptake of energy efficiency both before placing a home on the market, and after purchase by so-called “improvers”. Factual information about its energy performance will raise the profile of potential energy efficiency jobs among the latter group and encourage them to schedule them into their plans to improve their new home (alongside such other tasks as upgrading bathrooms, kitchens and gardens). Furthermore, we have calculated that that if just 5% of homeowners take action to improve their property by one energy rating band before placing their home on the market, this would lead to annual savings of at least 15,000 tonnes of CO₂¹⁸.

3. *Inertia in making improvements is not primarily due to a lack of information*

The key to improving energy efficiency in existing homes is not an absence of information (nor even of knowledge); it is about overcoming the “hassle factor”. The box shows some of the factors affecting loft insulation that may lead to it not being installed.

Example: Loft Insulation

CE101 recommends topping up loft insulation to at least 300 mm, which can typically save up to £50 per annum¹⁹, and this is usually the first measure that should be considered by homeowners. However, there are many reasons why this measure is not undertaken in practice:

- DIY installation is not as simple as it used to be; as recommended depths of insulation have increased there is a need for more care to be taken in:
 - not covering up electric cables;
 - ensuring that cold water tanks and pipes in the loft space are well insulated;
 - ensuring that there is adequate ventilation into the loft space (either by thinning insulation levels at the eaves, or by installing ventilation air-bricks);
- Mineral wool and glass wool are unpleasant substances to handle on a DIY basis (and old loft insulation is often even more unpleasant), and more benign insulation blankets (eg from sheep’s wool or recycled newspaper) are either very expensive or unobtainable in a typical DIY superstore.
- Any items stored in the loft space will need to be moved out and may not be able to be returned to the loft easily if there are no longer joists on which to place boxes, suitcases, etc.
- The alternative offered to 300 mm of mineral or glass wool is to use “100 mm of mineral wool between the joists, and then use rigid insulation board (and additional hardboard for heavy items/walkways, as necessary) on top of the joists for a small proportion of the loft space”²⁰, but this turns an apparently simple job into a complicated one.
- For professional installations—even with subsidies from the energy efficiency commitment (EEC)—the payback is less attractive and would require someone taking at least a day off work to supervise the installers, and most EEC jobs will only provide simple insulation rather than the partly boarded solution.
- Small builders or other tradesmen capable of undertaking a non-EEC supported professional installation are very hard to find, and there is a widespread fear of “cowboys”.
- The quoted benefits (£50 per annum) are:
 - not significant for a typical middle-class household;
 - often not believed by consumers—sometimes based on experience, as at least part of the theoretical savings will be lost to higher internal temperatures;
 - likely to fall with time as homeowners install high efficiency condensing boiler systems; and
 - compare unfavourably with the loss of a day’s holiday.

The example shown is indicative of many of the issues surrounding energy efficiency improvements. Some can be mitigated by higher standards in the industries involved (so that mis-selling of the energy benefits of certain measures can be reduced). It may help to bring a wider range of measures under the EEC/CERT support envelope, even with minimal financial support, as people are more inclined to trust installations with the backing of a large utility company.

¹⁸ Information calculated for NEF Press Release, 27 May 2007, based on a mean increase from the mid-point of some EPC band to the bottom of the next band and 100,000 sellers taking action annually, each leading to average savings of just 0.15tCO₂/yr.

¹⁹ Domestic Energy Efficiency Primer (GPG 171/CE 101), based on 50mm loft insulation upgraded to 300mm.

²⁰ *ibid.*

4. *Technologies to be used to reduce emissions*

From our comments earlier, it is probably not surprising that we do not see a shortage of appropriate technologies as being a major factor in the low uptake of energy efficiency measures. Indeed, we might argue that there is something to be said for keeping to the simplest measures first, as the UK public are more likely to use lower-tech efficiency measures in a way that achieves the expected benefits, and that newer and sometimes less easily understood technologies may lead to householders seeking to override their operation manually. Having said that, we believe that more could be done in encouraging the uptake of, among others:

- weather compensated controls systems;
- ground source heat pumps; and
- simple overshadowing to prevent summer overheating (which is becoming an issue with higher levels of insulation being installed in properties with large windows).

Taking our earlier point about integrated energy efficiency and renewables measures, we also think that solar water heating should be seen as being part of the overall energy equation of a home (as it essentially reduces demand for fossil fuels, and does not export energy from the property).

Memorandum submitted by the Chartered Institution of Building Services Engineers

This submission is from the Chartered Institution of Building Services Engineers (CIBSE), a professional institution incorporated by Royal Charter. CIBSE exists to promote the art, science and practice of building services engineering for the benefit of all, and the advancement of education and research in building services engineering. CIBSE is dedicated to the development of better buildings by maintaining an active role in contributing to governmental regulations and legislation. The Institution covers all aspects of design, installation, maintenance and manufacturing associated with building services.

The Institution is committed to tackling climate change and requires its members to “have due regard to environmental issues in carrying out their professional duties” under its Code of Conduct. CIBSE seeks to improve the construction industry and the existing built environment through support of legislation and collaboration with relevant other bodies.

1. DOMESTIC AND NON-DOMESTIC PROPERTIES

Standards for new build housing are provided by Part L of the Building Regulations and the Code for Sustainable Homes, supported by the planning system. Whilst there are issues to be ironed out with new build, it is fairly comprehensively covered by current standards and plans to make all new build zero carbon by 2016.

CIBSE believes that it is correct for the CLG to call for evidence on existing housing stock as this is where the majority of carbon emissions come from domestic properties and these are more difficult to address. However much work has already been undertaken on the energy performance of dwellings including existing housing.

CIBSE is keen to participate fully in any future inquiry into the energy performance of the existing non-domestic buildings.

2. ENERGY PERFORMANCE CERTIFICATES

Energy Performance Certificates (EPCs) for properties for sale or rent will provide information but will not in isolation be sufficient to promote improvement of existing stock. EPCs will be accompanied by recommendations for improvements and it is these recommendations that will stimulate decisions on improvements. To put energy performance on a par with other priorities of prospective buyers and tenants (proximity to transport, amenities and schools for example) will be challenging.

A recent CLG survey, Green Findings, on the energy performance of four bedroomed houses marketed with an EPC included in the home information pack indicates that average houses are being rated “E” on a scale of A–G. Average savings resulting from improvement of those homes to a “C” are estimated at typically save £180 on heating, £60 on lighting and £30 on hot water bills, a year.

At present the top five recommendations given by assessors for improving energy efficiency have been: cavity wall insulation, changing to low energy lighting, putting thermostatic valves on radiators, loft insulation, and double glazing.

3. TECHNOLOGY

Wider use of technology in making homes more energy efficient could be encouraged through planning and incentives to install energy efficient technology. This may stimulate consideration of less well known and possibly more expensive technology. At present it seems that most potential improvements are at a more basic level. Savings of less than £500 per year may not be sufficient incentive to counteract the uncertainty of added resale value, the perceived inconvenience of installation work and the lack of access to information and professional services.

A further consideration in the need to adapt to climate change is the issue of overheating in hot weather and the consequent danger of over-insulating buildings.

4. HISTORIC BUILDINGS

Any specific challenges which may arise in relation to housing of special architectural or historical interest are not insurmountable. CIBSE contributed to English Heritage work on Part L compliance for historic and listed buildings. The full suite of documents is currently in production and will be available to download from the English Heritage Website.

Memorandum submitted by the National Housing Federation

The National Housing Federation is the trade body representing 1,300 housing associations across England. Our members provide nearly 2.4 million homes for around five million people. Their work in maintaining and building diverse and sustainable communities has a profound impact, delivering improved quality of life for millions of people across the country.

The need to address the energy performance of existing housing is of vital importance in the aim to reduce carbon emissions. Existing homes will be the majority for the foreseeable future; even by 2050 two thirds of homes will comprise those already standing. The improved standards expected of new homes will provide a measure which should be an aspiration for existing homes. The development of new technology in their construction will contribute to the expertise in applying this technology to existing homes. The differences between existing and new homes are well set out in the "Review of Sustainability of Existing Buildings" (CLG November 2006).

NEW BUILDING AND IMPROVEMENT TO EXISTING HOMES

Associations welcome the prospect of providing some 70,000 new homes each year by the end of the next three year spending period. This will involve substantial investment from the government of £8 billion over three years but this will be more than matched by resources associations will lever in from the private sector or from associations own resources. Associations already lead in the energy efficiency and sustainability in design with about 90% of homes currently being built achieving an Eco- homes good or very good. This compares with about 2% of homes reaching these standards in the private sector. From 2008 homes built by associations will achieve a minimum of Sustainability Level 3. This pioneering work to produce homes to high levels of sustainability and low carbon emissions is achievable.

If however it was also mandatory for the private sector there would be two significant effects. Firstly the supply chain for products needed to achieve these standards would be enhanced leading to significant reduction in the costs. Currently associations are disadvantaged due to poor supply chains increasing costs when building to higher standards. The second effect would be to stimulate the development of new technologies resulting in more effective and efficient products. While associations have been leading the way an industry wide push would result in more rapid advances.

The spin off from the new building is vital in the work to improve existing stock. Some of the simple measures such as cavity wall insulation and draft proofing are tried and tested. The more complex work such as microgeneration, solar heating or ground source heat pumps is harder to apply to existing buildings. If however the technology and techniques are developed in new buildings their application and how best to use them in existing buildings will become clearer. Again the establishment of supply chains will make these improvements cheaper, more easily available and simpler to install.

There are numbers of homes where improvements are particularly difficult. These include homes with solid walls and those in rural areas. The development of new technologies will be of particular importance for these homes which often house people who currently suffer from fuel poverty.

To assist the development of new technology and supply chains the private sector must be obliged to develop new homes to higher standards via the Building Regulation regime.

THE COST OF IMPROVEMENTS

The debate about who should shoulder the cost of improvements to energy efficiency is complex. We share the objective of government is to reduce the carbon emissions from homes and to reduce the incidence of fuel poverty. There is an obvious difference between owner occupiers and tenanted homes. The former include many older people who have lived in their homes for a long time and do not have the resources to improve them nor perhaps the desire to put up with the disruption. The owner occupier sector does however also include those who are moving homes and could be encouraged to carry out improvements at the same time. The proposals of linking the Energy Performance Certificate and measures to encourage the uptake of improvement are commented on below.

For tenanted properties the market is again split between the private sector and local authority and association homes. In the private rented sector there are some incentives to improve homes but there is the real problem that savings as a result of improvements are made by the tenant, not the landlord. The proposals in the “Carbon Emissions Reduction Target” (CERT consultation, defra 2007) go some way to try to resolve this problem in the form of more grants. The introduction of Energy Performance Certificates may encourage some private landlords to improve energy efficiency of homes if they have difficulties letting them or prospective tenants expect lower rent levels for poor performing homes, however this is an unknown.

For associations the provision of warm decent homes is a basic objective. Nearly all associations will have achieved the Decent Homes Standard by 2010, most going well beyond its requirements. There is still however a substantial number of homes where there are improvements that could improve their energy performance but are not part of the Decent Homes Standard. The most notable are those homes which are built with a solid wall construction either traditional or system built. These are expensive and disruptive to improve. It is welcomed that these may be eligible for assistance under the CERT proposals.

Our members are very actively involved as the development of new technologies open up the possibility of reducing both the carbon output from homes and to reduce running costs for residents helping to reduce fuel poverty. The Government could encourage the development of innovation in the technology by providing further grant incentives.

VAT ON IMPROVEMENTS—A MAJOR DISINCENTIVE

One major factor that needs to be addressed is the level of VAT chargeable on improvements that result in improved energy performance. In our prebudget submission in the last two years we have advocated that a reduced VAT rate of 5% be introduced for all works to social housing carried out by housing associations that result in improvements to energy efficiency verified by a SAP assessment (Standard Assessment Procedure—the Government’s preferred standard for home energy rating).

There is currently a reduced VAT rate on the installation of some energy saving materials, such as solar panels and wind turbines. But other energy saving adaptations, such as the installation of energy efficient boilers, or double-glazing, are still charged the full rate of 17.5%.

Previous Budgets have introduced measures to promote energy efficiency in the home and we recognise that there is already a reduced rate of VAT on the installation of a range of energy saving materials. However, housing associations are currently required to pay 17.5% on all repairs and maintenance costs, as social housing rents are an exempt supply for VAT purposes.

The reduced rate would also help housing associations to alleviate fuel poverty as improvements to the energy performance to their existing stock will help to reduce tenants’ fuel bills. The Treasury’s own statistics estimate that 60% of those facing financial exclusion live in social housing (Source: HM Treasury: Extending a Community Development Tax Relief Consultation, June 2005) and those on low incomes inevitably spend a higher proportion of their income on household running costs such as fuel. This will further help the Government to achieve its target of eradicating fuel poverty by 2016.

Housing associations carried out £1,579 million of works in 2005–06 to existing stock in order to meet the Decent Homes standard and to fulfil promises made to tenants on transfer, not including expenditure on routine repairs and maintenance (Source: 2006 Global Accounts of Housing Associations, Housing Corporation publication, 2007). Assuming half of this amount is already covered by the reduced rate of VAT on the installation of a range of energy saving materials, and of the remainder a further half might not be spent on works that result in a SAP uplift, we estimate that the maximum cost to Government would be in the region of £50 million per year representing the loss to Treasury of 12.5% VAT on the balance. This cost could be offset by the introduction or increases in green taxes for example for those wishing to drive “gas guzzling cars”.

This saving would not only provide an excellent incentive for associations to do more work to improve the energy efficiency of existing homes, but would be recycled to boost their capacity to meet other key Government policy objectives, such as an accelerated and more certain achievement of the Decent Homes standard and the development of additional new homes.

A reduction to 5% by the UK could also be a first step towards achieving European Community agreement for a further drop to zero per cent. Annex H Category 9 of EC 6th Directive states that member states may apply the reduced rate for “supply, construction, renovation and alteration of housing provided as part of a social policy”. The Government could therefore limit the works in scope and specifically to housing organisations. This would make it possible for housing associations to afford more improvements to the homes they manage, and help to reduce fuel bills for low-income households by up to 25%.

ENERGY PERFORMANCE CERTIFICATES

The introduction of EPC, as a concept, is supported by the Federation. The majority of the work has been directed at the owner occupier market where there may be incentives for purchasers or sellers to carry out work to improve the energy performance of homes particularly where these can be shown to be cost effective. The linking of the certificate to information provided by the Energy Savings Trust on where to find out more information and advice on who could carry out improvements is a positive way of encouraging uptake.

The concern the Federation has is that for associations and their tenants the certificates will not provide any useful information but have the potential of wasting resources that could be better spent on improvements either to homes or services. The proposed method of producing certificates, involving a survey by an accredited surveyor, resulting in an unnecessarily accurate assessment, has the potential to draw resources away from the main objective which is to provide good, energy efficient homes.

The information required for a certificate is mostly already held by associations, especially those factors which will have most influence on the rating. Additionally associations have been putting resources into improving their stock and all associations are expected to achieve the Decent Homes standard and more by 2010. Unlike the EPC for the home ownership market most will not have any suggested cost effective improvements as they will have already been carried out. However this does not address the problems of homes particularly those with solid walls where improvements are not “cost effective”. Further comment is made above on meeting costs.

The provision of general advice on energy savings as part of the EPC is useful. The current certificate does not give this much space. Associations are likely to expand on this as the actual energy costs of homes varies widely depending on the occupiers’ behaviour.

BALANCE OF COSTS

Associations aim to provide new homes to the highest standards of both quality and environmental performance and will work with government to achieve this aim. At the same time associations support the government’s aim to drive up the environmental standards of existing homes. These aims underpin the work of associations in providing mixed and sustainable communities. The Hills Review of Social Housing demonstrated how vital it is to have regard to the existing stock and the support for residents needs over and above just the bricks and mortar.

The government must appreciate the interaction of these processes, how the investment model for new homes will interact with association’s capacity to improve their stock and to provide wider services to build sustainable communities. Associations need to be able to use their capacity to meet these objectives. The Federation believes that associations are better placed to determine how to use their capacity based on their knowledge of local circumstances and priorities. The proposals suggested above for improved standards for all new building and VAT on refurbishment will increase the capacity of associations.

Memorandum submitted by the Riverside Group

1. INTRODUCTION

The Riverside Group (TRG) is one of the largest social housing and regeneration organisations in England owning or managing around 50,000 properties across England. We have recently merged with English Churches Housing Group and now employ around 2,600 people and have a turnover of £180 million. TRG is the parent body for eight housing associations including the new ECHG subsidiary which manages all of our sheltered and supported housing.

We have been engaged in sustainable regeneration and renting homes for a social purpose for almost 80 years. Our commitment to neighbourhoods can be seen in the millions of pounds we invest in community projects each year, and in the hundreds of new homes we build annually for shared ownership, rent and outright sale. We aim to be the partner of choice for major regeneration projects.

2. In response to the call for evidence we would like to make the following points:

a. The significance of existing housing compared to new build and the different levels of performance each display

Within the Housing Corporation Approved Development Programme TRG builds up to 400 new homes in the North West and Midlands each year. Given that we own or manage over 50,000 units it is clear that the carbon impact of existing stock is of a much higher order than that of the new build programme.

However, this is not to underemphasise the impact that newly built properties can have on climate change. We understand that housing in general contributes to 25% of carbon emissions and by 2050 one third of all properties built will have been built since 2006. This means that across the board housing providers can have a direct impact on approximately 8% of carbon emissions through improving the carbon performance of houses we build from this point forward.

Mindful of the impact of existing stock, TRG has made a significant investment in energy efficiency within its asset management programme. Over the next five years we estimate that we will spend some £37 million on upgrades which support energy efficiency eg double glazing, boilers and insulation.

b. The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency

We welcome the introduction of the EcoHomes XB assessment method for existing housing. This will allow us to assess and monitor the environmental performance of our housing stock and we are currently working on the implementation of this tool across the Riverside Group.

We will propose below (see paragraph f) that government should revisit the rent restructuring regime to encourage landlords to adopt an innovative and enthusiastic approach to improving environmental standards.

In our opinion residents can play a key role in helping to reduce carbon emissions and social landlords could play an effective part in helping to change behaviours. Registered Social Landlords (RSLs) could do more in terms of pro-active campaigns to encourage tenants to use their homes more efficiently and support from government (perhaps in the form of funding for pilot projects for the setting up of energy advice services) would be welcomed. This approach would also link in to other policy objectives such as anti-poverty and financial inclusion.

It is clear that our residents see energy efficiency as a priority. Our recent STATUS survey results confirm that over a quarter (27%) see new/upgraded boilers as a priority for investment whilst 17% see insulation as a priority.

c. Energy performance certificates

These are a good concept if the consistency and quality of certificates produced for existing properties can be guaranteed without becoming costly and difficult to produce. However it does beg the question on what a resident can do if the home they are considering moving into has a poor rating. Social housing residents may not have the option to decline a property for this reason and access to practical advice on energy management therefore becomes more important.

d. The provision of information for households and prospective house buyers, including energy performance certificates

The Government is currently out to consultation on making a rating against the Code for Sustainable Homes (CfSH) mandatory. Both the CfSH and energy performance certificates should be made mandatory in order to provide objective criteria to judge the quality of houses. In our view the same standards should be applied to the private sector to ensure a consistent approach, fuel an innovative approach to technological development and drive down costs.

e. The technologies available to reduce emissions and the Government's role in facilitating relevant further technological development

These are in existence but are still relatively "young" technologies for the mass market and are still to be tested and proven, as a consequence both cost and quality are not necessarily at the standard required long-term. This is not helped by the requirement for all properties part funded by government money to be of a higher quality (at least level 3 in the Code for Sustainable Homes) but for less grant. We estimate that it will

cost an additional £8,000 per property to achieve the necessary water and energy standards to achieve Level 3 in the CfSH and a further £8,000 to achieve level 4. To meet Level 6 this could cost around £35,000 per property above our current standards.

As mentioned above it is crucial that the same standards are applied to the private sector to help minimise costs and promote innovation benefiting both new and existing housing provision.

f. The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty

There are limited measures we can implement to improve the thermal performance of our existing stock but relatively low-cost strategies such as double glazing and roof insulation) can create a significant benefit to the wider picture.

At the moment we do not specify any upgrade in relation to environmental sustainability for our empty properties which are awaiting relet (voids) other than increasing the level of roof insulation where necessary to 200 mm. This is also picked up in our “decent homes plus” standard for planned maintenance.

Practically the kinds of upgrades we could carry out would be:

- Replacement of boilers with Combination/Condensing boilers as part of a fully programmable heating system (approx. £4,000).
- The filling of external cavity walls (where present) with insulating material or the dry lining of solid walls (approx. cost £3,000).

Lower cost options would include upgrading levels of roof insulation to 400 mm and fitting low energy fittings throughout (around £500 per property). These measures would have a direct benefit for our tenants in terms of comfort and running costs although minimal payback for the landlord.

Whilst newer technology is available (such as photovoltaic cells and solar pumps costing around £13,000 and £3,000 respectively per property) we doubt whether it would be practical or cost effective to consider this for most of our existing stock. There would not be enough payback in terms of reduced maintenance or liveability to justify expenditure on the majority of properties. Some of the units may be vulnerable to vandalism and misuse or inconsistent with property layout. However it occurs to us that for some of our larger schemes (for example sheltered and supported schemes) it may be cost effective due to the increased surface area to add photovoltaic production for preheating water for heating systems and so on.

The environmental features which make a property more expensive to build or refurbish do have a corresponding effect on fuel and water bills for the person living in the property. There is nothing that we are aware of in Housing Corporation guidance on rent restructuring which permits social landlords to charge a higher rent for environmentally efficient properties other than the possibility that the property valuation may arguably be higher for enhanced properties. However the effect of any uplift in the valuation on target rents is diluted by it being used in only 30% of the rent calculation (the other 70% being earnings related). We suggest that there is a case for government to look again at rent restructuring to see whether more can be done to incentivise social landlords by enabling them to achieve some payback for their capital investment via the rental stream. An increase of £2 per week on a property could generate sufficient income to pay for improved standards of glazing, heating or insulation (depending of course on property type and specification).

Within the Fusion 21²¹ consortium environmental considerations are a key part in terms of product choice and the selection of our supply chain. Our evidence supports the view that bulk procurement can significantly reduce initial cost and create an environment for continuous improvement and focused research and development.

RSLs developing remote rural schemes may wish to look at waste treatment systems which are not linked to mains but which involve reed based filtration ponds which will minimise energy use and create habitat.

Memorandum submitted by the Empty Homes Agency

The Empty Homes Agency is an independent campaigning charity that seeks to highlight the issue of empty homes and work with others to bring empty homes into use. Traditionally the underlying principle to our work was to help address housing need. This remains a core objective but increasingly we also see the issue as an environmental one.

²¹ TRG is a partner in Fusion21, a procurement consortium which was set up on Merseyside in 2002. Its mission is to maximise efficiency, provide training and employment opportunities and develop systems which increase both performance and environmental awareness.

There are 663,000 empty homes in England. Estimates from the National Land Use Database suggest in addition there is the potential for 420,000 new homes to be created from existing empty commercial buildings including flats above shops. In total at least a million potential homes are lying empty in existing buildings in England.

We concur with the consensus that there is an undersupply of housing in England, and many more homes need to be built. But we believe that housing supply can be increased by bringing empty property back into use. We believe that empty property can provide a substantial and significant source of new housing.

It may appear self evident that reusing empty property must be less expensive and have less environmental impact than building new, but there has been little research to support or disprove this theory.

We have carried out two pieces of research that aim to address this and quantify the environmental costs of refurbishing empty homes and building new homes. This research involved quantifying all the materials that were used in building a series of case study homes. Some were new-build homes, and others were created through refurbishing empty homes. In conjunction with the Department of Mechanical Engineering at Bath University we calculated the embodied CO₂ (ie the CO₂ emitted in the manufacture and transport to site) of each component and by adding it together calculated an embodied CO₂ cost for each property in our study.

Our first piece of research carried out in 2005 studied two houses. One new build and one refurbished empty home. Our second piece of research carried out in 2006–07 and soon to be published, studied six similar sized three bedroom semi detached houses, of which three new build properties and three refurbished empty homes.

Our key Findings were

Carbon Dioxide (CO₂) emissions from new homes fall into two distinct sources: embodied CO₂ given off during the house building process, and “in-use” CO₂ given off from normal energy use in the house once it is occupied.

The new homes in our study gave off an average of 50 tonnes of embodied CO₂. The refurbished homes gave off 15 tonnes. This difference was largely attributable to the smaller amounts of building materials used in refurbishments over new builds.

The new homes in our study were better insulated than the refurbished homes and therefore had lower in-use CO₂. Overall the new homes emitted less (2.5 tonnes a year) in-use CO₂ than the refurbished homes (3.6 tonnes a year).

The new build homes eventually made up for their high embodied energy costs through lower in-use CO₂ but our projections show it would take 50 years to recover the initial cost.

The concept of embodied CO₂ is not widely understood but this study shows that it accounts for 28% of CO₂ emissions over the lifetime (50 years) of the houses in our study.

Our conclusions

We conclude that embodied CO₂ can be seen as an investment in the environmental sustainability of a house. Refurbished old homes have lower embodied CO₂ and therefore a distinct head start over new homes.

Many more homes could be created out of existing buildings. Empty homes provide an opportunity to create at least 150,000 new homes, with perhaps an additional 100,000 out of empty commercial buildings.

Meeting an element of housing need from refurbishing empty property will not in the long term cause a CO₂ saving over meeting the need entirely from new build homes. But neither will it cause an additional cost. We conclude that refurbishing empty property to meet housing supply will provide a number of significant advantages:

1. CO₂ emissions are spread more evenly over a 50 year period.
 2. Less land take. 250,000 homes from empty property would save 5,000 hectares over building new.
 3. Empty homes returned to use will help regenerate the areas in which they are located, boosting the local economy and reinvigorating local communities.
 4. Refurbishing empty homes reduce the costs to the public purse, Local authorities incur costs associated with removal of dumped rubbish, boarding up of abandoned houses. Police incur costs responding to petty crime frequently associated with empty homes. Fire services incur costs attending to fires in empty homes. The London Fire Brigade report that one in four domestic fires are associated with empty homes.
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Memorandum submitted by Beyond Green

SUMMARY OF THEMES

Lifestyles and Behaviour

Our behaviour necessarily underpins all action to reduce emissions. The energy we use is the first problem we face, and undoubtedly the foremost. Measures to make that use more efficient, and to use energy which is associated with lower emissions, can only have an impact if they are in addition to, not instead of, changes in how we live.

It is our lifestyles themselves, and not the policies, technologies and investments which frame them, which must change if we are to avoid catastrophic climate change.

A Whole House Approach

It does not and can not work to calculate the theoretical carbon savings achieved by the replacement of a boiler, or the fitting of insulation. A house is a thermal system and must be considered as a totality in order to design effective interventions.

Beyond this, other factors such as the value of the property, the tenure under which it is held, how long it is likely to last and its location will all influence the appropriate solution.

Finally there are the residents. Changes to the building should only be made if the potential savings they represent will be maximised by those who live there.

A Whole Neighbourhood Approach

There are a large number of potential gains in efficiency which can only be achieved at a neighbourhood (rather than a single house) scale. These include “hard” gains such as the installation of shared generation facilities, and “soft” measures such as the sharing of experience. Focusing on neighbourhoods also ensures that solutions are appropriate to the locality.

FULL RESPONSE

The impact of existing stock

A clear distinction must be drawn between the potential for reductions against predicted future emissions and reductions against an existing emissions baseline. Although a huge amount of house building will be carried out in the UK over the coming years, demolition rates remain low. Even if all new homes are built to zero carbon standards between now and 2050, and demolition rates increase significantly, this can only contribute at the most a 5% reduction in domestic emissions against the 1990 baseline soon to be enshrined in law.

Rather than comparing the impact of new build and existing stock, the most useful exercise that could be undertaken would be to categorise and quantify the impacts of existing housing according to: type (flat, terrace, semi-detached etc); materials, construction and thermal efficiency; tenure (owned, rented, social housing etc); and demographic.

A major complication to the impact of housing stock is introduced when behavioural factors are considered. The “rebound effect” and the “Khazzoom-Brookes postulate” suggest that energy efficiency savings have historically increased and not decreased total energy use²².

In other words, a building’s SAP rating and the efficiency of its boiler are not enough to tell what impact the overall household will have.

Respective roles

Reducing the carbon emissions produced by existing housing stock in the UK is without doubt a “wicked problem” as defined by the Royal Commission on Environmental Pollution²³. This means that it is not considered productive to attempt to fully apportion causality—and hence responsibility—to different groups.

Solutions exist, but these solutions require a variety of co-ordinated actions from different groups. As well as residents, homeowners, landlords, local government, central government and the energy industry, there is a need to consider finance providers, non-governmental organisations, sources of information, advice and assistance (whether national or community based), and other areas of government (especially regional agencies and non-departmental public bodies).

²² Saunders, H. D. (1992) The Khazzoom-Brookes Postulate and Neoclassical Growth. *The Energy Journal*, 13(4), 159-169.

²³ RCEP (2007) *The 26th Report of the Royal Commission on Environmental Pollution: The Urban Environment*.

Their respective roles in any solution will differ depending on the exact context and it is our recommendation that the most fruitful approach to carbon reduction is to take a whole house and whole neighbourhood approach, to determine the functions that are necessary to reduce carbon in each of these spheres, and to then implement means of satisfying these functions.

It is a feature of current government policy relating to domestic carbon reduction that the necessary measures have been standardised, and the roles and responsibilities in implementing them have been separated and apportioned to a single agency or group, meaning that measures taken are not properly prioritised and are not capitalised on as they could be.

The Energy Efficiency Commitment (EEC) is a good example of this. Energy companies have been handed the responsibility of installing particular pieces of hardware without any need to connect this to associated measures, or to mitigate the well known and well documented “rebound effect” which was mentioned earlier.

An energy company could satisfy its allocated responsibility by installing a super-efficient boiler in a house with no insulation or draft-proofing, which could then be used to keep the thermostat at 21 degrees in winter with the windows left open.

We need to establish shared responsibility and active co-operation between the groups involved to do what is needed to reduce emissions at the household scale and at the neighbourhood scale.

Information provision and Energy Performance Certificates

The imminent introduction of Energy Performance Certificates (EPCs) represents the most significant step the government has so far taken in trying to influence the private housing market to take account of energy efficiency and carbon performance.

Although we will have to wait to see how effective they prove to be, EPCs hold the potential to perform in a similar way to the energy efficiency labelling of consumer white goods. In this market we have seen the emergence of deliberate editing of choice by retailers, who have quickly chosen not to stock the worst performing products as they are seen as a sign of poor quality and hold inherently negative associations.

This is a development which goes beyond price adjustments, and can be considered the holy grail of the EPC scheme. Just as some individuals will refuse to live in certain neighbourhoods regardless of any financial savings, it is to be hoped that homebuyers will eventually refuse the least efficient houses, regardless of any calculation setting ongoing energy costs against initial outlay.

There is already some evidence of the emergence of a cultural, values-based attitude which inherently favours energy efficient housing. In a recent report by Ipsos MORI²⁴ it was found the most popular reason given for wanting to live in a sustainable housing development was to “Help me do my bit to save the planet”, an answer given by 54% of respondents as opposed to only 35% who felt it would “Reduce the amount I spend on bills”.

In addition, perceptions of sustainable homes were overwhelmingly positive. They were seen as “modern” rather than “old fashioned”, “attractive” rather than “ugly”, “hi-tech” rather than “low-tech”, “fashionable” rather than “un-fashionable” and “good value for money” rather than “poor value for money”.

The challenge for EPCs is to ensure that these perceptions apply to existing housing stock to at least the same extent to which they already apply to new developments.

Whether they will achieve this remains to be seen. What can be said for certain is that they will undoubtedly have a much greater effect if they are accompanied by other measures designed to put a price on carbon, the most extreme of which would be an individualised carbon rationing system.

Existing initiatives

There have been various attempts to improve carbon performance, but they are piecemeal and tend to focus on technical specifications, theoretical measurements and physical kit rather than on the actual real life performance of a home.

The Energy Efficiency Commitment (EEC) has seen insulation and efficient boilers fitted in homes, as well as the distribution of low-energy lightbulbs and other energy efficient appliances.

The Decent Homes programme has introduced similar measures to social housing, alongside wider refurbishments, with the aim of providing “thermal comfort” through efficient heating and effective insulation. Fuel poverty programmes in designated “Warm Zones” have pursued similar aims.

Alongside these more strategic programmes, there are also government grants available to install renewable energy technologies as well as energy efficiency measures. These have been criticised, but nevertheless have seen significant take-up of carbon saving measures.

²⁴ Ipsos MORI (2007) *Tipping Point or Turning Point? Social marketing and climate change*.

What is missing from the scheme, however, is a consistent and predictable incentive for selling excess energy back to the national grid. Renewables Obligation Certificates are intended for this purpose, but they do not guarantee a return, and so make it impossible to accurately calculate a payback period which in turn makes it difficult to arrange credit to finance the remainder of the installation cost.

A much more coherent approach can be found in the idea of fiked Feed-In Tariffs which are the most widely used form of incentive in Europe for the installation of renewable technologies (and associated efficiency measures which maximise the payback of installed technologies).

The problem with existing initiatives is that they do not take a whole house approach. The implication is that all that is necessary to reduce the emissions of existing stock is to retrofit some kit, make the necessary calculations, and assume that the job is done.

The reality is far more complex, and the behaviour of residents is absolutely crucial. Not only can home owners easily erode any efficiency gains by, for example, turning their thermostat up a few degrees in winter because it is now cheaper to heat their homes, but there is also a missed opportunity to engage individuals, households and even entire communities and neighbourhoods in active attempts to reduce their carbon footprint across all aspects of their lives, and to minimise their wider ecological impacts.

Technology

When retrofitting existing stock, there is a natural limit to the effectiveness of the introduction of technologies. Diminishing returns mean that by far the most cost-effective measures are often low-tech.

For example, in an old terraced house with sash windows, it seems much more worthwhile to fit draft excluders, blinds and thick curtains to all windows and ensure that windows are not open while the heating is on, and that blinds and curtains are shut when the sun goes down than to replace all the windows, or even to fit them with double glazing.

We have all the technologies we need to achieve a 40% reduction in the emissions from existing stock through behaviour changes to reduce the use of energy, efficiency measures to get the most from what is used, and renewable technologies to reduce the emissions from what is used.

The remaining reduction which will be needed to achieve the minimum target of 60% by 2050 will have to come from lower carbon energy supplies.

Again, the technology exists to achieve these savings although there will always be room for improvements. This is where the government most needs to encourage the development of technologies and, much more importantly, rapid implementation.

Our ambition must be to effectively apply those technologies which already exist (and have often existed for a number of years), and to maximise their effectiveness through behaviour changes.

With this end in sight, the main focus for innovation and investment should be into ways to quickly and accurately assess the most effective measures to take in any specific house (a function which could easily be added to the production of EPCs) and into how to effectively engage individuals, households and neighbourhoods to change their behaviour.

If this is achieved, then a market should emerge of sufficient scale to naturally incentivise further technological developments.

Costs

This focus on the energy hierarchy (reduce use, increase efficiency, micro generation, then cleaner energy supplies) is not only the most coherent approach, but also the most cost effective. Not only does it mean that the cheapest things are done first, it also ensures that maximum gains are achieved from the installation of those measures which do have a significant cost attached to them.

Many of these measures, however, are by their very nature cost-neutral at the least. Although pay-back periods will vary with context, there will always be financial savings which accompany reduced energy use (the only exception being the introduction of large-scale low-carbon energy generation, which will require the active manipulation of the energy market to become significantly cost-effective).

The implementation of the energy hierarchy can be encouraged through the provision of loans to install equipment, with repayments structured so that they match the savings which should be achievable as a result of behaviour changes combined with newly installed equipment.

If individuals do not achieve the savings they could do, the loans will then provide a financial incentive to re-address behaviours.

These loans could be provided by a number of different institutions, from Registered Social Landlords to traditional mortgage lenders to central government, with varying terms and rates of interest.

If it is combined with the gradual incentivisation of low-carbon living, this approach provides a means of achieving all possible efficiency savings with cost-neutrality to both residents and government. Government resources can then be focused on large-scale infrastructure and energy generation.

There are measures which would greatly encourage more widespread uptake of green financing packages, and foremost amongst them is the implementation of Feed-In Tariffs. These would allow the calculation of a guaranteed pay back on the installation of renewable energy technologies combined with energy efficiency measures.

Lifestyle

The single factor that can bring back some kind of coherence back to the need to reduce carbon emissions from domestic stock is a consideration of how people live.

The government itself has an approach to behaviour change, articulated in its Sustainable Development Strategy²⁵. The recommendation is that behaviours can only be changed through an approach which simultaneously enables, encourages, engages and exemplifies.

Changes to the built fabric of a house can only qualify as enabling more low-carbon living. The access that has already been gained in order to effect these changes have been a missed opportunity to engage. Other attempts at engagement have been limited to confusing and occasionally even conflicting information and advice. Attempts to encourage changes (mostly through incentives and disincentives) have been piecemeal and confused. There is little in the UK that exemplifies a low carbon domestic lifestyle.

To make the reductions in domestic carbon emissions which are possible, there must be a more considered, concerted, holistic approach to altering the homes that we live in, and how we live in them.

Wider Opportunities

It is likely that for this to be possible, an approach will be needed that does not consider households in isolation, but instead looks at the level of neighbourhoods and communities.

This is important in encouraging enthusiasm, the types of fundamental attitude change that were mentioned above, and in generating the co-operation and social capital which can be generated when people work together.

An article which appeared in the Guardian earlier this year²⁶ described how climate change has brought together the community of a small town called Wolvercote in Oxfordshire. Young aspirational families who care about climate change are learning lessons in economy from the older generation of post-war settlers who have never given up the habits of vegetable gardening and repairing broken items which stood them in good stead in times of scarcity. The article even reports a change in the neighbourly crimes which now go noticed. 4x4s and well-lit houses are suddenly frowned upon.

Perhaps the most remarkable aspect of this story, however, is that not only has tackling climate change as a community helped the villagers to do it more effectively, it has also served to unite the community and overcome traditional antagonisms:

“there is a kind of community commitment that may sound idealist and naive but that defies cynicism—people are talking to each other and changing their lifestyles—and they are doing it together.”

This may be a particularly emotive example, but it is not an isolated one. Villages around the country are declaring ambitions to be low-carbon, zero-carbon or carbon neutral. The Transition Town initiative in particular has been hugely popular. Communities as diverse as Brixton in London, Totnes in Devon and Kinsale in Ireland have signed up to a scheme which helps them apply the principles of low impact living to the way their neighbourhoods function, and to help each other reduce their own impact and that of their houses.

The idea of a locally replicable approach to reducing emissions rather than small schemes which can be expanded nationally is an eminently sensible one. It means that lessons are learnt, it allows actions to be taken up where and when they are likely to be successful, and it makes allowances for context and difference.

Nicky Gavron has advocated this approach, and emerging models suggest that there may be financially viable ways of establishing Energy Services Companies to service existing stock (this could initially be done through the extension of companies which have found success on new developments expanding their reach to neighbouring areas).

This approach reconciles the difficulties that occur tackling carbon emissions from existing stock in a realistic and practical way, but most of all it presents a basis for action which can go a long way to realising the government’s aspirations for better communities.

Furthermore, it takes advantage of the well-documented, though difficult to quantify “halo effect” whereby individuals and groups who are successfully engaged in reducing their domestic carbon emissions take an interest in mitigating their wider climate change and ecological impacts.

²⁵ Defra (2005) *Securing The Future: delivering UK sustainable development strategy*.

²⁶ Jane Muir, A little can go a long way, *Society Guardian*, Wednesday June 13, 2007.

Beyond Green's Work

Beyond Green is actively working to try to achieve reductions in domestic emissions from existing housing stock. The three main areas which our work covers are:

- Media content and lifestyles advice, primarily through our Director Joanna Yarrow, engaging the general public and inspiring them to reduce their impacts.
- The development of a green financing package offer in association with a major high street bank. This will deliver cost-neutral carbon reductions through the provision of loans to cover the cost of implementing a whole house action plan, based on the EPC, with the loans paid back at the rate of expected utility bill savings (which are, of course, dependent on the behaviour of residents).
- The strategising of whole neighbourhood emissions reduction plans with Registered Social Landlords.

Beyond Green helps clients and project teams to treat sustainability as an integral part of what they do. We are strategists and practitioners with a wide-ranging experience of the application of leading-edge sustainability. Our multi-disciplinary teams of planners, researchers, designers, engineers and communicators are supported by a network of outstanding expert associates. Together, we conceive, plan, design, communicate, consult on, develop business models for and help to deliver sustainable developments.

Memorandum submitted by the Glass and Glazing Federation

Given that the domestic housing stock accounts for 33% of the UK's energy demand²⁷ and 27% of its carbon emissions²⁸, the Glass and Glazing Federation (GGF) welcomes the Select Committee's decision to undertake an inquiry to examine the contribution which domestic housing can make towards achieving the country's emissions reduction target. The Federation's members are particularly active in the domestic housing sector, and in this paper we wish to present data on the carbon savings which can be delivered through upgrading windows in these buildings, and to present some policy options which we believe will help accelerate this upgrading and reduce emissions.

The Glass and Glazing Federation is the trade association and leading authority for employers and companies in the flat glass, window, home improvement, plastics and window film industries. It represents more than 60% of the industry's turnover in these sectors.

BACKGROUND INFORMATION

1. *The technology*

The specific technology in question is windows. In a single-glazed dwelling the windows account for over 20% of the heat loss from the house. The industry however developed and marketed double glazing in the 1980's and 90's, which helped people to make a significant impact on this heat loss from their homes. But our industry has accelerated its innovation in the last decade, with technologies such as low emissivity glass, high solar heat transmission glass, gas-filling, warm-edge spacer technology and better insulated frames to the extent that a good replacement window today is twice as energy-efficient as its double-glazed predecessor of less than ten years ago.

The industry uses the term Energy Efficient Window to describe these products. They are widely available, and perform to a significantly higher standard than required by the Building Regulations. If a single-glazed house were to have its windows replaced with Energy Efficient Windows, it would reduce its annual emissions typically by more than one tonne of CO₂—a significant contribution when you realise that an average house emits six tonnes. And yet one third of all windows in Britain's homes are still single glazed.

2. *Window Energy Ratings*

In parallel with the technology improvements, the industry has developed an energy rating scheme for describing the performance of windows. The British Fenestration Rating Council (BFRC) has been established to administer this. Under the scheme, a window is rated on an A—G scale, with A being the most, and G the least, energy-efficient. A label is produced, which is in the same format as the A—G labels for domestic appliances. It is therefore a rating system which the public recognises and understands. It is increasingly being used by window manufacturers and installers to promote their higher performing products.

The BFRC rating scheme is also recognised by CLG, in that it is now incorporated into the Building Regulations. Part L requires that any domestic window being replaced must achieve a specific energy performance; a band E window is prescribed.

²⁷ UK Energy Efficiency Action Plan 2007 (table 2), DEFRA, June 2007.

²⁸ Building a Greener Future: policy statement, CLG, July 2007.

However, in the last two years the industry has developed higher performing products than this, and indeed some manufacturers can now make band A windows. The Energy Saving Trust has recently decided to give its “Energy Saving Recommended” endorsement to windows in bands A, B and C.

Our industry therefore uses the term “Energy Efficient Windows” to embrace windows having energy ratings A–C. In the calculations of potential savings given in this paper, a window rated in the middle of band B has been assumed.

NATIONAL SAVINGS POTENTIAL

Using raw data from sources such as the BRE Domestic Energy Fact File, the English House Condition Survey, DTI Quarterly Energy Prices and the Carbon Trust’s Energy and Carbon Conversions, the GGF has developed a software model of the housing stock in Great Britain. This model enables, *inter alia*, the national energy, carbon and financial savings to be calculated if the windows in the existing housing stock were replaced with windows of any specific energy rating.

Using this model, and based on the prices and carbon intensities of domestic fuels for 2006, if every single glazed window were replaced by an Energy Efficient Window (mid band B) Britain would emit 9,228,950 fewer tonnes of CO₂ a year.

It is mentioned above that modern windows are much more efficient than their turn-of-the-century predecessors. So, if “old” double glazed windows were replaced by Energy Efficient Windows, Britain would save a further 5,330,148 tonnes of CO₂.

In total therefore, the replacement of pre-2002 windows with modern windows has the potential to reduce Britain’s CO₂ emissions by 14,559,098 tonnes a year. At 2006 fuel prices, this would reduce domestic expenditure on energy by almost £2.4 billion a year.

The potential savings from the widespread uptake of Energy Efficient Window technology are therefore substantial. The government’s policy document “Building a Greener Future”, issued by CLG in July²⁹, says that the domestic sector will need to reduce its CO₂ emissions by 92 million tonnes a year if the UK is to meet its target of 60% reduction by 2050. To achieve this will require the full potential of every available technology to be realised. That must include glazing.

WINDOWS—THE UNSUPPORTED ENERGY-EFFICIENCY MEASURE

Building a Greener Future (section 1.5) says, “The total investment by Government and energy companies in energy efficiency in the existing housing stock now totals over £1 billion per year.” The Select Committee should be aware that, of that one billion, nothing is invested in supporting glazing measures. Certainly the GGF is unaware of a single government fiscal incentive, or energy company EEC scheme, which supports the uptake of Energy Efficient Windows by householders. Not one.

If the UK is to meet its carbon reduction targets, it will need a contribution from every sector, not just the low hanging fruit. And that means the right permutation of carrots and sticks—regulatory and fiscal—by government. Many schemes have been successfully operating for years, and the glazing and windows sector should not continue to be overlooked by them.

POLICY PROPOSALS

We believe that the new Window Energy Rating system creates opportunities for government intervention. For the first time there is a system which recognises and labels the better performing products. Therefore, at the point at which house-owners (whether owner-occupiers, private-sector landlords or public-sector providers) come to replace their windows, there is a convenient mechanism by which a fiscal incentive can be linked to the higher energy performing product options.

We also think that the new Energy Performance Certificates, which are (or will be) mandatory when a house changes hands, create opportunities to link government fiscal incentives with improved energy performance.

The GGF are not policy experts, but we have identified a number of options which we think the Committee should explore:

1. VAT at 5%

The installation of virtually every other domestic energy saving measure is already subject to a reduced VAT rate of 5%. Energy Efficient Windows are however subject to the full 17.5%. There is no rational reason why bands A–C windows should not also be included in the 5% category. (Please note that an Early Day Motion—EDM 1268—has already been tabled to this effect).

²⁹ Building a Greener Future: policy statement, CLG, July 2007.

2. *Energy Performance Certificate recommendations*

The new EPCs, as well as rating a home's performance on an A–G scale, also give a list of recommended improvements. This creates an opportunity to encourage the installation of measures. There could for example be some form of grant following the production of an Energy Performance Certificate, if the suggested improvements are installed. Alternatively there could be a reduction in Council Tax on evidence of having installed recommended measures.

3. *Stamp Duty*

When a house is sold there could be some form of linkage between Stamp Duty and energy performance. The precedent has already been set with the government's abolition of Stamp Duty on zero carbon homes. This principle should be extended so that the Duty varies according to the certificated energy performance of the house. Alternatively there could be a "cashback" on the Duty if the improvements listed in the EPC were undertaken by the purchaser, within a set period of time, to bring the property up to an improved level of energy efficiency.

4. *Building Regulations*

As pointed out earlier, when windows are replaced in a dwelling, Building Regulation Part L requires the new window to be band E (or better). The minimum requirement should be raised to a band C. The opportunity to do this will be created in the planned revisions to Part L, scheduled for 2010.

FINAL NOTE

The UK National Energy Efficiency Action Plan (table 3) shows that by 2020 over half of the UK's carbon reductions will need to come from the household sector. Therefore housing is going to have to punch well above its weight. The GGF believes that these demanding carbon reduction targets can only be achieved if the energy efficiency industry and government work in partnership. Industry, such as the Glass and Glazing Federation and its Members, can and do develop products to make buildings more energy efficient. But government must introduce policies and incentives which stimulate demand for the products with the most energy-saving potential. Glass and windows deserve to be embraced by such measures.

Memorandum submitted by National Energy Action

1. *Introduction*

1.1 National Energy Action (NEA) works to ensure that low-income and other disadvantaged households can afford to heat their homes to the standard required for health and comfort. NEA shares this objective with Government which is committed under the provisions of the Warm Homes and Energy Conservation Act 2000 to eliminating fuel poverty, as far as is reasonably practicable, for all households in England by 2016. The UK Fuel Poverty Strategy further commits Government to ending fuel poverty for vulnerable households in England by 2010. These targets are supported by the key policy objective identified in the 2003 Energy White Paper³⁰ to ensure that all homes are adequately and affordably heated.

1.2 The UK Fuel Poverty Strategy recognises three key elements in providing affordable warmth:

- Efficient and economic heating systems and effective thermal insulation.
- Manageable energy costs.
- The level of household incomes for those who are economically inactive or otherwise financially disadvantaged.

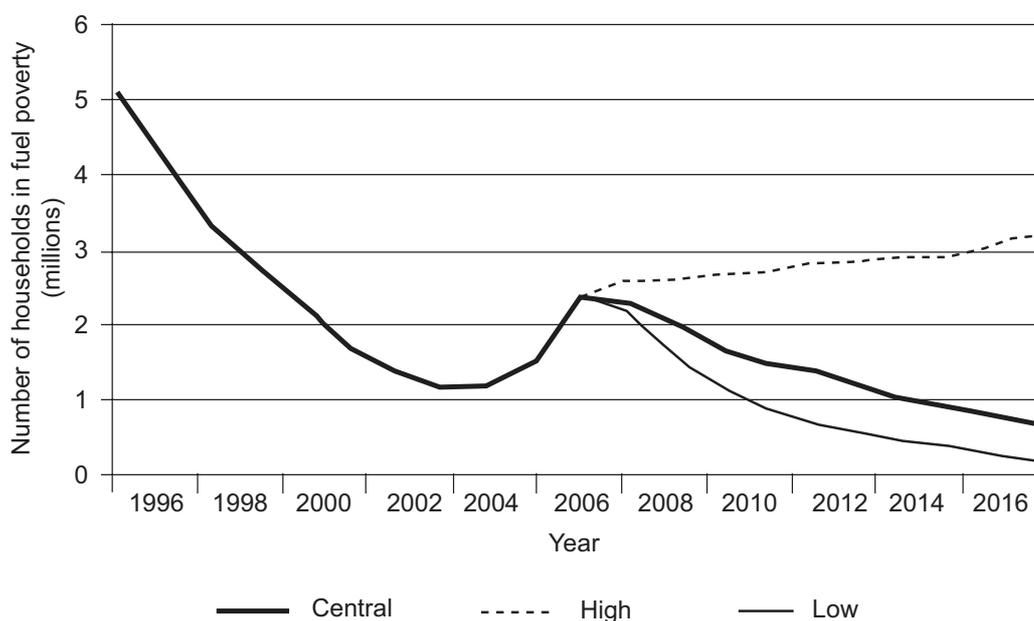
1.3 Until 2004, sufficient progress had been made in all three of these areas to reduce the incidence of fuel poverty in England from 4.3 million households in 1996 to 1.2 million households in 2004. However, between 2004–07 domestic energy prices reached unprecedented heights and much of the good work in tackling fuel poverty was reversed. The 2007 Energy White Paper³¹ showed that there are currently some 2.5 million fuel-poor households in England and that, even on the most optimistic assumptions about future energy price movements, the Government cannot achieve its 2016 fuel poverty target (Table 1).

³⁰ Our energy future—creating a low carbon economy, DTI, 2003.

³¹ Meeting the Energy Challenge, DTI, May 2007.

Table 1

HISTORIC AND PROJECTED NUMBERS OF HOUSEHOLDS IN FUEL POVERTY IN ENGLAND, 1996–2016 BASED ON A NUMBER OF POSSIBLE PRICE SCENARIOS



2. *Housing as a key issue in fuel poverty*

2.1 The Government has done much to improve the financial circumstances of disadvantaged households. Pension Credit, the national minimum wage and a range of Tax Credits have all helped address the financial aspect of the fuel poverty formula, supplemented by specific measures such as the Winter Fuel Payment to all older households. With regard to energy prices, the Government has done little more than exhort energy consumers to switch supplier where lower tariffs are available; to rely on competition to ensure lower prices; and to encourage energy suppliers to protect the interests of their vulnerable customers as part of their Corporate Social Responsibility ethos.

2.2 It is in the area of housing standards that the Government has the greatest powers and, potentially, the greatest involvement. Consequently NEA welcomes this consultation and the opportunity to ensure that any consideration of energy efficiency standards in the existing housing stock recognises that social imperatives and equity are not subsidiary to environmental concerns. However, despite this priority, NEA sees the improvement of the existing housing stock as crucial for both social and environmental reasons and sees improved heating and insulation standards as the key factor in meeting both objectives.

3. *NEA's response to the specific issues raised by the Committee*

3.1 NEA's comments on issues follow the sequence in which they are raised by the Committee and address all areas with the exception of those relating to housing of special architectural or historical interest.

4. *The significance of existing housing compared to new build and the different levels of performance each display*

4.1 Energy conservation standards were first incorporated within the Building Regulations in 1965 at a rudimentary level and made more rigorous via 1976 revisions following the oil crisis of 1973. Since then, successive changes have made regulations more demanding. The 2006 changes were intended to bring about a significant improvement over any previous standards and have now themselves been superseded by the aspiration that all new dwellings should be carbon neutral by 2016. However, fuel poverty is not an issue generally associated with new housing and this is demonstrated in the linkage between age of dwelling and incidence of fuel poverty. Fuel-poor households are much less likely to occupy properties built since the advent of mandatory Building Regulations.

Fuel poverty by age of dwelling—England 2004

<i>Age of dwelling</i>	<i>Number of households in group</i>		<i>% of households in group</i>		<i>Total households</i>
	<i>Not fuel poor</i>	<i>Fuel poor</i>	<i>Not fuel poor</i>	<i>Fuel poor</i>	
Pre-1919	3,910,000	449,000	88.5%	11.5%	4,359,000
1919–1944	3,505,000	258,000	93.2%	6.8%	3,763,000
1945–1964	4,077,000	304,000	93.1%	6.9%	4,382,000
1965–1974	3,059,000	141,000	95.6%	4.4%	3,200,000
Post-1975	5,144,000	84,000	98.4%	1.6%	5,228,000
All households	19,695,000	1,236,000	94.1%	5.9%	20,931,000

5. Since 60% of the housing stock predates the introduction of basic thermal requirements under the Building Regulations and 75% predates the marginally more rigorous standards introduced in 1976 it would be expected that the oldest housing should contain the greatest proportion of fuel-poor households. However some of the older property is occupied by comparatively affluent households and income is a major factor in fuel poverty. Nevertheless there is a strong link between poor heating and insulation standards and fuel poverty.

Fuel poverty in England by energy efficiency standard (SAP³² rating) 2004

<i>SAP bands</i>	<i>Number of households in group</i>		<i>% of households in group</i>		<i>Total number of households</i>	<i>% of total fuel poor in group</i>
	<i>Not fuel poor</i>	<i>Fuel poor</i>	<i>Not fuel poor</i>	<i>Fuel poor</i>		
Less than 20	459,000	324,000	58.7%	41.3%	783,000	26.2%
20–30	794,000	184,000	81.2%	18.8%	978,000	14.8%
30–50	6,874,000	462,000	93.7%	6.3%	7,377,000	37.4%
50–65	7,476,000	233,000	97.0%	3.0%	7,709,000	18.8%
65 plus	4,092,000	*	99.2%	0.8%	4,126,000	*
Total	19,695,000	1,236,000	94.1%	5.9%	20,931,000	100.0%

6. The Government has indicated that SAP 65 represents a standard of heating and insulation that minimises the risk of fuel poverty and the table above provides strong supportive evidence. The Government's key fuel poverty programme, Warm Front, requires that properties benefiting from the scheme be improved to SAP 65 wherever feasible. Clearly, poorly heated and insulated dwellings create both social and environmental problems.

7. The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency

7.1 Lack of a coherent structure and objective has been a historic failing in domestic energy efficiency programmes in the United Kingdom. In particular, Warm Front and the Energy Efficiency Commitment have provided substantial financial resources over a number of years but, instead of being complementary, these programmes have often simply duplicated work and have frequently competed for the same client group.

7.2 The Pre-Budget Report in December 2006 announced funding of £7.5 million towards development of area-based initiatives to: "improve the co-ordination between, and effectiveness of, Warm Front and the Energy Efficiency Commitment. This will fund projects using an area-based approach to identify households and provide the right coordinated set of advice and measures for them."

7.3 The area-based approach presents an opportunity to involve all of the agencies and parties listed above in a coherent and structured domestic energy efficiency programme. Social landlords are delivering energy efficient improvements through the Thermal Comfort element of the Decent Homes Standard; private sector landlords have been offered tax allowances to improve insulation standards in their properties (they also face sanctions under the Housing Health and Safety Rating System if tenants are at risk from poorly heated and insulated housing); local authorities have social and environmental responsibilities to residents; energy suppliers have been set energy saving targets which incorporate specific levels of assistance for vulnerable households; the Government has statutory targets for fuel poverty and CO₂ emission reductions; and a warm and healthy living environment which can be achieved at an affordable cost is a minimum entitlement for all households.

³² The Standard Assessment Procedure (SAP) measures the energy efficiency characteristics of a dwelling using a scale of 1–100, the higher the score the higher the standard.

7.4 Clearly there is a potential role for all elements of the community in improving residential energy efficiency. What is now required is a combination of advice, guidance, financial support, incentives and (where appropriate) penalties to ensure full stakeholder involvement in an area-based energy efficiency programme that can operate effectively on a community-wide basis and co-opt all relevant parties to participate.

8. *Energy Performance Certificates*

8.1 It is beginning to look as if the “teething problems” associated with Energy Performance Certificates may easing and that the infrastructure for full implementation may soon be in place. Regardless of how contentious Home Information Packs (HIPs) may be, implementation of the Energy Performance Certificate system is mandated by EU Directive and is not subject to political pressure. However, in order for the certificates to have any practical value they should be supplemented by a number of supportive measures including:

- Referral of prospective purchasers and tenants to sources of advice and practical assistance through the national network of Energy Efficiency Advice Agencies.
- Creation of a central record of Energy Performance Certificate data. This would assist across a number of Government policy objectives including progress towards Home Energy Conservation Act targets and identification of those homes where the condition of the property represents a Category 1 Hazard to the occupant(s) under the Housing Health and Safety Rating System.
- Information for private landlords on what constitutes an acceptable level of energy efficiency—as a minimum, compliance with the Decent Homes Standard and, preferably, a target SAP rating. Landlords should also be apprised of Government initiatives such as the Landlords Energy Saving Allowance and also be made aware of their wider responsibilities³³ to tenants wishing to apply for Warm Front or Energy Efficiency Commitment grants.

9. *Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes*

9.1 As indicated above, NEA believes that the need to discuss the effects of a range of initiatives to improve domestic energy efficiency illustrates a major problem with energy policy; there are too many programmes in existence to optimise the use of finite resources. The Climate Change Programme 2000 suggests that the Energy Efficiency Commitment will save 1.6 MtC to 2010 whilst Warm Front will save 0.4 MtC. Decent Homes is intended to address fuel poverty and environmental issues but addresses this enormous challenge in such an anaemic manner that it represents another wasted opportunity.

9.2 Warm Front has evolved over the years from a programme offering basic insulation measures to one that can deliver affordable warmth for many of the scheme’s beneficiaries. However, there are a number of problems with the current programme including:

- The inadequacy of the maximum grant (£2,700 in most cases) which is increasingly unable to fund a package of heating and insulation measures resulting in the need for a client contribution or, in the worst cases, the work not proceeding.
- The programme can offer only minimal assistance to those households who cannot benefit from the best available range of cost-effective measures (gas central heating, cavity wall insulation and loft insulation) because their homes are off the mains gas network and/or the property is of solid wall construction and cannot be insulated under current Warm Front regulations.
- Concerns that the current annual level of Warm Front expenditure of around £350 million is under threat because of budgetary constraints within Defra.

9.3 The Energy Efficiency Commitment (EEC) has considerable scope as a fuel poverty programme and this is only equitable since the money for the programme is partly provided by fuel-poor and other low-income households. However, in further prioritising the programme’s CO₂ emission objectives (evident in the programme’s future title *Carbon Emission Reduction Target*) there is concern that the social potential of EEC will be diminished. Defra proposes reducing the energy savings to be achieved within the Priority Group³⁴ from 50% to 40%.

9.4 The Decent Homes Standard (DHS) is the most problematic. The minimal heating and insulation standards required for compliance with the Thermal Comfort criteria mean that it is possible for a property to be deemed to have efficient heating and effective insulation whilst representing a threat to the health and well-being of the occupants. The Housing Health and Safety Rating System indicates that where a property has an energy efficiency rating of SAP 35 or below this can serve as a proxy for a Category 1 Health Hazard. NEA’s analysis of the English House Condition Survey 2003 suggested that around 1 million homes passed

³³ Landlord permission must be received prior to works being carried out. However where landlords refuse permission this may trigger a Housing Health and Safety Rating inspection.

³⁴ The EEC Priority Group comprises households in receipt of a means-tested or disability-related benefit. It differs from Warm Front in that it applies across all tenures and the means-tested eligibility criteria are not restricted to older householders or families with children.

on Thermal Comfort whilst being rated below SAP 35. BRE research³⁵ suggests that many local authorities have voluntarily exceeded the inadequate DHS in attempting affordable warmth for their tenants but the standard should be made much more rigorous and universal.

9.5 Whilst area-based initiatives (see 7.2) are seen primarily as part of the fuel poverty infrastructure, they may also serve as a model of how to implement energy efficiency improvements across the whole of the existing housing stock. The model provides the opportunity to develop a programme to deliver energy efficiency improvements to all properties that can derive cost-effective benefit from practical energy efficiency improvements to heating systems and building fabric, and the opportunity to influence consumer behaviour through advice and information. An area-based initiative can engage with entire communities in offering energy saving measures the cost of which can range from no-cost assistance to low-income and other vulnerable households through some level of householder contribution based on ability to pay.

10. The technologies available to reduce emissions and the Government's role in facilitating relevant further technological development

10.1 Since the inquiry is not concerned with domestic appliance use, NEA's comment in this area will be limited to innovative approaches to heating systems and thermal insulation. In the case of properties without cavity walls the most likely viable solution will be insulation of the external solid wall. In the past this has been prohibitively expensive but there are indications that future costs may be manageable. In its discussion of the future form of the Carbon Emissions Reduction Target April 2008 to March 2011³⁶, Defra suggest that the cost per household for solid wall insulation should be between £3,128 and £3,483. The cost of the works will be met mainly by energy suppliers with a significant contribution from able-to-pay householders and landlords. Priority Group customers³⁷ will make a token contribution towards the cost of the work.

10.2 A key additional factor identified in the UK Fuel Poverty Strategy from the outset has been the problem of households living in properties off the mains gas network and, consequently unable to benefit from the most efficient and economic heating source. Such households have been reliant on electricity, bottled gas, coal or oil for heating provision with the attendant disadvantage of high carbon emissions and/or high economic costs. Clearly, one priority must be to ensure maximum household access to mains gas supply where this is economically feasible.

10.3 NEA has been involved in testing a number of micro-generation technologies to assess their potential suitability for inclusion in domestic energy efficiency grant programmes. Financial support for many of these technologies is currently available to a limited number of social landlords and more affluent homeowners through the Low Carbon Buildings Programme operated by the Energy Saving Trust and the Building Research Establishment on behalf of the Department for Business, Enterprise and Regulatory Reform.

10.4 NEA pilot projects have examined the technical and economic feasibility of incorporating a number of micro-generation solutions within fuel poverty programmes. Projects have installed and monitored performance of:

- air-source heat pumps;
- biomass;
- solar thermal hot water;
- micro-wind turbines; and
- solar photovoltaic panels.

10.5 Early findings have been generally positive, particularly in the case of air-source heat pumps which NEA has recommended should be added to the existing menu of Warm Front measures. NEA also recommends that this technology be included in the range of technologies supported by the Low Carbon Buildings Programme. In contrast with solid fuel or electric heating a typical household could reduce its carbon footprint attributable to space and water heating by 60–70%. Other technologies show promise but it is premature to endorse these as cost-effective responses to individual cases of fuel poverty. However NEA welcomes the implicit support in CERT deliberations for other renewable technologies such as wood-burning stoves, biomass boilers, photovoltaic panels and solar water heating.

10.6 It must not be forgotten, however, that millions of households still occupy properties where conventional energy efficiency measures have not been installed. There remains much to be done in terms of effective loft and wall insulation and the provision of efficient and economic heating systems.

³⁵ Implementing Decent Homes in the Social Sector, DCLG, 2007.

³⁶ Carbon Emissions Reduction Target April 2008 to March 2011, Defra, May 2007

³⁷ Priority Group customers are those in receipt of a means-tested or disability-related benefit.

11. *The costs associated with reducing carbon emissions from existing housing, who should meet these costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty*

11.1 Clearly it is the Government's intention that the brunt of the cost of energy efficiency improvements to the housing stock should be borne through a combination of energy supplier CERT funding, able-to-pay householder contributions and part-funding from landlords. In the case of CERT Priority Group households most of the improvement works will incur minimal cost to the householder.

11.2 Regardless of how CERT funding is depicted it represents a levy on all domestic energy customers and, given that it takes no account of ability to pay, is to some extent regressive. NEA has put the case for major Government policy objectives to be funded through the Exchequer by direct taxation as the most fiscally equitable solution but recognises the Government's antipathy to this approach. One crucial aspect of CERT's predecessor programmes has been recognition of the need for additional support for low-income and other vulnerable households; this has been reflected in the need to ensure that 50% of the energy savings were to be achieved in properties occupied by Priority Group households. NEA is strongly opposed to current proposals for CERT that will see the emission reduction share within the Priority Group reduced to 40%.

11.3 NEA is also adamant that additional resources for CERT must not be seen by Government as an opportunity to reduce its own funding support for fuel poverty programmes. Warm Front is the main source of grant-aid enabling vulnerable private-sector households to improve heating and insulation standards in their dwellings. It is crucial that Government commitment be reinforced to at least maintain support at the current annual funding level of £350 million when funding arrangements are set out in the forthcoming Comprehensive Spending Review.

11.4 Whilst the Committee's query refers to interaction between carbon emission reductions and the Government's ambitions to reduce poverty, NEA takes this issue to relate to fuel poverty given that the Warm Homes and Energy Conservation Act commits the Government to eliminate fuel poverty for vulnerable households by 2010 and for all households by 2016. Unquestionably there can be tensions between social and environmental objectives where, for example, green taxation is mooted for environmental reasons despite a potential negative impact on low-income households. However, in the case of energy efficiency improvements to existing housing, social and environmental policies can be completely harmonious. NEA maintains that improved heating and insulation standards are the most rational and sustainable approach to the provision of affordable warmth and, clearly, this approach is also designed to optimise environmental benefit.

11.5 However, within the wider issue of general poverty, it should also be noted that a number of additional benefits accrue from policies to address inadequate heating and insulation standards in domestic properties. In addition to the physical and psychological health improvements resulting from affordable warmth there are other benefits to households, and to the wider community, through higher disposable income which can be spent on local goods and services; through the creation of job opportunities within the energy efficiency industry; and through reduced pressure on health and social welfare services.

SUMMARY OF KEY POINTS AND RECOMMENDATIONS

- The poor energy efficiency standards of the UK housing stock present challenges to both environmental and social welfare objectives. The incidence of fuel poverty has more than doubled between 2004 and 2007 posing a serious threat to the Government's statutory duty to eradicate fuel poverty by 2016. Improved heating and insulation standards represent the optimum means of achieving both environmental and social policy targets relating to the domestic sector. Government funding has provided initial support for around 50 area-based initiatives to improve domestic energy efficiency on a comprehensive basis at a local level. This approach will enable disparate sources of energy efficiency funding, such as Warm Front and the Energy Efficiency Commitment, to deliver benefits to all households within a community on a structured and coherent basis. Given the acknowledged effectiveness of this approach, the model can and should be replicated across all communities in England.
- The Department for Communities and Local Government suggests that where a dwelling attains an energy efficiency rating of SAP 65 or higher there will be minimal risk of fuel poverty. Currently, only 20% of the housing stock in England meets this standard and, clearly, those properties with the lowest energy efficiency ratings perform worst both in providing affordable warmth and in minimising CO₂ emissions. SAP 65 is currently a target within the Warm Front programme and represents an acceptable benchmark for energy efficiency refurbishment. NEA has suggested that the number of properties improved to SAP 65 be adopted by local authorities in England as an indicator in determining progress on fuel poverty reduction required by the new Local Government Performance Framework.
- The Department for Communities and Local Government has also indicated that where a property has an energy rating below SAP 35 this can serve as a proxy for a Category 1 Cold Health Hazard under the Housing Health and Safety Rating System and should trigger enforcement

action by local authorities. However for this position to serve any practical purpose local authorities must be encouraged and resourced to identify such properties and to require remedial action.

- Energy Performance Certificates have a potentially important role in meeting environmental and fuel poverty objectives. In the case of more affluent households, advice and information on cost-effective improvements may be sufficient to stimulate energy efficiency investment. With regard to low-income tenants and owner-occupiers there is a need for advice and guidance and for financial support. Energy Performance Certificates will be important in identifying the least energy efficient properties and in prioritising assistance to occupants; however the practical value of the certificates can only be maximised where the findings of the energy report are accessible to local authorities.
- In 2001, NEA's reaction to publication of the proposed Thermal Comfort element of the Decent Homes Standard in 2001 was one of severe disappointment. As the Government's key policy to address fuel poverty and improve energy efficiency in social housing the Thermal Comfort criteria were deemed inadequate in terms of both heating and insulation standards. This view of the inadequacy of the standard was effectively endorsed in research by the Building Research Establishment which indicated that social landlords were carrying out energy efficiency improvement works to a considerably higher standard than required by the Decent Homes Standard. However, targets for the Decent Homes Standard now apply to vulnerable private sector households and there is no indication that the DCLG has any intention of making the standard more rigorous. This is despite the fact that as many as 1 million properties that comply with the Thermal Comfort element have an energy efficiency rating of SAP 35 or below.
- The effectiveness of the Warm Front programme is currently vulnerable to a number of factors. These include the inadequacy of the maximum grant to fund the measures required for affordable warmth and the potential threat to the Warm Front budget given the likelihood of competing priorities for Defra in the forthcoming Comprehensive Spending Review.
- The majority of the housing stock is amenable to cost-effective heating and insulation improvements but a large proportion of fuel-poor households occupy hard to treat properties where innovative solutions in terms of heating and/or insulation technologies are required. At present, energy efficiency grants programmes cannot properly address these circumstances.
- Considerable financial resources are available for domestic energy efficiency programmes in England. However this funding must be utilised in a more coherent and cost-effective manner to obtain the maximum social and environmental benefits from investment. It is also recognised that potential tensions between environmental and social concerns can be entirely reconciled in the shape of domestic energy efficiency.

Memorandum submitted by the Northern Housing Consortium

SUMMARY

The Northern Housing Consortium welcomes this enquiry as we recognise that this is an extensive problem for the North, the Green Paper has heavily focussed on new homes. However the North has a high number of old stock, and there is a need to consider the impacts/effects and long-term sustainability of the existing stock.

This response highlights a number of issues, the principle point being made here is that there is a high number of older stock within the three Northern regions. This has serious implications for the impact of the housing stock in the North is likely to be having on the environment.

The Local authorities in the three northern regions are the most deprived areas nationally, and experience high levels of fuel poverty. There are many contributory factors to fuel poverty including energy inefficient housing, low income and high fuel prices. Being unable to heat your house sufficiently can lead to ill health and housing disrepair. Cold, damp homes have a direct effect on the health of, particular, the elderly, young children and those with long-term health problems or a disability.

This response provides evidence of the number of older dwellings in the North region, and case studies of measures housing providers across the North are beginning to undertake in order to refurbish their existing stock and help them achieve greater energy efficiency.

Some of the key areas highlighted in this response:

- Regenerating existing communities as an alternative Eco Town.
- Current technologies too expensive.
- Information a vital tool.

1.0 Background

1.1 The Northern Housing Consortium (previously the Northern Consortium of Housing Authorities 1974–2002) was established in April 2002. It is an independent non-party political, not for profit organisation working to improve and promote housing services across the North. Its 202 members include Local Authorities, Registered Social Landlords (RSLs), Arms Length Management Organisations (ALMOs) and other organisations involved in housing.

1.2 The Northern Housing Consortium is controlled by its members, who between them manage over 86% of social housing in the North, over 1.3 million homes. These organisations are drawn from the three Northern Government Office regions of the North East, North West and Yorkshire & Humberside, as well as the Housing Corporation (North).

2.0 Northern Picture

2.1 They three northern regions contain more than a combined six million homes, almost one-third (29.1%) of the English total. In general, the stock in the north is older than that in England as a whole. While the proportion of northern stock built before 1919 is in line with the national figure (19%), this conceals differences for the individual regions. The North West (21%) and Yorkshire and Humberside (20%) have above average proportions of dwellings built before 1919. Similarly, as the table below shows, all three regions have above average proportions of dwellings built between 1919 and 1964—none more so than the North East (51% compared to 41% nationally).

Table 1

YEAR OF DWELLING BUILT

	Year built			All dwellings (000s)
	Before 1919	1919 to 1964	1965 or later	
North East	15	51	34	1,131
North West	21	45	34	3,007
Yorkshire and the Humber	19	41	40	21,804

2.2 This has serious implications for the impact the housing stock in the North is likely to be having on the environment. According to the latest data from the English House Condition Survey, only 1.5% of dwellings built before 1919 have cavity wall insulation and 48.7% either have no loft insulation or insulation of less than 100 mm.

2.3 The picture is not much better for those dwellings built between 1919 and 1964. Just over one-quarter of these dwellings (25.9%) have cavity wall insulation and 38.3% have either no loft insulation or insulation of less than 100mm. This has resulted in SAP ratings of 38.6 for dwellings built before 1919 and 45.4 for those built between 1919 and 1964 respectively compared to the national level of 48.1.

Table 2

WALL AND LOFT INSULATION BY DWELLING AGE

	wall construction			loft insulation			total	average SAP
	insulated cavity wall	uninsulated cavity wall	non cavity wall	loft with less than 100mm	100mm or more	no loft		
pre 1919	1.5%	12.9%	85.6%	38.0%	51.3%	10.7%	%	38.6
1919–1964	25.9%	47.4%	26.7%	30.9%	61.7%	7.4%	100.0	45.4
1965 and later	34.2%	55.1%	10.7%	29.9%	57.6%	12.4%	100.0	55.8
total	27.4	41.7	30.8	29.1	60.0	10.9	100.0	48.1

2.4 Nationally, more than two-fifths (40.8%) of pre-1919 stock and 27.9% of 1919–1964 stock is non-decent. CLG estimates through its English House Condition Survey, a mean cost to make these dwellings decent of £10,453 and £6,696 per dwelling respectively. The relatively higher levels of older dwellings in the North mean that the higher costs to bring them up to the decent standard will hit the North hard.

2.5 The factors that have the greatest correlation with energy performance of the existing stock are age and dwelling type and size. Modern properties are much more energy efficient and smaller properties suffer less heat loss. The quality and amount of insulation and efficiency of heating systems also has a great impact on energy performance.

Table 3

PERCENTAGE NON-DECENT BY AGE AND MEAN REMEDIAL COSTS

	<i>all dwelling types</i>			<i>percentages</i>	<i>mean costs (£)</i>
	<i>decent</i>	<i>non-decent</i>	<i>all</i>		
pre 1919	59.2%	40.8%		100.0	£10,453
1919–1964	72.2%	27.8%		100.0	£6,696
1965 and later	79.8%	20.2%		100.0	£2,436

2.6 Carbon dioxide (CO₂) accounts for around 85% of all greenhouse gases with the burning of fossil fuels the major contributor to this. The UK produced 152 million tonnes of carbon (MtC) in 2004 and over the last decade this figure has fluctuated very slightly, peaking at 155.6 in 1996 and falling to 147.6 in 1999 (Defra, 2007). However, the Government wants to go further than simply maintaining this relative stability and has proposed a target of reducing emissions by 60%, compared with 1990 levels, by 2050.

2.7 Social housing stock is generally more energy efficient when compared to the private sector, due largely to the age of the stock and the volume of more energy efficient flatted accommodation, despite this, all sectors must play their part in improving the efficiency of our homes.

2.8 Whilst ensuring that new build developments are achieving carbon neutrality and the highest environmental standards is vitally important to the climate change agenda, the real challenge lies in what can be done to bring the existing housing stock up to the same standards. Programmes such as Decent Homes and the Warm Front initiative have already gone some of the way to start improving the energy efficiency of the UK's housing stock.

2.9 Energy efficiency varies widely across existing stock. The energy efficiency of many older homes will have been improved over the original condition as a result of improvements householders have made, such as the installation of new more efficient boilers, draught proofing and insulation. However overall there remains a close correlation between the age of a property and its energy efficiency.

2.10 The hard to treat stock are generally made up of properties that have solid walls, off the mains gas network, no loft space, high rise blocks, or for other technical reasons cannot be fitted with standard efficiency measures. It is more of a challenge to improve the energy efficiency of existing stock due to high cost as a result of the poor design, disruption due to occupancy, the low income levels of households and low priority ranking for households compared to other spending requirements.

2.11 Those properties that are made up of a combination of features, such as solid walls and no loft, or high rise and mid floor flats, have very little potential for retrofitting using the simplest and the cheapest insulation measures. These would require more expensive and difficult measures, such as replacing old and non gas heating systems, insulating solid walls, installing double glazing or installing micro generating systems.

CASE STUDY—GENTOO SUNDERLAND

Insulating Existing properties

Gentoo has been taking great strides towards lowering the carbon footprint within the organisation itself, in its new build developments and in the existing housing stock. In June 2006, Gentoo completed its first new build development to achieve an EcoHomes rating of "Very Good" which included low emissions boilers, dual flush toilets, flow regulators to taps and showers, rainwater butts and ecobins for the kitchens in every unit regardless of whether they were for sale or for rent.

A major part of Gentoo's environmental and energy efficiency work can be seen through the refurbishment of its existing housing stock. Partly through grant funding and partly through its own investment programme, Gentoo have been ensuring that all the homes they manage are being brought up to high energy efficiency standards. There have been multiple elements making up the overall programme, but each measure has improved the energy efficiency of existing homes and some have brought additional benefits with them.

In the Review of the Sustainability of Existing Buildings' initial report on the Energy Efficiency of Dwellings, cavity wall insulation was found to be the measure with the largest potential carbon saving per dwelling within a three-year payback period. Additionally, cavity wall insulation helps to create an even temperature, prevents condensation on walls and ceilings and reduces the amount of heat built up inside a property during the summer. Gentoo have added cavity wall insulation and loft insulation was also mentioned in the report as a potential energy saving measure.

Double glazed windows were cited in the report on the Energy Efficiency of Dwellings as an attractive energy saving option as double-glazing offers more benefits than just reduced heating costs including reduced maintenance, reduced noise and increased security.

The Group has also been carrying out a fuel switching scheme and a heating replacement scheme as part of their energy efficiency refurbishment work. From 2004 onwards, they have been replacing all solid fuel heating systems with cleaner and more efficient gas powered boiler systems. Also since 2004 Gentoo has been replacing obsolete heating systems with A-rated energy efficient condensing combi-boilers.

3.0 *Deprivation and Poverty*

3.1 The latest official data on deprivation, the 2004 Indices of Deprivation produced by the then Office of the Deputy Prime Minister, shows that local authorities in the three northern regions are the most deprived nationally. The indices are based on seven different domain indices. The domains and the weighting given to each are:

- Income (22.5%)
- Employment (22.5%)
- Health Deprivation and Disability (13.5%)
- Education, Skills and Training (13.5%)
- Barriers to Housing and Services (9.3%)
- Crime and Disorder (9.3%)
- Living Environment (9.3%)

3.2 Each local authority and Super Output Area (SOA) in every local authority is given a score on its deprivation and ranked thereon. The data shows that 54% of the 50 most deprived local authorities are in the north. However, a closer look within local authorities shows that 96% of the 50 most deprived SOAs are within local authorities in the north.

3.3 The Yorkshire and Humber region is currently experiencing an acute fuel poverty problem. 163,000 (7.7%) of households suffer from fuel poverty in the region and an estimated 123,000 (5.8%) are classified as “vulnerable” households, those that house older people (over 60), younger people (under 16), disabled and long-term sick. This is the second highest level of fuel poverty in England.

3.4 There are many contributory factors to fuel poverty including energy inefficient housing, low income and high fuel prices. Being unable to heat your house sufficiently can lead to ill health and housing disrepair. Cold, damp homes have a direct effect on the health of, particular, the elderly, young children and those with long-term health problems or a disability. In England it is recorded that there are an average 33,700 excess winter deaths due to cold related illnesses, including respiratory disease, stroke and heart attacks. In 2004–05 alone it was recorded that there were 3,200 excess winter deaths in this region.

3.5 These additional challenges faced by the North places the emphasis of reducing carbon emissions as a low priority for many, due to financial barriers. The Government need to address these issues and inject more resources in terms of funding and incentives to meet the targets of reducing carbon emissions.

4.0 *Technologies*

4.1 There are a number of technologies and products on the market to help us save energy in our homes and offices. An important first step when considering energy efficiency in our homes and businesses is establishing our energy usage. By becoming aware of our energy usage, we can look at ways to use it more economically and then move on to find ways of producing and conserving our energy through environmental friendly means.

- Energy Monitoring—The Electrisave is a wireless meter that allows you to see how much electricity your home or office is using.
- Heat Pumps—when used for heating, heat pumps save energy by extracting heat from an outside source, and delivering it for use within the building.
- Solar Energy—Solar energy can be captured by solar panels. There are two main types of solar panels which uses complete different technologies to make use of the energy from the sun.
- Solar water heating—Solar Power water heating systems are the most popular form of solar energy used in the UK. The system is connected to the hot water system.
- Flat Plate Collectors—Solar water heating panels in their simplest form are made from a sheet of metal painted black which absorbs the suns energy.
- Evacuated Tubes: The evacuated tube system is a series of glass heat tubes grouped together. The tubes are highly insulated, due to a vacuum inside the glass.
- Photovoltaic (Solar Electric): Photovoltaic (PV) or solar electric can offer us all the ability to generate electricity in a clean, quiet and renewable way. The varieties of applications for solar electric are numerous.

- Passive solar—The use of passive solar design is possibly the simplest form of solar energy. Many buildings today are designed to utilise the energy of the sun as efficiently as possible. The location and orientation of the building are all key factors in optimising passive solar design.
- Wind Turbines—This renewable source of energy has great potential in both onshore and offshore wind farms. Wind power is one of the cleanest and safest of all the renewable commercial methods of generating.
- Bioenergy—Biomass is a fuel from any recently living organism, the form most readily available in the UK is chipped wood. This can be from woodland lop and top, purpose grown coppice or green wood residues from sawmills etc.

More information on these products can be found in Appendix 2

4.2 The information for these products are widely available to households and residents, although whether this information is accessible and delivered to the more vulnerable groups is something that would need to be explored further. These technologies are very costly and not necessarily option for many households in the North.

5.0 Current Programmes

5.1 In order to meet the Government target on reducing household carbon emissions, there are a number of programmes that have been initiated by the Government both for new and existing dwellings.

See Appendix 1

CASE STUDY—KIRKLEES NEIGHBOURHOOD HOUSING

SunCities Project

Kirklees Neighbourhood Housing (KNH) and Kirklees Council won a Silver award for environmental best practice at the annual Green Apple Environmental Awards 2006. The award was for their joint initiative installing solar panels in over 500 homes including council houses, care homes and luxury apartments. This is the largest domestic solar project in the UK and was part of the European-wide SunCities project, receiving an EU grant of £283,000.

SunCities is a solar energy project, which aims to install approximately 3MWp (megawatt-peak) of photovoltaic (PV) solar electricity in 2,000 homes in the UK, Netherlands and Germany.

Fernside Solar Village involved installing PV in 100 all eclectic homes, including bungalows and flats on the Fernside Estate. Residents can see when the system is generating electricity via a monitoring device. The Fernside homes are heated by electric storage heaters, now the switch to solar has decreased tenants' electricity charges by providing a potential energy bill saving of up to £95 a year¹.

Primrose Hill Solar Village involved installing both PV and solar thermal systems in 121 new and existing houses, flats and bungalows. PV systems were installed on 12 individual bungalows, 34 two storey houses and 3 two storey flats and solar thermal hot water systems were installed in 32 social housing properties all managed by KNH. Again the solar energy systems have reduced tenants' fuel bills providing around 20% of their electricity needs and 50–60% of their hot water needs.

The Council's commitment to solar power began in the early 1990s when it created a 19-strong environment unit that installed the first solar energy systems and set up a Renewable Energy Fund in 2000. The Fund supports the development of renewable energy in Kirklees through partnership working, projects, raising awareness and increasing the amount of renewable energy generated in accordance with the Council's policy.

While it is expensive to install, solar power is the most cost-effective renewable energy option for housing providers with a better ratio of kilowatts per hour generated than wind turbines, ground source heat pumps or fuel cell technology.

6.0 A Way Forward

6.1 In order to meet the government targets of reducing carbon emissions, everyone needs to play a role in delivering this agenda, from residents, to energy companies and local and central government.

6.2 Information is vital in achieving the Government target, and this needs to be brought in at both a national level, through strong promotional campaign, and locally where the Councils can provide quality information about the energy efficiency improvements for individual homes and their owners. Information must be accurate, concise and simple to help them make informed decisions about improving the energy efficiency to their homes. This information needs to be backed up with useful websites and where to go for further advice and assistance.

6.3 The role of residents is one of information and how they can be more energy efficient around their homes, in order to do this they need good quality information and advice from various professional organisations and agencies in the field. It is important it does not stop there, and that the knowledge and education that they gain is acted on and used to adjust the way they live to reduce their carbon footprint and become more energy efficient aware.

6.4 Central Government should be the authorising body of Energy providers to work directly with local authorities to promote home energy conservation. There should be some measure in place which offers a level playing field in relation to fuel tariffs and methods of payment.

6.5 A scheme should be introduced where home energy efficiency measures that are achieved, can be rewarded in reduction in fuel tariff costs.

6.6 The role for Local Government is to publicise and promote the benefits of improving home energy efficiency, by focussing more on the monetary value and savings to each household. Translating benefits and information into pounds will have a more effective response. More action is also required by local councils to tackle the area of fuel poverty. In order to achieve this more resources need to be put in place to deliver this task, with information, funding and incentives being the focus.

6.7 The Government needs to inject more resources, funding and incentives to help achieve the target of reducing carbon emissions within homes. The North faces additional challenges including poverty and deprivation, and for households and residents of the North the Climate agenda is not a priority or an option for some, due to financial restrictions.

CASE STUDY—LOW CARB LANE

Ashington, Northumberland

Low Carb Lane is an innovation and design project that explores ways that people can achieve warm and comfortable homes while reducing their carbon footprint and environmental impact. The team, in conjunction with Wansbeck Local Strategic Partnership will work closely with one street in Ashington, Northumberland, to create new services that will respond to local requirements and also provide a model that other communities can work from. The four key areas they will be looking at are behaviour change, energy efficient appliances, insulation and green generation. Examples of these will be anything from energy saving light bulbs to solar hot water, a boiler efficiency service. As well as the environmental message they stress that living in cold damp homes can greatly increase the risk of serious illness. The goal of Low Carb Lane is to help households reduce their demand from the power grid by 60% and find ways of doing this that will be sustainable and affordable. The Low Carb Lane team aim to make people aware of the services that are already on offer as well as looking at their future requirements.

7.0 *Private Sector*

7.1 With Private Sector renewal funding currently under discussion, the Government is suggesting that this sector will not be part of the new proposed agency. For the North there are many private sector issues' around decency and housing need, and these should be addressed as part of the other housing tenures, as it is an integral part of regeneration of communities in the North.

8.0 *Eco Towns*

8.1 The Government has recently promised to double the number of “eco-towns” to be built across the UK from five to 10, the prospectus sets out the criteria of large scale free standing new settlements that are exemplars of sustainable building and living, with the opportunity to design low and zero-carbon technology from the start.

8.2 As an alternative to building ten eco towns, shift the focus for a couple of these around moving existing communities and regeneration of a similar size (5,000–20,000) to carbon neutral. This pathfinder status would be more useful to support existing stock and one of these could be based within the North region and would benefit the Northern housing market immensely.

9.0 *Conclusion*

9.1 The three Northern Regions have a high number of old stock in comparison to the rest of the UK. This has serious implications for the impact the housing stock is likely to be having on the environment, and the higher cost implications to bring these dwellings upto decent standard.

9.2 The real challenge for the North is what can be done to bring older dwellings upto the same standard as ne developments.

9.3 Although there are various products, programmes and technologies on the market, the North faces additional challenges around high deprivation and fuel poverty levels. The priority of reducing carbon emissions for households in the North is not very high, due to these other additional problems and financial constraints.

9.4 The Government need to address these issues and inject more resources, funding and incentives to tackle these problems in the North.

Response prepared by

Satty Rai

Policy Services Manager

September 2007

APPENDIX 1

CURRENT PROGRAMMES

- Energy Efficiency Commitment (EEC)—this is the existing flagship tool to improve energy efficiency in the housing sector and works by imposing a statutory obligation on energy suppliers to promote energy efficiency measures directed at households.
- Decent Homes—improving the condition of an existing home to one that is warm, weatherproof and with reasonably modern facilities. The Government’s aim is to make all councils and housing associations decent by 2010. It is not intended specifically to improve energy efficiency but, by including a thermal comfort criterion, it is expected to have a significant effect on energy performance of those homes.
- Warm Front—this is the main government grant funded programme for tackling fuel poverty, which was launched in June 2000. The scheme fits packages of measures including insulation and heating systems. Grants are offered up to £2,700 for families and the disabled and a grant of up to £4,000 where the work approved is installation of an oil fired central heating system.
- Energy Performance Certificates (EPCs) required on sale or rent of buildings. This will give potential buyers/tenants information on the current performance of a house and its cost-effective potential, setting out the cost-effective measures relevant to the property.
- Code for Sustainable Homes—The Code for Sustainable Homes has replaced EcoHomes in England from April 2007 and introduces minimum standards for energy and water efficiency at every level of the new national standard. The Code measures the sustainability of a home against key design categories, rating the “whole home” as a complete package. The minimum standards for Code compliance have been set above the requirements of Building Regulations. New homes can achieve a rating on a scale of one to six “Code Levels” depending on the standard achieved.
- Building Regulations—if building work is being carried out on existing buildings, the building regulations are likely to apply. This covers work from building an extension to replacing windows or the boiler. Part L of the building regulations sets standards related to the conservation of fuel and power.

APPENDIX 2

ENERGY SAVING PRODUCTS

There are a wide variety of products on the market to help us save energy in our homes and offices. An important first step when considering energy efficiency in our homes and businesses is establishing our energy usage. By becoming aware of our energy usage, we can look for ways to use it more economically and then move on to find ways of producing and conserving our energy through more environmentally friendly means.

ENERGY MONITORING

The Electrisave is a wireless meter that allows you to see how much electricity your home or office is using. This will enable you to change your habits and therefore reduce your electricity usage and bills by up to 25%.

HEAT PUMPS

When used for heating, heat pumps save energy by extracting heat from an outside source, and delivering it for use within the building. They can be used for any normal heating need.

In heating applications, heat is removed from ambient air, water, soil or bedrock and delivered to where it is needed. In cooling applications, the reverse happens and heat is removed, to be discharged to the ambient air, water, soil or rock.

Heat pumps use a little energy (usually in the form of electricity) to move available energy as heat from A to B. For every unit of energy purchased as electricity, several units of heat are delivered. So, relating the energy purchased to the energy delivered, heat pumps can be 300% or 400% efficient. Heat pumps work by driving a working fluid around a refrigeration circuit containing four elements; an evaporator, compressor, condenser and an expansion valve.

The working fluid changes from liquid to gas (evaporates) as heat is absorbed from the heat source. Later in the cycle, the working fluid condenses to liquid as heat is released to where it is needed.

A heat pump can be used for cooling with the addition of a reversing valve that reverses the direction of the working fluid and so the direction of the heat transfer. The central component of the heat pump is the compressor. This is usually driven by an electric motor, although gas engine driven compressors are also available.

The heat pump source is usually renewable energy from an ambient heat source or waste energy. For example, with a 3:1 performance ratio, for every three units of heat delivered, two units can be from the renewable heat source and one from the electrical power supply. A heat pump, operating on a “green electricity” supply from an accredited renewable source, offers emissions-free heating and then three units of renewable energy would be delivered for every one unit of energy purchased as “green electricity”.

ENVIRONMENTAL

Heat pumps access renewable or waste energy and so displace consumption of conventional fossil fuels (gas, oil, coal). As electricity generation technologies improve, the emissions performance from the combustion of fossil fuels and renewable electricity generating capacity increases, so the greenhouse gas emissions associated with electricity consumption are reducing—making heat pumps even more environmentally beneficial.

Heat pump systems consume energy in moving heat from one place to another. The principal use of energy in a heat pump is to generate the motive power to drive the compressor. The associated emissions depend on the power source driving the compressor. In the UK the heat pump will typically create around 55% of the greenhouse gas emissions from the most energy efficient domestic gas heating system (where the heat pump is providing space and domestic hot water heating). This is a considerable improvement.

SOLAR ENERGY

Solar energy can be captured by solar panels. There are two main types of solar panels which uses complete different technologies to make use of the energy from the sun:

- Solar Water Heating collectors: These panels absorb the energy from the sun and transfer it to heat water.
- Photovoltaic or solar electric panels: These panels transform the solar radiation directly into electricity.

SOLAR WATER HEATING

Solar Power water heating systems are the most popular form of solar energy used in the UK. The system is connected to the hot water system. Solar water heating systems can provide over half of a household’s hot water requirements over the year. There are two types of solar water heating collector: flat plate and evacuated tubes.

Flat Plate Collectors: Solar water heating panels in their simplest form are made from a sheet of metal painted black which absorbs the suns energy. Water is fed through the panel in pipes attached to the metal sheet and picks up the heat in the metal. For the UK climate the pipe work contains non-toxic anti-freeze. The pipes are often made of copper for better conduction. The metal sheet is embedded in an insulated box and covered with glass or clear plastic on the front. The system is usually installed on the roof.

Evacuated Tubes: The evacuated tube system is a series of glass heat tubes grouped together. The tubes are highly insulated, due to a vacuum inside the glass.

The cost of installing a solar hot water system is approximately £500–£1500 for a DIY system and £2000–£5000 for a commercially installed system. These prices however, are dependent on the size of the system. A typical installation in the UK has a panel of 3 m² to 4 m² with a storage tank of 150–200L (2 m² for evacuated tubes). However, the optimum size will depend on actual hot water use.

PHOTOVOLTAIC (SOLAR ELECTRIC)

Photovoltaic (PV) or solar electric can offer us all the ability to generate electricity in a clean, quiet and renewable way. The varieties of applications for solar electric are numerous. Photovoltaic (PV) cells are used in simple applications eg calculators and watches and also for domestic and larger applications. Large PV systems can be integrated into buildings to generate electricity for export to the National grid.

V applications today are more common place than we might expect. Domestic burglar alarm systems are now fitted with PV panels to charge the battery for the system. In Milton Keynes, parking meters are powered by solar panels. Many leisure activities are today turning to PV panels for back up electricity, including TV, lighting in caravans and nautical instruments.

PASSIVE SOLAR

The use of passive solar design is possibly the simplest form of solar energy. Many buildings today are designed to utilise the energy of the sun as efficiently as possible. The location and orientation of the building are all key factors in optimising passive solar design.

Passive solar design can be best applied in new buildings, where the orientation of the building, the size and position of the glazed areas, the density of buildings within an area, and materials used for the remainder of the structure are designed to maximise free solar gains. Designing a property to maximise free solar gain need not add to the price of construction.

Studies on houses in Milton Keynes have shown that low cost passive solar design features and draught proofing and insulating measures reduced heating bills by 40%. Savings paid back the costs in two years.

WIND TURBINES

This renewable source of energy has great potential in both onshore and offshore wind farms. Wind power is one of the cleanest and safest of all the renewable commercial methods of generating electricity. The UK has the largest wind resource in the whole of Europe.

It is possible to produce electricity from wind for as little as 2 pence per kWh, comparing favourably with the cost of electricity from conventional sources. Low cost generation is only possible on the windiest sites. Typically, electricity from wind will cost between 2p/kWh and 10p/kWh depending on scale and location. Overall wind energy projects are simple, clean and cheap to maintain. The land can still be part of the agricultural system and jobs are often created both in the short and long term in the building and maintenance of the turbines.

Wind power produces no pollutants or emissions during operation. A typical wind turbine for electrical generation will repay the energy used in its manufacture in the first six to nine months of its operation. The main area in which wind power impacts upon the environment is in its visual impact. This is one of the most contentious aspects when siting wind farms.

BIOENERGY

Biomass is a fuel from any recently living organism, the form most readily available in the U.K. is chipped wood. This can be from woodland lop and top, purpose grown coppice or green wood residues from sawmills etc., beyond this, the primary source is miscanthus, a large fibrous grass and wood which is produced in a pelletised form.

Using biomass as an energy source creates a “closed carbon cycle”. As a biomass energy source grows CO₂ is absorbed from the atmosphere, when it is burnt the CO₂ stored by the biomass as is released, making biomass fuel “carbon neutral”. Most biomass fuels are clean, containing no noxious metals, chemicals or other pollutants and so will not evoke environmental issues.

Bio Mass boilers are extremely efficient. The boilers have the ability to cleanly burn higher moisture content wood fuels with no loss of efficiency or heat output.

The advantages of Biomass boilers are:

- Clean Burning
 - Clean Air Act exempt appliances
 - High capacity to suit site specific requirements
 - High Efficiency
 - Wide variety of acceptable fuels and grades
-

Memorandum submitted by the Association for the Conservation of Energy

INTRODUCTION

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.

ACE welcomes this inquiry into existing housing stock and climate change. Tackling the existing housing stock is a critical issue as 27% of the UK's carbon emissions come from the domestic sector. This is a big opportunity to reduce carbon emissions and to tackle fuel poverty.

ACE believes that current measures to adapt existing housing have had limited success and that more needs to be done. We will be examining this issue in more detail in our response to the individual questions below. Furthermore, the respective roles of homeowners, central and local government and the energy suppliers need to be rebalanced, as currently a disproportionate burden falls upon the suppliers and, as a consequence of increased fuel bills, upon householders (irrespective of income). ACE recommends that Government follows the examples of other countries, like Germany, and make available greater sums of Government money with which to tackle both its household energy efficiency and fuel poverty obligations.

Heating in the home is by far the largest source of carbon emissions. Space and water heating account for 41% of an average individual's annual carbon emissions, whereas lighting, appliances and cooking together account for under one fifth. It is therefore critical to tackle heating in the home as the top priority. The key issue should be dealing with the fabric of buildings (ie the building itself). Cavity and solid wall insulation, loft insulation, double glazing and boiler replacement should be the first measures implemented while lighting and appliances should be secondary. However this does not always happen as programmes tend to concentrate on the cheapest and easiest measures first.

A "whole house" approach is critical to the delivery of optimal energy efficiency. Currently the way programmes are structured means that households are approached in a piecemeal fashion. Low income homes can even have one measure installed by one programme and another measure installed at a later date by another programme. This type of approach is much more costly and time consuming. ACE advocates a systematic, integrated and coordinated approach in terms of the whole house and in terms of location. Programmes in France and Germany use a whole house approach and the UK could benefit from following their lead.

The housing stock is being increased, not only by new build, but by the subdivision of existing properties. This is increasing the proportion of households living in properties that may not be governed by current Building Regulations. By tackling existing stock an increasing proportion of households will be targeted.

It is vital that the carbon emissions from the existing housing stock are tackled and that all existing homes have sufficient energy efficiency improvements in order to prevent energy waste, reduce heating bills and help the UK reach its carbon emissions reduction targets.

1. How can Improvements be Achieved?

It is clear that existing approaches are not generating sufficient levels of demand from householders to meet UK household energy efficiency targets. In England the average SAP rating is around 54, in Scotland 58 and in Wales 52. ACE believes that fiscal measures can make a significant contribution to delivering the household portion of the Government's climate change targets. It must be a priority of Government to implement further complementary measures, which specifically include fiscal incentives as part of an overall package, in order to encourage consumers to save energy. There has been very slow progress towards introducing any substantial new economic instruments to improve households' energy efficiency—and ACE hopes that this inquiry will add a new impetus to transforming economic incentives. There are insufficient policies and standards that relate to existing buildings in the UK, and these need to be strengthened.

When faced with a UK building stock that is, from an energy efficiency standpoint, in very poor condition, activities targeting the householder (rather than the house, such as via the Energy Efficiency Commitment Priority Group) is effectively pock-marking the stock with improved homes, rendering the remaining stock unchanged and costly to identify and treat in the future. This effect is compounded as EEC effectively forces suppliers to compete with each other to install measures at least cost. This leads to myopic behaviour, precluding a more integrated, systematic stock-based approach, as suppliers are concentrating on reaching their targets with the cheapest approach instead of looking at the wider picture.

To mitigate this risk—and reduce transaction costs associated with the potential for multiple agencies supporting any given household (EEC, Warm Front/Warm Deal/Home Energy Efficiency Scheme, Low Carbon Buildings Programme, Local Authority support)—we strongly recommend area-based co-ordination where possible. In this way those in fuel poverty—as well as the able-to-pay and the entire building stock—can be addressed systematically and at least cost. This co-ordination could be done directly by Home Energy Conservation Authorities (district, borough and unitary councils), or by an external company, working for each HECA council under contract. Local knowledge could then be combined with external money to enable a systematic, targeted approach to improving the local housing stock, an example being the various Healthy Homes programmes being carried out in various forms in Cornwall, Westminster, Kensington and Chelsea, Eastbourne, Lewes and Rother.

An area-based approach can also save time and reduce costs. Some seven million homes have cavity walls that have not been insulated. Many of these houses will be semi-detached or terraced. If a road of houses is tackled together, more can be done in a shorter period, which reduces the costs and complexity of installation.

With regard to EEC, the depth of the loft insulation installed by Government programmes in the 1970s—when most was introduced—is inadequate by modern standards (one to two inches). There is also no guarantee that after 30 years this insulation has not been rendered far less effective by being moved or compressed by storage. ACE supports counting these lofts as effectively “virgin”, as this will help bring these lofts up to modern standards.

Currently energy saving measures are not installed where one more or occupant is ineligible for funding. ACE recommends that this be changed so that all those eligible for funding are reached and are not penalised just because they live with others who do not qualify.

ACE welcomes the Government’s commitment, as set out in the 2007 Budget, that by the end of the next decade all householders will have been offered help to introduce energy efficiency measures with the aim that all homes will have achieved their cost-effective energy efficiency potential. The Budget Report outlines the following programmes and measures in order to achieve this aim: EEC, Warm Front and Decent Homes Programmes, Energy Performance Certificates, improvements to billing information, the roll-out of smart metering and visual display units over the next decade and improved energy advice and information.

However, these programmes and measures as they stand will not be enough to reach this aim. Warm Front and Decent Homes only concentrate on vulnerable groups with the rest of householders not being targeted. In the current phase of EEC, 50% of the energy saving target has to be achieved via measures installed in low income households. In the next phase of the programme—from 2008 to 2011—the Government proposes that the Priority Group should still account for 40% of total energy savings. Meanwhile, the majority of the measures outlined in the Budget revolve around creating greater awareness and information on energy use, but unless these are coupled with actual financial incentives, the take-up of these measures will be minimal. ACE believes that consumers need direct help to install energy saving measures and that there is still considerable scope for the introduction of further fiscal and economic measures. Additional incentives targeting landlords, homeowners and energy suppliers are needed to encourage the uptake of energy improvements to homes.

The Budget announced that from 1 October all new zero-carbon homes will pay no stamp duty or receive a reduction in stamp duty of £15,000. While ACE welcomes this proposal, the number of houses affected will be minimal. We therefore strongly support a stamp duty rebate for house purchasers who make energy efficiency improvements to their home within a set time period, say six months to a year. Owner-occupiers account for 70% of the UK’s householders. Very few of these households are taking steps to improve the energy efficiency performance of their properties. People are most likely to act at the time of selling or purchasing a house, and therefore this behaviour should be incentivised at the appropriate time. A rebate could be readily linked to Energy Performance Certificates.

Currently a reduced rate of VAT to 5% is offered for the supply and installation of certain energy efficient products or materials in non-grant schemes when householders employ contractors. ACE recommends that this should be extended to all measures and that the Government should intensify its calls for a change in EU VAT legislation to allow the reduced rate to apply when householders install the measures themselves. This will prevent discrimination against low income households who are more likely to install energy saving measures themselves than pay someone else to do it.

ACE welcomed the introduction in Budget 2004 of the Landlord’s Energy Saving Allowance, which allows private landlords to claim investment in energy saving materials against profits. We also welcomed the extension of the allowance in the most recent Budget, so that it is now available to landlords per property, rather than per building—ensuring that landlords of smaller properties have access to the full allowance.

However, we recommend that the amount of capital relief should be raised and that the range of technologies for which the allowance is available should be extended to the full range of energy saving technologies. ACE supports a requirement for domestic landlords to make energy performance improvements under landlord and tenant legislation at the termination or surrender of a lease.

ACE also supports a Council Tax rebate for householders installing energy saving measures. This is a way of reaching households who are not moving or taking out a new mortgage. It therefore has the potential to reach more households more quickly than a stamp duty rebate. In conjunction with British Gas, 16 local authorities have already committed to offer one-off rebates to their residents. There is enthusiasm for this scheme among other local authorities.

Homes that meet some sort of sustainability criteria should be eligible for Mortgage Interest Relief. This would effectively be a restoration of mortgage interest relief at source for sustainable homes and could be linked to Energy Performance Certificates and green mortgages. The relief could be given to homeowners when they move house and/or to those who are remortgaging their house but not moving.

ACE supports a Green Mortgage scheme. Three lenders already offer this to encourage their clients to be more energy efficient. However there needs to be a much more concerted effort by the major mortgage lenders to stimulate a serious focus on energy efficiency and environmental issues in general. As noted above, green mortgages can be a route into mortgage interest relief for sustainable homes.

ACE supports a reform of Winter Fuel Payments to create incentives to invest in energy efficiency measures. The relationship between winter fuel payments and energy efficiency should be reviewed and practical ways of ensuring that a growing proportion of the WFP expenditure is invested in energy efficiency should be developed.

Interest-free loans offered to homeowners who install energy efficiency measures in their homes would encourage uptake, especially for the more expensive technologies such as external wall insulation. This has certainly been the experience for SMEs benefiting from similar programmes.

Currently a boiler is only replaced if it breaks and is costly to repair. Many older boilers are inefficient and would benefit from replacement. Incentives such as interest-free loans, reduced VAT or Council Tax discounts need to be in place for replacing obsolete boilers.

2. Existing Housing Performance compared with New Build

There are significant differences between the energy performance of existing housing and new build with older properties generally having a much lower energy performance. In principle buildings constructed since 2006 are typically 40% more energy efficient than those built in 1996, largely due to changes in Building Regulations.³⁸ Over 40% of properties built before 1919 have a SAP rating of less than 41, whereas 60% of properties built since 1990 have SAP ratings above 70.³⁹ If the UK is to reach its target of reducing emissions by 60% by 2050 then the existing housing stock will need to be made much more energy efficient. In 2050, 60% of buildings will still predate the last revision to Part L of Building Regulations, and 40% will predate the introduction of Part L in 1985.

Existing housing stock represents 98–99% of building stock at any one time and new build rates are very low with new buildings adding 1%–1.5% of building stock each year. Although the Government has set a target that all new houses will be zero carbon by 2016, new build will only account for 1% of homes in 2016.

3. Roles of Residents, Homeowners, Landlords, Local Government, Central Government, Energy Industry

There is a need to strike the right balance between all stakeholders. As things stand, the principal policy mechanism to ensure greater energy efficiency in households is the Energy Efficiency Commitment (to be called the Carbon Emissions Reduction Target—CERT—from 2008), which requires energy suppliers to achieve targets for saving energy in the household sector. Furthermore, the Energy Efficiency Commitment—as opposed to the Government-funded Warm Front and Decent Homes Programmes—is the only programme that targets the able-to-pay sector.

In terms of comparative expenditure, the most recent figures show that the annual cost of EEC (borne by energy suppliers and ultimately, via increased fuel bills, the householder) is in the order of £384 million, whereas the Government's latest estimates of the combined cost to them of the Warm Front and Decent Homes Programmes is £450 million per year. In other words, 46% of the total spend on the UK's three principal household energy efficiency programmes is borne by the energy suppliers (and UK householders). This level of private sector expenditure is proportionately higher than anywhere else in Europe. Given that reducing household energy consumption is a public policy aim, surely it is right that proportionately greater sums of public money be spent on delivering it.

³⁸ Royal Institute of Chartered Surveyors, *Transforming Existing Buildings: The Green Challenge Final Report*, March 2007.

³⁹ Department of Communities and Local Government, *Review of Sustainability of Existing Buildings, The Energy Efficiency of Dwellings—Initial Analysis*, November 2006.

3.1 Role of central government

The Home Energy Conservation Act 1995, which came into force on the 1 April 1996, placed a requirement on local housing authorities, to be known as Energy Conservation Authorities (ECAs), to reach a 30% energy efficiency improvement in domestic housing stock over the 15 year period from 1996 to 2011.

The Department of Environment, Food and Rural Affairs has recently published the HECA figures for 2005–06. This reveals that only 41.2% of ECAs have reached their (proportional) target of achieving a 20% improvement in energy efficiency. The majority of ECAs who have not yet reached a 20% improvement will need to improve by more than 2% a year for the next five years in order to reach their 30% target.

Under Section 4(3) of the Sustainable Energy Act 2003 the Secretary of State may exercise a power to give an “energy efficiency direction” to all or some of these authorities. Authorities must then comply with this direction. To date this power has not been used. The use of this power would compel the worst performing authorities to do better. An energy efficiency direction—as well as more financial support for councils, where appropriate—will ensure that more authorities get on track to meet their HECA target by 2011.

Government is not on course to meet its statutory target under the Warm Homes and Energy Conservation Act 2000 to alleviate fuel poverty in vulnerable households by 2010. ACE believes that more funding and resources need to be put into alleviating fuel poverty. ACE has informed the Secretary of State for Environment, Food and Rural Affairs that, if the 2010 target is not met, the Government may be subject to judicial review.

Furthermore, the reporting requirements—on fuel poverty and climate change targets under the Sustainable Energy Act 2003 and on the targets set in the Housing Act under the Climate Change and Sustainable Energy Act 2006—have not been properly carried out by the Government. Under the latter, the Secretary of State is required to publish an annual progress report on achieving the target for the energy efficiency of residential accommodation in England as set out in the Housing Act 2004, namely that by 2010 the general level of energy efficiency of residential accommodation in England has increased by at least 20% compared with the general level of such energy efficiency in 2000. It is vital that these reports are published to order to gauge whether the targets are likely to be met, and if not, what needs to be done in order to meet them.

The largest proportion of applications for planning permission are for residential extensions. The last revisions to Part L of the Building Regulations were originally intended to include a requirement that when an extension was agreed for a building, it would give rise to consequential improvements to the original building in order to minimise its overall carbon footprint. However, immediately before the revisions were announced in September 2005, last-minute changes were made which limited this requirement to larger commercial buildings over 1,000 square metres.

The Government’s draft regulatory impact assessment on these improvements to Part L concluded that introducing such a requirement would be extremely cost-effective and 81% of respondents to the (then ODPM’s) original 2004 consultation agreed with the concept. It has been estimated that improvements forgone could have delivered up to 500,000 tonnes of carbon saving, which would have made up 19% of the residential sector 2010 targets adopted in the 2004 Housing Act. ACE recommends that the 1,000 square metre restriction be removed and that the requirement for consequential improvements should be applicable to all buildings.

The reduction (or abolition) of yet another 1000 square metre threshold would yield substantial further energy savings in the household sector. Under Article 6 of the 2003 Energy Performance of Buildings Directive, all buildings over 1,000 square metres have to be upgraded to meet minimum energy performance requirements whenever they undergo major renovation. ACE strongly welcomes the proposal by the European Commission to “lower significantly” (in 2009) the 1000 square metre threshold to include “the majority of existing buildings”. We have calculated that, if the threshold were abolished completely, the amount of carbon dioxide savings expected to flow from the Directive would roughly double. The abolition of the threshold would mean that the whole of the residential sector would be covered by Article 6. ACE therefore urges the Government to support in the strongest possible terms the Commission’s proposal to reduce the threshold in 2009. Furthermore, we believe that they should be pressing for a complete abolition of the threshold.

There are currently limited policies and standards in the UK that relate to existing buildings, with the majority of emphasis being on new buildings. ACE supports energy refurbishing requirements and requirements for upgrading energy performance when buildings undergo renovation to be included in Building Regulations and planning policy. ACE believes that local planning authorities should be given the power to specify in their local development plans higher energy efficiency standards for new developments—both residential and commercial—than those required by Building Regulations.

3.2 Landlords

The standards of social housing have been raised by the Decent Homes Standard, but privately rented homes have been largely neglected. Although the private rented sector is relatively small, it contains a very high proportion of energy inefficient properties, and improvements to homes rented out by private landlords need to be undertaken.

The main barrier to energy efficiency improvements in the private rented sector is split incentives. A situation where the landlord pays the capital cost of energy efficiency measures and the tenant benefits through lower bills means that landlords currently have no incentive to install efficiency measures as they do not pay the heating bills.

A start has been made to address this with the Landlords Energy Saving Allowance which was introduced to provide an incentive for private landlords to improve the energy efficiency performance of homes that they let. However, this is very little used and only offers up to £1,500 for capital expenditure and only applies to certain technologies. Considering that many technologies can cost significantly more than £1,500, ACE believes that this amount of capital relief is insufficient and should be raised. We also believe that the range of technologies for which the allowance is available should be extended to the full range of energy saving technologies.

3.3 Role of the energy industry

The principal policy mechanism used by the Government to ensure greater energy efficiency in households is the Energy Efficiency Commitment. Currently suppliers are required to choose from a range of measures which means that programmes generally seek to concentrate on the “low hanging fruit”, ie the cheapest and easiest measures. Consequently there is limited scope for these programmes. EEC 1 focused heavily on offering householders compact fluorescent lightbulbs, as lighting presents few barriers and is the most cost-effective measure. Other common energy saving measures are cavity wall insulation and loft insulation as these are also among the cheapest and easiest.

Because programmes focus on the cheapest measures first, they have limited scope. This will soon have to change as upgrading the housing stock will become more expensive once the cheapest measures have been undertaken. There need to be enough resources made available for this eventuality.

Under current installation rates for Warm Front and the EEC Priority Group it would take over 1,000 years to install external insulation in all applicable properties⁴⁰. Ignoring solid wall insulation will only magnify the problem as still more expensive measures will be needed. In light of the number of homes with low SAP levels which have solid walls, it remains vital that the improvements in insulating technology for such walls be monitored, and that this be accompanied by sufficient flexibility to encourage take-up. Solid wall insulation has an important role to play and investment in this will be worthwhile so availability of funding is essential.

The major setback of EEC is that it does not carry out a whole house approach. Because the cheapest measures are carried out first, programmes may then have to return to the same home at a later date to install another measure. This piecemeal approach is costly and time consuming. ACE recommends that a whole house approach be adopted by energy suppliers via incentives.

4. *Energy Performance Certificates*

ACE welcomes the introduction of Energy Performance Certificates. We believe that it is vital that local councils receive the information provided on the energy performance of homes in order to improve knowledge of the state of their housing stock and also to enable them to carry out their statutory obligations more effectively. We do not think it appropriate that certificate information be placed on the public record for use by commercial entities. The EPCs should include information on the benefits homes could enjoy had they received a higher rating. A high energy performance will add value to the property as prospective buyers will be willing to pay more for a home that has low energy bills.⁴¹

5. *Provision of Information for Households and House Buyers including EPCS*

To facilitate behavioural change, householders need accessible, immediate and informative information about their energy use. Smart metering/real time displays can provide this. There needs to be a commitment from Ofgem to a national rollout of meters sufficiently “smart” to allow householders to measure and compare their immediate and historical electricity consumption in monetary, carbon and kWh terms.

Until such time that smart meters are installed widely, informative billing can play an important role. Intelligent, frequent and accurate fuel bills can play a valuable role in encouraging households to reduce their energy consumption.

⁴⁰ Fuel poverty—Mapping the Next Decade, The cost of alleviating fuel poverty in England and in managed housing, Association for the Conservation of Energy, March 2007.

⁴¹ The Desirability of Sustainable Homes Research Study, Sponge Sustainability Network, January 2007.

Article 13 of the Energy End-use & Energy Services Directive requires Governments to ensure that by May 2008 all energy bills are provided frequently, are based on actual, rather than estimated consumption, and are easily comprehensible. The bill should enable consumers to compare their energy use by providing information on past consumption levels as well as compare energy use with comparable premises. These bills must also provide contact details for energy efficiency advice and services. The Department for Business, Enterprise and Regulatory Reform is currently conducting a consultation on energy billing and metering and ACE recommends that there should be full and early implementation of this Directive.

6. Government efforts to Reduce Emissions from existing Housing Stock and Other Programmes including Decent Homes

More than half of fuel poor households live in homes that pass the Decent Homes Standard so in theory they have access to affordable warmth, but in practice they are still fuel poor. The Standard provides very little assurance to housing providers that a home is “fuel poverty proof”. ACE recommends that higher energy efficiency standards need to be incorporated within the Standard and it needs to be re-specified to incorporate more stringent standards of thermal comfort so that more of these homes are captured by it. The same standard should be applicable to Houses in Multiple Occupation as it is to all other areas of the housing stock in England. Risks associated with damp and mould are considered to be much more likely in Houses in Multiple Occupation.

Currently the Thermal Comfort element consists of two main elements: controllable gas, oil, or LPG central heating or electric storage heating and cavity wall insulation and/or loft insulation. The latter recommendation is inadequate. ACE supports cavity wall insulation as well as loft insulation. The acceptable minimum for the loft insulation is set at 50mm which we believe should be raised to 250mm as this is the standard measure used by Warm Front: otherwise these homes will need to be revisited later.

7. Available Technologies for Reducing Emissions and the Government’s Role in facilitating Further Development

There is the potential to reduce consumption from the average household by at least one quarter, using established technologies. Incentives are needed to give these technologies (eg solar water heaters, micro-wind turbines, ground source heat pumps, biomass stoves and boilers and micro-CHP) the boost that they need and to create the economies of scale that will enable them to become more affordable.

Micro-generation and other low carbon technologies have the potential to greatly reduce carbon emissions from homes. However these technologies are expensive to install. The implementation of feed-in tariffs would facilitate and encourage homeowners to install these technologies. This would reduce dependence on electricity from the grid which has a high carbon footprint. Feed-in tariffs were introduced in Germany in 1991. This has been extremely successful and has been responsible for a dramatic increase in growth in their renewable energy market. In five years the quantity of electricity fed into the grid from eligible sources doubled. At present, feed-in regulations for renewable energy exist in over 40 countries, states or provinces internationally.

8. Costs associated, who should meet those Costs (in particular in respect of Low-Income Households), Interaction between Emissions Reductions and Reducing Poverty

Poverty reduction and reducing carbon emissions must be tackled together; it must not be seen as either-or. The imbalance between the proportion of costs falling onto Government and energy suppliers needs to be addressed. Currently a very small proportion of costs fall onto Government—the money it spends on household energy efficiency consists of the Warm Front Programme, the money it gives to local councils for Decent Homes and the money it forgoes by means of VAT reductions and allowances. In contrast, between 2003 and 2007 Government VAT receipts on fuel consumption have increased by £500 million per annum as a result of higher fuel prices. The majority of costs fall on to the energy suppliers, which in turn falls onto the customer via higher fuel bills.

ACE commends the German government programme which makes €2.4 billion euros available each year to stimulate investment in improving existing buildings. In contrast, UK Government spending is low. ACE recommends that more Government funding is made available. As noted above, as a result of the increased fuel prices since 2003, the Treasury is now raising an extra £500 million each year. ACE believes that this money should be spent on energy saving measures and tackling fuel poverty.

ACE is concerned that current policies aimed at reducing fuel poverty are poorly integrated, leading to duplication and unnecessarily high transaction costs. Programmes and standards for reducing fuel poverty and upgrading existing housing stock need to be more coordinated. The eligibility for financial and grant assistance needs to be re assessed, as many households do not qualify.

The Fuel Poverty Advisory Group Fifth Annual Report of 2006 recommended that energy efficiency standards for social housing need to be increased either by an improvement in the Decent Homes Standard or by a duty on landlords to provide minimum SAP ratings by say 2016. The report also identified that Government programmes lack co-ordination and that the responsibility for fuel poverty is dispersed across

many different Government departments. The report recommended that the roles of all Government departments need to be clearly defined and that a significant contribution on fuel poverty could be made by a high profile cross-Departmental commitment.

9. *Challenges in Relation to Housing of Special Architectural and Historical Interest*

There are many barriers to installing energy efficiency in this sector of houses. The fabric of an existing building may present barriers to the adoption of some energy efficiency measures. For example, there are high costs in updating traditional sash windows with double-glazing. Some measures could change the building's appearance which may need to be preserved for listed buildings. However these buildings can not be ignored as historical buildings may be the least efficient.

Memorandum submitted by the Association of Home Information Pack Providers

This memorandum sets out the Association of Home Information Pack Providers' written evidence to the Communities and Local Government Committee inquiry into existing housing stock and climate change.

ASSOCIATION OF HOME INFORMATION PACK PROVIDERS (AHIPP)

AHIPP is a trade association representing the interests of Home Information Pack Providers. We are the representative voice for the Home Information Pack Industry.

One of AHIPP's objectives is to provide assistance to Parliament, the Government and others in the effective introduction and integration of Home Information Packs into the home buying and selling process, and in promoting wider reforms aimed at modernising and improving the efficiency of the process in the interests of all involved.

Our members are principally businesses engaged in the collation, compilation and distribution of Home Information Packs (HIPs) or component parts of HIPs meeting the requirements of the Housing Act 2004 and Regulations made under that Act. AHIPP's membership therefore encompasses a diverse range of businesses that are connected in a variety of ways with the provision of HIPs as a major reform towards an efficient residential property market.

A key component of HIPs is the Energy Performance Certificate (EPC). AHIPP's membership includes businesses involved in training and employing Domestic Energy Assessors and Home Inspectors accredited and registered to undertake EPCs. AHIPP is therefore particularly well placed to provide constructive and knowledgeable input to the Committee's inquiry.

EXECUTIVE SUMMARY

AHIPP welcomes the Committee's timely inquiry and its focus on the energy efficiency of the existing housing stock.

AHIPP's evidence, below, concentrates on two of the topics identified by the Committee: energy performance certificates and the provision of information for households and prospective home buyers.

In summary, in AHIPP's view:

- EPCs are a very valuable tool for providing information about the energy efficiency of existing homes and about cost effective ways of improving the energy efficiency of the property.
- However, there are shortcomings in the present RdSAP methodology.
- EPC's alone are not capable of delivering the improvements in energy efficiency and reductions in CO₂ emissions required of the domestic property sector.
- EPCs need to be supplemented with reliable information about the physical condition of the property. This information is essential to ensure that the benefits of energy efficiency improvements are maximised.
- EPCs and property condition information must be up to date and should be provided at the time when they are most likely to be acted upon, in particular at the point that the property is marketed for sale.
- The contents EPCs must be clear, in plain language and persuasive. Otherwise they will not be acted upon.
- Consumers' awareness, perceptions and expectations need to be better informed;
- Provision of advice in EPCs for improvements must be backed up where appropriate with advice about the availability of grant and loan finance to carry out those improvements.
- EPCs provide a useful mechanism for fiscal and other incentives aimed at encouraging the public to improve the resource efficiency of their homes.

 TOPIC: ENERGY PERFORMANCE CERTIFICATES (EPCs)
EPCs and HIPs

EPCs have been a required component of HIPs for four bedroom and larger homes marketed for sale from 1 August 2007, and for three bedroom homes marketed since 10 September. Experience to date already demonstrates the ability of EPCs to deliver an energy rating using the RDSAP formula and meaningful recommendations for cost effective ways of improving the energy efficiency of existing homes. Inevitably, a small number of teething glitches have occurred but the industry is confident that these will be resolved.

Some concerns have arisen about the accuracy of the energy costs prediction in the EPC. There are a number of assumptions made in the RdSAP methodology and evidence to date suggests that these can sometimes lead to inaccurate predictions. An emerging issue is that most occupiers are fairly well aware of their fuel bills and that an inaccurate energy cost prediction can undermine their trust and confidence in the EPC. The RdSAP methodology is not comprehensive and includes a number of assumptions. For example:

- One of the main factors leading to high energy use is the air tightness of a property and the RdSAP does not include any air pressure test or assessment apart from quantifying the number of open flues. A combination of ill fitting doors and windows and open flues can lead to high levels of heat loss and high energy bills and this will not be accounted for in the EPC.
- When the property has a cavity wall construction and the fill is unknown, the Domestic Energy Assessor will select the “unknown” or “as built” option. The RdSAP software will then relate this to the age of the property and make the assumption that it complies with the building regulations in place at the time of construction. Whilst the type of fill is unlikely to be less than the building regulations’ requirement in some cases it will be of a higher standard.
- Similar issues can arise where the roof space is inaccessible, where double glazing is less effective than assumed by its approximate installation date, and from the assumption that all ground floors are of concrete construction. Also, the assessment is based on average energy usage and thus if the property is occupied by a single person then the actual energy usage and therefore the energy costs will be lower.

Another emerging issue reported by AHIPP members relates to public perception rather than technical problems. The average rating for an existing home is D. This is relatively poor and can come as something of a surprise to owners of well maintained homes who are under the impression that their home is relatively energy efficient. In some cases this may have resulted in the rating and the rest of the EPC being dismissed by the home owner as an inaccurate assessment. It is clear, therefore, that much needs to be done by the Government and other agencies to raise awareness and understanding and to better manage consumer expectations. Put simply, if the public do not understand and accept the information provided by the EPC they will not act on it.

EPCs and fiscal incentives

The EPC would provide a highly effective reference document for use in connection with the processing of applications for grants, loan finance and other forms of assistance with the cost of energy efficiency improvements. In addition to loans available through banks etc and grants available through local authorities and the energy sector, there has been speculation about the introduction of incentives in the form of lower Stamp Duty and reduced council tax for energy efficient homes. Obtaining an EPC and acting on the recommendations contained therein could be an effective precondition of qualification for such incentives.

EPCs for all existing homes

A national audit of the energy efficiency of all existing homes would be of considerable value to central and local policy makers, and to the energy industry. It would provide a definitive snapshot by area and property type, reveal the full extent of measures required to meet targets for reductions in carbon emissions from the domestic sector, and provide a reliable evidence base for decisions on targeting resources both centrally and locally. The EPC could provide a cost effective vehicle for undertaking such an audit.

TOPIC: PROVISION OF INFORMATION FOR HOUSEHOLDS AND PROSPECTIVE HOME BUYERS, INCLUDING EPCs

Information about condition

The information provided in the EPC is not of itself sufficient to ensure that recommended energy efficiency improvements have the desired effect. It is essential that the householder or prospective buyer should have alongside the EPC reliable and objective information about the physical condition of the property. The Committee will appreciate that, for example, the benefits undertaking loft insulation work recommended in an EPC would be negated and expenditure wasted if the roof was defective and leaked.

The Home Condition Report (HCR) is the ideal vehicle for providing reliable information about the condition of the property. The HCR has a standard report format and is designed to identify defects which if left untreated could affect the structural integrity of the property and diminish the benefit of any energy efficiency and other improvements undertaken to the building. All parties to a transaction have a legal right to rely on the HCR, which is produced to National Occupational Standards by qualified Home Inspectors who are members of a Government approved certification scheme.

The Government's original intention was that the EPC and HCR would be provided as a single document. This would enable both the energy and condition inspections to be carried out at a single visit to the property, thereby reducing costs. However, under the present regulations governing HIPs, whereas EPCs are required to be included in HIPs the inclusion of an HCR is entirely voluntary. The result is that in the majority of cases HIPs do not contain an HCR. This is a false economy. For the reasons mentioned above, the absence of an HCR impacts on the value of the advice contained in the EPC.

AHIPP's recommendation to the Committee is that the HCR should be made a mandatory component of the HIP as soon as possible. In addition to existing Home Inspectors, there is a large and rapidly growing workforce of Domestic Energy Assessors ready and keen to take the additional training required to qualify as Home Inspectors. This would provide for a highly competitive HCR market offering consumers genuine choice.

Timing and shelf life of EPCs

EU Directive 2002/91/EC (Energy Performance of Buildings Directive) requires that an EPC should be made available by the seller to the prospective buyer when the property is sold (or by the landlord to the prospective tenant before granting a lease). This is too late. To ensure that the energy efficiency of the property is properly reflected in buying and leasing decisions the EPC must be available at the point of marketing. Potential buyers and tenants can then reflect energy efficiency considerations in their choices between competing properties. This has the benefit of raising energy awareness among buyers and tenants which, in turn, encourages owners and landlords to ensure that the property is energy efficient before offering it for sale or rent. AHIPP congratulates the Government for improving on the Directive and requiring the EPC to be included in the HIP when a home is marketed for sale. It is to be hoped that a similar view will be taken in relation to homes marketed for rent.

Similarly, the Directive provides that the validity of an EPC shall be up to 10 years. In AHIPP's view this period is far too long. The energy rating could have changed markedly as a result of changes made within the property over such a time frame. Moreover, recommendations for improvements may no longer provide best advice. They may be outdated by technological advances. And economic considerations (eg fuel prices) may have changed. To establish and maintain the credibility of EPCs in the mind of the public it is essential that they provide as accurate as possible an assessment at the point they are shown to prospective buyers and tenants, and that the recommendations for improvements are up to date. Otherwise EPCs will fall into disrepute and the public will not act upon them. For homes marketed for sale, AHIPP endorses the view that a fresh EPC should be provided each time the property comes to the market. On average, a home is offered for sale every seven years. For rental property, AHIPP recognises that tenancies may change much more frequently. Even so, in AHIPP's view no EPC should be valid for more than three years.

Information to accompany EPCs

The EPC is, of necessity, a short document. Home owners and prospective buyers or tenants will receive the EPC at the same time as they receive a range of legal and other documentation about the property. A lengthier EPC would risk information overload which in turn could result in the EPC being overlooked and ignored.

However, as mentioned under the previous topic, consumer expectations and awareness of EPCs need to be enhanced and better managed. This needs to be addressed as part of a government/industry information campaign. AHIPP members have suggested that the campaign material should include a chart showing typical energy efficiency ratings for different types of property.

Recommendations for energy efficiency improvements need to be supported by readily available sources of supplementary information and advice on acting on the recommendations and securing finance. Contact details of local energy advice centres and similar sources of authoritative information should be displayed prominently in the EPC and made readily available for distribution through estate agents and others involved in the transaction process.

Further information

This evidence statement is essentially a summary, reflecting the Committee's instruction that submissions should be as brief as possible. If it would assist the Committee, AHIPP stands ready to supply further information in writing or orally.

Memorandum submitted by the Paragon Group of Companies

SUMMARY

1. Paragon welcomes the opportunity to submit evidence to the Communities and Local Government Select Committee's inquiry into the existing housing stock and climate change. This is a timely inquiry given the roll-out of Energy Performance Certificates across the housing market.

2. Paragon is one of the UK's largest providers of Prime buy-to-let (BTL) mortgages to professional and investor landlords. We are the UK's largest lender to professional landlords and the third largest BTL lender with a 10% market share. We launched our first specifically targeted buy-to-let mortgages in 1995 and since then have increasingly specialised in this market. We are a leading member of the Council of Mortgage Lenders and have played a central role in its BTL working group.

3. The key points of our submission are:

- Energy Performance Certificates (EPCs) have the potential to play a valuable role in boosting energy efficiency and reducing carbon dioxide emissions across the housing sector.
- Whilst much of the debate surrounding EPCs has focused primarily on the home sales sector, the certificates will also have a direct impact on the private lettings process.
- It is vital that clear guidance on how EPCs will be introduced into the private rented sector is issued as early as possible.
- Sufficient steps should also be taken to properly publicise to landlords both the EPC regime and the financial incentives already available to landlords who invest in energy saving measures.

OVERVIEW

4. Our comments are focused on the forthcoming implementation of Energy Performance Certificates (EPCs) in the private rented sector—the key Government policy aimed at promoting and delivering greater energy efficiency in this sector—and the Government allowances available to landlords who make energy saving improvements to their properties.

5. Legislation that encourages measures to improve the quality of the UK's housing stock in a proportionate and practical way is to be welcomed. The quality of stock in the private rented sector has been improved in the past by both regulation and deregulation that has encouraged market forces (such as the abolition of rent controls). In some areas, such as energy efficiency, however, additional incentives for landlords may be necessary.

6. EPCs are currently being rolled out as the key element of the Government's Home Information Pack policy, and have the potential to play a valuable role in boosting energy efficiency and reducing carbon dioxide emissions across the housing sector. Energy efficiency is just as important in the rented sector as in the sales sector: 2.8 million dwellings in the UK are in the private rented sector, representing 11% of the total housing stock.

7. All private landlords will be required to provide an EPC for their property, free of charge, to prospective tenants from 1 October 2008. The certificates, which will give rented homes a fridge-style rating of A–G based on their energy efficiency, will be accompanied by recommendation reports outlining steps that could be taken to improve the existing energy efficiency rating.

8. In order for the certificates to make a positive contribution to energy efficiency in the private rented sector, the EPC policy must be implemented in a simple and straightforward way that provides a positive incentive for landlords to improve the energy efficiency of their properties whilst minimising new bureaucracy and costs.

POLICY ISSUES

Guidance

9. It is crucial that there is sufficient lead-in time for landlords, letting agents and local authorities to prepare for the introduction of EPCs into the private rented sector and for Government to adequately promote them.

10. As the experience of implementing Home Information Packs and EPCs in the sales sector has shown, a lack of clarity about how the policy will be implemented, which properties will be affected and at what point, and which individuals will be authorised to provide the necessary documentation, has the potential to cause confusion in the market.

11. For the EPC policy to work in practice in the private rented sector, landlords must be clear about their new obligations. It is vital that guidance on how the EPCs will be introduced into the private lettings process is issued as early as possible. This should be subject to full consultation to allow industry to engage fully and prepare for the legislation effectively.

12. In order to encourage a smooth implementation of the policy in the private rented sector, and to ensure that landlords are fully aware of their obligations, the guidance should cover key issues such as:

- i. the purpose of EPCs;
- ii. information on how landlords can obtain EPCs and the associated recommendation reports;
- iii. how and at what point landlords should provide EPCs to prospective tenants;
- iv. any circumstances in which landlords will not be required to provide an EPC;
- v. how local authorities will be expected to enforce the EPC regime; and
- vi. details of the penalties that will apply if landlords do not comply.

Publicity

13. Public debate surrounding HIPs and EPCs has been focussed on the home buying and selling process. There has been little discussion of the implementation of EPCs in the private rented sector. This is reflected in the very low level of awareness of this reform across the sector.

14. Where other regulatory reforms affecting the private rented sector were not publicised as effectively or widely as they might have been—such as, for example, the introduction of tenancy deposit schemes—landlords have been unaware of their responsibilities and as a consequence have been late adapting to regulatory change.

15. It is therefore imperative that sufficient steps are taken at an early stage to publicise the EPC regime. This will be vital to ensure that both landlords and local authorities are fully aware of their obligations, which will in turn help the new regime come into force smoothly.

Incentivising Landlords

16. Information about the energy efficiency of private rented properties will be useful to prospective tenants, particularly given the link to potential fuel bills, but it is questionable whether this information will be considered as important as factors such as the location of the property, its size and proximity to transport links. Furthermore, while landlords are required to pay for improvements to their property to boost their EPC ratings, it is the tenant that ultimately benefits in the form of lower heating bills. Consequently, the introduction of EPCs may themselves only have a limited impact on improving energy efficiency.

17. Ensuring that adequate incentives are in place to encourage landlords to carry out the improvements specified in their EPC recommendation reports will therefore be critical for the policy to succeed in improving energy efficiency in the private rented sector. The most appropriate way of incentivising landlords to improve the energy efficiency of their properties is for the Department for Communities and Local Government to work closely with HM Treasury to publicise the new EPC requirements and the existing Landlords Energy Savings Allowance (LESA) in tandem.

18. The LESA provides landlords with an allowance of up to £1,500 per property to acquire and install particular energy savings measures, including cavity wall and loft insulation, solid wall insulation, hot water system insulation, draught proofing, and floor insulation. We would urge the Committee to consider what steps the Government could take to jointly promote the EPC and LESA, and also whether there is a case for increasing the LESA allowance to provide a greater incentive for landlords to undertake energy efficiency improvements.

19. Any failure to promote the EPC and LESA together would be a significant missed opportunity to incentivise landlords and improve the energy efficiency of the private rented sector. Conversely, if landlords are incentivised to improve the energy efficiency of their properties through a broadened awareness of the LESA, they may in time come to view the EPC as a tool with which to market to tenants the improvements they have undertaken. A joined-up approach in this policy area encompassing both the DCLG and HMT could stimulate genuine energy efficiency improvements across the private rented sector.

CONCLUSION

20. EPCs will only be judged a success in the private rented sector if their introduction encourages more landlords to improve the energy efficiency of their properties.

21. Sufficient steps must be taken by Government, working together with industry bodies, to raise awareness amongst the landlord community about the impending reform well in advance of the implementation date. Publicity—of both the introduction of EPCs and the existing financial incentives available to landlords to upgrade their properties—will be crucial in this regard.

22. The policy has the potential, if implemented appropriately and proportionately, to make a real contribution to improving energy efficiency in the private rented sector. Paragon looks forward to engaging further with the DCLG as it takes forward guidance and policy implementation in this important area.

Memorandum submitted by the Council of Mortgage Lenders

INTRODUCTION

1. The Council of Mortgage Lenders (CML) welcomes the opportunity to make a submission to the Committee in response to the inquiry into existing housing and climate change. The CML is the representative trade association for the residential mortgage lending industry. Our 161 members currently account for around 98% of the UK residential mortgage market.

GENERAL

2. The CML is committed to various measures to reduce carbon emissions and has recently signed up to the Trade Association Forum's Declaration on Climate Change. This Declaration can be viewed at <http://www.cml.org.uk/cml/media/press/1176>.

3. We are not experts on the performance of buildings or their contribution to climate change. However, it is generally understood that existing housing stock is making a very significant contribution to CO₂ emissions. Our comments in this submission are limited to our views on energy performance certificates and green financing.

ENERGY PERFORMANCE CERTIFICATES (EPCs)

4. The CML is supportive of the concept of EPCs. However, providing an energy performance certificate with a home information pack does not guarantee householders will actually take energy-saving measures. While EPCs are a good first step, unless householders act on the information they contain they will not improve energy efficiency and reduce carbon emissions as the government suggests. It will be important to get feedback from the HIPs roll-out as to what action either sellers or buyers take as a result of receiving an EPC.

5. Our view is that EPCs should be much more widely available to homeowners at all points during their homeownership. We believe householders are more likely to take action to improve their properties while they are living in the property and will be able to benefit from the savings than at the point of sale when there are other things that they would prefer to spend their money on.

6. In addition, delivering EPCs through HIPs means it will take more than 13 years before all homeowners have received one. Yet delivering EPCs is the government's main rationale for pressing on with HIPs. We believe the Committee should reflect whether EPCs could be delivered more quickly and more universally in a different way. We believe that a possible solution would be for HIPs providers to market a de-coupled EPC product that would enable home-owners to access both the current rating of their dwelling and the cost effective improvements report that could guide their investment at any time throughout their ownership of the property.

DELIVERING ENERGY EFFICIENCY AND GREEN MORTGAGES

7. The Committee has not specifically mentioned green mortgages as part of its inquiry. However, this is often mentioned as a way of helping to deliver energy efficiency. While the government is keen to encourage the provision of more "green mortgages", it has yet to define what it means. We are willing to explore the possibilities but there are no standard definitions badged in this way, and only four lenders currently offer the product. Several of these are carbon offsetting arrangements rather than encouraging energy efficiency measures in the home. Consumer demand for green finance products is currently small. The Energy Efficiency Partnership for Homes (EEPH) has attempted to give a standard definition of a "green" mortgage. This can be viewed on their website <http://www.eeph.org.uk>

8. A report in 2005 from the Centre for Sustainable Energy "Making mortgages energy efficient" considered whether financial incentives combined with an energy efficiency report would encourage home owners to be more energy efficient. The report concluded that:

"We are faced with an indifferent home-buyer and a mortgage market unconvinced by the commercial potential of promoting sustainable energy use in their products. Changing this will require concerted effort to tackle this consumer indifference and to bring to the market competitively priced mainstream mortgage products which make it simple and enticing for the home-buyer to take action to improve sustainable energy use."

9. The report also reviewed take up in a number of countries where "green" products were available and found that take up was poor.

10. We do not believe that "green" mortgages are necessarily the best way to finance energy efficiency in the home. For example, some energy efficiency measures such as loft insulation or cavity wall insulation are relatively low cost, and it would not always be cost efficient to spread the cost of this over the term of a

mortgage; other financing might be more appropriate. EEPH hosted a seminar last year which explored some of the drivers for “green” mortgages and barriers to the take up of them. A report on this seminar can also be viewed on the EEPH website.

11. We believe other incentives may be more effective to encourage people to make energy efficiency improvements, including council tax rebates, fiscal incentives such as government grants for energy efficient technologies and removing/reducing the VAT on materials and labour and/or giving tax relief for home improvement loans. We believe this, combined with readily available energy performance certificates (EPCs) at all points during homeownership, is much more likely to achieve the policy aims that the government desires than development of “green” mortgages.

FURTHER CONTACT

12. This response has been prepared by the CML in consultation with its members.

Memorandum submitted by the National Right to Fuel Campaign

1. The National Right to Fuel Campaign welcomes the opportunity to submit comments to this Inquiry. NRFC was established in 1975 with a key objective to end fuel poverty by securing a warm, dry, well-lit home for all, regardless of income and location, and has taken a leading role in putting fuel poverty high on the political agenda. The Campaign has a membership comprising voluntary organisations, local authorities, trade unions, individuals, academics and professionals in housing, social welfare and environmental health.

2. The National Right to Fuel Campaign response must be set in the context of:

- concern that the climate change agenda pushes the issues of fuel poverty down the government agenda and subsequently increases inequalities in living standards;
- a reverse in the declining numbers of households in fuel poverty, due to the rise in domestic fuel prices over recent years;
- a lack of government response to this reverse in the recent Energy White Paper;
- the unlikelihood of the government achieving the targets set out in the Fuel Poverty Strategy; and
- recent suggestions that the budget for Warm Front may be cut.

3. Related to the above, perhaps we can express disappointment at recent progress, low levels of investment to meet the Fuel Poverty Strategy objectives and future likelihood for these for the eradication of fuel poverty.

4. The NRFC welcomes this opportunity to raise the very real housing problems for low-income and often fuel-poor households within the context of climate change and the government response. Our response addresses only points where fuel poverty should be addressed within a climate change agenda.

Background

5. The government set out its targets for the eradication of fuel poverty in its 2001 UK Fuel Poverty Strategy; vulnerable households were to be removed from fuel poverty by 2010 and all households by 2016. The three key elements in providing affordable warmth are efficient and economic heating systems and effective thermal insulation, affordable energy costs and adequate household incomes for those who are economically inactive or otherwise financially disadvantaged.

6. Improvements across all of these areas, but especially increased income measures and lower fuel prices, meant that progress was being made and numbers of households in fuel poverty in England reduced from 4.3 million households in 1996 to 1.2 million households in 2004. Over the three years, 2004–07 domestic energy prices rose dramatically.

7. Research by the National Right to Fuel Campaign and NEA, showed that, with increased fuel prices, there were likely to be between 1.1 and 2.1 million households in fuel poverty by 2009, assuming no reductions to the measures being used to address the problems of fuel poverty⁴². The 2007 Energy White Paper⁴³ showed that there are currently some 2.5 million fuel-poor households in England and that, even on the most optimistic assumptions about future energy price movements, the Government cannot achieve its 2016 fuel poverty target.

8. The serious impact of rising fuel prices on numbers of households in fuel poverty indicates that there has not been enough investment in improving domestic energy efficiency standards, ie “fuel poverty proofing” the homes of low-income groups so they are safeguarded against rising fuel prices. We consider that the government is being over-optimistic in its assumptions regarding the future price of fuel and,

⁴² The Fall and Rise of Fuel Prices and Fuel Poverty, NRFC/NEA, July 2005

⁴³ Meeting the Energy Challenge, DTI, May 2007

therefore, there is a very urgent need to address housing standards through considerable levels of investment and stronger regulation on housing standards, both to reduce carbon and greenhouse gas emissions and to eradicate fuel poverty whatever climate change threatens.

The scale of the problem

9. NRFC members have frequently raised the issue of the definition of household income in quantifying fuel poverty as we are concerned that the current definition underestimates the numbers of fuel-poor households. The current government definition is that total fuel costs of more than 10% of income on fuel to ensure a warm and healthy living environment indicates that a household is in fuel poverty.

10. The exclusion of housing costs (rents and mortgage interest payments) from household income has a profound effect on the distribution of fuel poverty. Removing housing costs before assessing the percentage spend on fuel would have an equalising effect on household income and provide a more accurate number and distribution of households in fuel poverty. This would provide the government with a more realistic picture of the problem that needs to be tackled and improve targeting to reach households in fuel poverty.

11. Using 13% of income excluding housing costs gives roughly the same number of fuel poor as 10% of income including housing costs, but a significantly different distribution of households in fuel poverty in terms of tenure, household type and regional location. Consequently, the Fuel Poverty Strategy is, to a large extent, not aimed at those most in need. We consider that the inclusion of basic housing costs in income, costs which cannot be spent on fuel, means a fundamentally flawed definition and one difficult for the government to defend.

12. We are concerned that rising house prices have significantly raised housing costs and, therefore, increased the need to reconsider the issue and the revision of the fuel poverty definition. We consider that addressing the issue of housing costs in the definition of fuel poverty would enable government to have a better picture of the size and distribution of the problem which needs to be addressed.

Existing housing compared to new build

13. The National Right to Fuel Campaign has been consistently disappointed in levels of investment, and cohesive programmes, for improving energy efficiency standards in existing housing targeted on low income households.

14. The mere numbers of existing homes against those being replaced and new build indicates that the focus of government attention now needs to be on existing housing. From BRE analysis, in the English House Condition Survey, there are clear statistical links between housing age, its energy efficiency and the incidence of fuel poverty, with fuel poor households more likely to live in older energy inefficient housing. For example, a particular group of concern in this context are the elderly who may be still living in a large family home but on a reduced income.

15. Building regulations covering energy efficiency standards relate to new build and there are standards for local authorities and social landlords for housing refurbishment, there are no targets for energy efficiency improvements in the private sector. There are targets for Decent Homes for vulnerable private sector households albeit no specific resources to meet the objective. The effect of this is that there is very limited public support for low-income households living in energy inefficient housing to improve their situation.

16. In the private rented sector, the Housing Health and Safety Rating System and the Houses in Multiple Occupation Legislation provide a regulatory framework but, as this covers several aspects of housing condition, still need further development to assess their effectiveness, in terms of the improvement to the energy efficiency of the building. This element needs to be strengthened and would support the points in the response from the Fuel Poverty Advisory Group that on the refusal by a landlord of Warm Front or Energy Efficiency Commitment grant, resources should be available for an HHSRS inspection to take place automatically.

17. An example of regulation which can be compared with the levels of regulation needed for the housing stock is that covering car maintenance, with regular MOTs as a legal requirement to assess road worthiness.

Respective roles of residents, homeowners, landlords, local government, central government and the energy industry

18. Central government has to show a strong lead in both fuel poverty eradication and climate change mitigation. NRFC does not think it has been strong enough in the fuel poverty field and has serious concerns about its ability to put in place adequate regulation for future scenarios.

19. As mentioned above, we would like to see housing standards regulations strengthen to address energy efficiency issues, especially in the private rented sector where fuel poverty is endemic. Current regulation of this sector is currently inadequate to ensure decent housing standards for tenants, let alone energy efficient accommodation.

20. While the government has made effective use of contributions from the fuel suppliers, it has, to some extent, used this as a substitute for investment and support from the public purse. Our concern, if this source of funding was to be extended to include both fuel poverty and climate change mitigation measures and along with other fuel poverty groups, is that the levy on fuel is effectively a flat rate tax on all consumers, regardless of income, ie a regressive tax impacting on low-income consumers to a greater extent than others. We believe that the government should look to fund programmes in these areas from public taxation which is a fairer way of raising funds.

21. To date, the approach to energy efficiency improvements has been unco-ordinated, resulting in poor targeting, duplication of effort by different programmes and failing to reach some fuel-poor groups. We support calls to increase the role of local authorities in co-ordinating programmes to eradicate fuel poverty, and address the problems of climate change. There has long been a call for local authorities to have statutory targets for the eradication of fuel poverty as they have a cross cutting role for their local populations and have the benefit of a local knowledge base.

22. We would highlight, again, the particular problems for low-income households, that they have no capacity to carry out any energy efficiency improvements to their homes (even the purchase of low energy light bulbs may be beyond their means as they do not have sufficient spare resources to invest to save later). Furthermore, in many cases, low-income households have a small carbon footprint because they cannot afford to heat or light their homes adequately or to make use of other energy services to the extent that higher income households do. For this group, central government must maintain and improve on current programmes for improving energy efficiency.

23. Although not directly related to this inquiry into housing, the appalling inefficiencies of energy utility infrastructure provision need to be addressed and the energy utility companies need to solve the technical problems of distributing electrical power from distributed generators.

Government efforts to reduce carbon emissions from existing housing stock

24. The government sets a SAP rating of 65 as being the level at which fuel poverty is generally unlikely. The Warm Front scheme has this target where feasible. However, where there are problems other than lack of, or poor, heating and insulation, co-ordination with other agencies, such as local authorities, needs to be made to undertake a more comprehensive approach to the improvement of housing stock.

25. A problem which reduces the effectiveness of Warm Front in helping its potential clients is the demand for a client contribution where the maximum grant is insufficient. NRFC does not think any household which qualifies for Warm Front should be asked for additional funding, as the reason they qualify is that they are on a low income and therefore have limited resources.

26. Members of the Campaign have had cases where the funds being demanded range from a few hundred to over two thousand pounds. A quick analysis of the figures from Eaga Partnership, the scheme managers, showed that while the overall percentage of households needing to find additional money was around 5%, where central heating was being installed the percentage of cases needing top up was about 32%. These are the households with the coldest conditions if they need central heating and this is a very high percentage of these cases.

27. Improving co-ordination with other programmes, including non energy efficiency improvement programmes such as Care and Repair, could go a long way to solving this problem.

28. The threat to reduce funding for Warm Front is a great concern to NRFC members, especially as there does not appear to be additional long-term funding proposed for any other fuel poverty initiatives. The Pre-Budget Report 2006 allocated a sum of £7.5 million to develop area-based initiatives but it was for the current financial year only with very short deadlines for submission and no further funding to support the schemes. It takes considerable input from all partners over a long period of time to establish effective joint initiatives and this funding did not seem to recognise that.

29. The Warm Zones approach works along more comprehensive lines and needs to be strengthened. Currently, addressing solely fuel poverty issues, we would support the points in the NEA response that it could be broadened to incorporate climate change initiatives.

30. As mentioned above, the various standards relating to housing conditions need more effective implementation and, in relation to the private rented sector, greater powers for local authorities to ensure decent, energy efficient housing for tenants. It is worth noting that with the recent increase in “buy to rent”, the scale of this problem is likely to increase.

Technologies to reduce emissions

31. While some of the technologies available to reduce emission are currently developed enough for use on social housing, such as CHP, we are very concerned that funding for further development may reduce funding available for fuel poverty programmes. As stated in our opening points, we are seriously concerned about increasing inequalities in housing standards. The balance of finance between technical fixes and the eradication of fuel poverty must be weighted in favour of the latter.

32. There is considerable evidence to show that improving energy efficiency throughout the housing stock can be effective in reducing carbon and greenhouse emissions. This route has the effect of reducing fuel bills and is therefore more appropriate for low-income households.

33. However, two groups of housing may need special attention. Homes not connected to the gas network have expensive energy needs, using electricity, bottled gas, oil or other sources of energy. Where possible, developments to extend the gas network are appropriate. However, in some situations, they may benefit from installation of other zero or low emission technology.

34. The other group is housing referred to as “hard to heat” which results from the building construction. In many cases, the building is of a solid wall construction which loses heat rapidly but which is difficult and expensive to insulate. Further developments in low emission technology or advances in insulation techniques, such as external wall insulation, may be needed for these situations.

Costs associated with reducing carbon emissions from existing housing

35. We have referred on several occasions to our concerns about adequate funding for improving the energy efficiency across the housing stock, and not just improving the standards for new build.

36. To ensure an equitable approach to this funding, the government needs to use central funds raised through the general tax system. Its extensive use to date of money raised by a levy on domestic energy consumers is a regressive tax on low-income households.

37. We have also referred to the scale of the problem of fuel poverty, with increased fuel prices and housing costs which limit the scope of low-income households to invest in energy efficiency improvements. Improved targeting and co-ordination of area-based approaches need to be established to ensure that the government reaches its target of the eradication of fuel poverty by 2016.

Memorandum submitted by Beama Ltd

1. ABOUT BEAMA

1.1 Beama Ltd. represents over 300 manufacturing companies primarily from the electrical industry. The range of manufacturing activities includes high voltage equipment (transmission and distribution), low voltage building services equipment (heating, ventilation and lighting) and installation equipment (switches, sockets and cable management products).

1.2 The comments in this memorandum relate primarily to the heating and ventilation, controls and metering sectors.

2. INTRODUCTION

2.1 Beama welcomes this enquiry into the reduction of carbon emissions from the existing UK housing stock and agree that this is a critical area for Government to address. We also welcome the opportunity that this provides for industry to work closely with Government to develop and instigate practical solutions.

2.2 While the move to zero carbon homes in new build might considerably change the nature of how such homes are heated, it is important to recognise that millions of existing homes will continue to utilise conventional heating systems with boilers and radiators far beyond 2016.

2.3 Beama is keen to ensure that Advanced Controls and Smart Metering are recognised as important elements in reducing the climate change impact of existing homes. They can deliver energy savings in their own right, but they also make possible a three-way interaction between householders, the energy using systems and appliances in their homes, and the supply of that energy by utilities or local generation. It is this interaction that will allow householders to make the most efficient use of energy in their homes.

3. CONTEXTUAL FACTORS

3.1 We have identified three key contextual factors that will need to be fully considered within strategic approaches to improve the efficiency of existing homes:

- 3.1.1 Existing homes with uninsulated lofts and unfilled cavity walls should generally have these insulated first as these will usually provide significant and cost-effective carbon savings. From a strategic perspective though, it should be expected that CERT will largely tackle these measures⁴⁴, and greater efforts are therefore required to identify and support other

⁴⁴ For example, CERT is targeting three million cavity wall insulation measures between 2008 and 2011 which is assessed to be the limit of potential capacity within the supply chain. It estimates that the total practical potential for cavity wall insulation in 2008 will be just over five million. Increasingly, efforts in this area will need to address customers who are hard to reach or properties that are hard to treat thus reducing the cost effectiveness as a policy approach.

technologies that can achieve cost effective carbon savings. Beama strongly believe that there is untapped potential for heating controls to provide significant carbon savings as discretionary measures for occupiers of existing homes. Also there is good evidence that smart metering leads to significant reductions in energy usage.

- 3.1.2 Even when insulated, most existing homes will still have a substantial energy demand that is unlikely to be largely met through renewable technologies in the foreseeable future. While it is likely that there will be an increasing range of technologies available to reduce the carbon emissions of these homes, we fully expect that the key need will be to integrate these technologies with the main heating, hot water and energy supply systems and therefore to optimise the savings that they deliver. For example:
- A new condensing boiler that is fitted into a radiator and pipework system that was designed to heat the property when it was less well-insulated, and is therefore over-sized for the current heating load.
 - A solar thermal system that has to work with the existing hot water system.
 - Electricity supplied by a community wind turbine that has to merge with the existing electricity supply of individual houses.

In order for the impact of these, and other, technologies to be optimised it will be essential to ensure that there is an adequate focus on the role and development of advanced controls and smart metering.

- 3.1.3 There is an increasing focus from Government on the role that citizens need to play in combating climate change⁴⁵. A low carbon economy will require “environmental citizens” who choose to use energy in a sustainable manner, and who may have personal carbon allowances to use at their discretion. It will be reasonable to expect that citizens will not only have an important part to play in specifying low carbon technologies for their homes, but will also expect to be able to get information from and interact with those technologies. These needs can be met through the development of advanced controls and smart metering, and this must be given emphasis in the forward planning for other customer engagement mechanisms such as Energy Performance Certificates so that householders can see the consistency between information on paper, on the web, and in their homes.

4. ADVANCED CONTROLS

4.1 More than 80% of home energy use is for heating and hot water⁴⁶, but many existing homes only have basic controls, and the vast majority of these do not meet the standards defined in the current building regulations. (It is also questionable whether new boilers installed in existing properties are currently receiving the upgrade in controls that the 2005 building regulations require. Any issues of compliance should also be a high priority within a strategy for existing homes.)

4.2 The implication of basic controls is that the heating and hot water system will not operate efficiently and the occupants will not have the flexibility to improve that efficiency even if they want to. Even where modern, more inherently efficient boilers are installed their energy use can be compromised by the control system. In addition, further efficiency improvements in heating and hot water systems are unlikely to come from improvements in boiler technology but from improvements in controls.

4.3 The definition of advanced controls covers current control technologies that are rarely applied by installers (eg zone control, weather compensation), as well as emerging technologies such as chrono-proportional electronic thermostats that can provide much closer control of room temperatures and that interact with modern boilers to improve their operating efficiency.

5. SMART METERS

5.1 Smart metering is designed to provide utility customers information on a real time basis about their domestic energy consumption. This information includes data on how much gas and electricity they are consuming, how much it is costing them and what impact their consumption is having on greenhouse gas emissions.

5.2 Long term testing has shown that the installation of a smart meter can lead to a reduction in energy use of 5–10% through behavioural changes. However, they also have the potential to motivate (or confirm) improvements through better billing information and also to manage the electricity demand from homes in response to supply conditions, for example by getting customers to reduce their consumption at critical times or in response to market prices. All of these will be key elements in reducing energy use within existing homes.

⁴⁵ For example “Climate Change: the ‘citizen’s agenda’” by the House of Commons Environment, Food and Rural Affairs Committee.

⁴⁶ Source www.directgov.co.uk.

5.3 The 2007 Energy White Paper made it a requirement for new meters to come with a real-time display from 2008, with Government expecting everyone to have a smart meter within 10 years. In determining overall policy for existing homes it is important that this opportunity is fully accounted for.

6. THE ROLE THAT BEAMA CAN PLAY

6.1 The membership of Beama covers manufacturers of metering and controls, as well as the producers of a range of network solutions and domestic energy using equipment including lighting, ventilation and heat pumps. We also have strong links with other trade bodies involved in the domestic sector such as boiler and appliance manufacturers.

6.2 Not only are we working to support the development and integration of smart metering and advanced controls, we are also actively developing, with members and other key players, a vision of the future for housing. This will look in depth at the technologies required to achieve a more energy efficient housing stock and the part that industry can play to make this happen. This is a proactive step to support Government initiatives in this respect and demonstrates that industry can play a key positive role in reducing UK carbon emissions.

6.3 We would also be willing to help facilitate the development of a simpler and more transparent communications framework between Government and industry to input into policy and regulatory developments. Our experience at the moment is that there is a wide range of groups with similar agendas and overlapping membership, and that a re-evaluation of these groups and their remit could provide a quicker and more effective path to robust solutions.

7. SUPPORT FROM GOVERNMENT

7.1 Our members are not resistant to change, and see the benefits to them of the increasing focus on the efficient use of energy. But in common with all industry they do dislike uncertainty, and their willingness to embrace this agenda will be enhanced where Government defines long-term strategies with clear signals of changes that will be made in the policy and regulatory framework.

7.2 Beama would like to see Part L of the Building Regulations utilised and enforced effectively within existing homes to ensure that all new and replacement heating systems installed work to maximum efficiency. This would include:

- Specification of advanced control systems for all boilers installed into existing properties.
- A requirement for chemical water treatment when new boilers are installed, particularly into existing pipework systems. The use of “domestic central heating cleaners” are currently considered “good practice” but given that independent testing has shown a 6.4% reduction in boiler efficiency without chemical treatment in only three weeks of operation, there is a clear impact on carbon emissions.

7.3 Support for companies willing to invest in new technologies, or for consumers to stimulate market transformation are also welcome interventions. In addition, we believe that a large-scale research programme looking at the actual behaviour of people in existing homes would be of great value to quantify the case for prioritising savings through improved control systems. At present, estimates of savings achievable assume that customers behave in a rational manner in the operation of their heating and hot water, whereas small scale studies and anecdotal evidence suggests that periods of use, and settings for “comfort” temperatures are far in excess of those assumptions. We believe that such a study would not only provide invaluable data for the development and communication of advanced controls, but may also accelerate the need to focus on improving heating controls by highlighting an even greater potential for carbon savings than is currently assumed.

Memorandum submitted by the Council for British Archaeology

The Council for British Archaeology is an educational charity working throughout the UK to involve people in archaeology and to promote appreciation and care of the historic environment for the benefit of present and future generations. CBA has a statutory role as one of the national amenity societies consulted on listed building proposals. We have a membership of 620 heritage organisations and c.10,000 directly subscribing individuals of all ages. Our institutional members represent national, regional and local bodies encompassing state, local government, professional, academic, museum and voluntary sectors.

The Council for British Archaeology welcomes the Committee’s initiative to consider the contribution which the existing housing stock makes to UK carbon emission, given the very significant proportion of emissions that originate from domestic properties. As an environmental organisation, we are very conscious of the carbon footprint of our own offices, a listed Victorian town house in York, and have introduced measures to improve its energy efficiency. Given our wider role as a national amenity society, we are also acutely aware of the specific challenges that climate change presents in terms of introducing effective measures for adapting pre-war housing in general and historic buildings of special architectural or historical

interest in particular. After our conference at the British Academy in July on “foresight for climate change”, we have now launched our web pages on climate change and the historic environment (see <http://www.britarch.ac.uk/conserved/climatehome.html>) to bring together information for our members and the thousands of interested people who access our website.

CBA believes a substantial reduction in carbon emissions is crucial to slowing down the pace of global warming but also that it is important not to lose sight of the fact the historic housing stock of the pre-war period represents significant environmental capital in its own right. One of the biggest potential risks, in our view, may be the rush to try and reduce the carbon footprint of older buildings, particularly the large proportion of Victorian terraced housing that makes up the core of many of our nineteenth century and earlier historic towns, without a solid evidence-base about the construction and performance of older buildings.

The Government’s Review of Sustainability of Buildings in 2006 uses an assessment formula (the SAP or Standard Assessment Procedure) which is based on the fuel efficiency of heating systems and thermal efficiency of building fabric. According to this measure, older buildings apparently have poor energy efficiency. A formulaic approach which takes into account only a limited number of aspects could encourage a perception that “old” buildings are in need of radical alteration or even demolition while in reality the SAP rating is misleading and these buildings offer many additional environmental benefits. They contribute an enormous quality in visual context, distinctive local style and layout to a community’s identity and sense of place and are particularly valued by people for this reason. They can be improved in sympathetic and sustainable ways and should not be regarded as a “problem” legacy.

We would like to encourage a 360 degree approach to looking at our existing building stock and research into the real value of older houses for sustainable living. This would take into account the energy already invested in the construction and manufacture of the fabric of these buildings, the impacts of demolition and renewal including pollution, landfill, and transport. Better understanding is also needed of the performance of traditional building types, such as high density terraced housing, and the lessons we can learn from historic building techniques and materials (for a variety of vernacular materials such as flint, cob, thatch and timber, as well as brick, masonry and concrete). Perhaps most urgently, we need to promote effective and sympathetic ways to improve energy efficiency in older properties. For example, the environmental impacts of production of uPVC replacement windows, as opposed to timber casements produced from sustainably managed woodland, are not widely appreciated; nor indeed the environmental consequences of disposing of uPVC units when they fail, commonly after 30–40 years, unlike timber casements which if maintained will last far longer. Yet the choice of uPVC double glazing is an immediate response from many house owners to the need to improve insulation.

We welcome the guidance being produced on this and related topics by English Heritage and others to encourage responsible alterations and improvements in historic buildings to make them more energy efficient. Communicating strong messages about good environmental practice to citizens is a critical part of the action on climate change from national and local government in the UK. We would like to see encouragement for local authorities to adopt guidance on adaptation for older properties which is well-informed and backed by a sound evidence-base for good practice. There is an urgent need for research to underpin this, through bodies such as the Building Research Establishment and English Heritage, in the research establishments of our universities, and through the construction industry itself.

Memorandum submitted by the Office of Gas and Electricity Markets (Ofgem)

INTRODUCTION

1. Ofgem is the regulator of the gas and electricity industries in Britain. Our principal objective is to protect the interests of present and future gas and electricity consumers. We do this by promoting competition, wherever appropriate, and regulating the monopoly companies which run the gas and electricity networks. Other priorities include helping to secure Britain’s energy supplies and contributing to the drive to curb climate change. Our work on sustainability includes helping the gas and electricity sectors to achieve environmental improvements as efficiently as possible and taking account of the needs of vulnerable customers: particularly older people, those with disabilities and those on low incomes.

2. Ofgem welcomes the Committee’s inquiry into the UK’s existing housing stock and climate change. Improving Britain’s domestic housing stock has an important role to play in combating climate change and fuel poverty and reducing the UK’s carbon emissions. This will be achieved through improving the energy efficiency of the existing housing stock and encouraging the take up of new technologies such as smart meters and microgeneration. These measures give customers more knowledge and control over their energy use and household scale generation lets customers produce their own renewable energy.

3. Ofgem has responded positively to the growing environmental and social issues that affect the energy sector. Ofgem has a clear role in helping deliver greater energy efficiency by breaking down barriers, for example, to the development of smarter metering and helping to remove obstacles to progress in microgeneration. We are also committed to helping the Government tackle fuel poverty.

ENERGY EFFICIENCY

4. Ofgem will administer the Carbon Emissions Reduction Target (CERT), previously the Energy Efficiency Commitment (EEC2). This is the Government's main policy instrument for reducing carbon emissions from existing households. CERT is due to run from 2008–2011. Under CERT suppliers will be set a specific emissions reduction target. Using less energy was highlighted in the Government's Energy White Paper as being a cost effective way of achieving cuts in carbon emissions. Under CERT at least 40% of the activity should be targets at certain low income domestic customers. The first phase of the Energy Efficiency Scheme helped six million low-income families to install energy saving measures in their homes. We will use our experience of the suppliers' activity to help with the design of the new Carbon Emissions Reduction Target.

5. Ofgem is also, on the behalf of the Government, managing the Energy Demand Reduction pilots which aim to evaluate the energy savings from a range of metering, billing and information measures.

SMART METERING

6. Smarter meters could give consumers more information about their energy usage, thus allowing them to manage their household energy costs and reduce their emissions. The roll-out of smart meters should rely on the competitive market as this will provide strong incentives on suppliers to keep roll out costs to a minimum; place technology risk on suppliers not consumers; and allow smart meter delivery to start relatively quickly.

7. Ofgem has taken a lead role in tackling barriers to the development of smart metering. For example, we are working with industry on the interoperability of meters and we are managing and co-ordinating a series of Energy Demand Reduction pilots which launched on 12 July 2007 with 40,000 households taking part. Our work has helped to speed up progress on smart metering and we would like to see the roll-out accelerate so that more consumers can get the full benefits of smart meters.

8. We have also completed our review of the standard conditions of the gas and electricity supply licences. We believe that simplifying the regulatory framework will further sharpen competition between existing suppliers and lower the barriers to entry to new suppliers, while ensuring protection for consumers, in particular vulnerable customers. Our review has removed the "28-day rule" which many saw as preventing suppliers from offering long-term energy services such as the installation of household-scale generation or measures to improve energy efficiency. It also amends the rules to make it easier for suppliers to install smart meters that have the potential to help to cut emissions and improve the accuracy of customer bills.

DISTRIBUTED GENERATION

9. Distributed generation is also part of Government's strategy for tackling climate change. It means that electricity can be generated nearer to where it is used, using renewables or high quality combined heat and power systems. This can reduce emissions, because of the technologies used and by saving the power lost in transporting it. Earlier this year Ofgem and the then Department of Trade and Industry (DTI) jointly published a review of Distributed Generation (DG) alongside the Energy White Paper. Having set up a Distributed Energy Working Group from a cross section of the industry, we will consult by the end of 2007 on options for the creation of more flexible electricity market and licensing arrangements for distribution-connected, low carbon electricity. We will seek to identify workable solutions that minimise the barriers to entry for DG; ensure that DG receives appropriate rewards for the benefits that it provides; and ensure that consumers are adequately protected. Our solutions will not compromise the integrity of the competitive market; or impose unnecessary costs or complexity on DG schemes, or those parties that seek to purchase from them.

MICROGENERATION

10. In the 2007 Budget, Gordon Brown asked us to examine how homes that generate more electricity than they consume can benefit more from exporting that electricity back to the grid. Our review of export reward for microgeneration builds on work to promote microgeneration begun in 2005. We have supported industry work to reduce barriers, challenged suppliers to raise their game in responding to microgeneration, and encouraged distributors to remove network charges for export, achieved with effect from April 2007. This builds on innovations such as allowing domestic microgeneration to connect to distribution networks without requiring permission or prior approval.

11. In April 2007 we made a number of changes to simplify access to Renewables Obligation support. We have published guidance and Frequently Asked Questions for small generators and simplified the accreditation process.

FUEL POVERTY

12. Poor housing conditions are one of the key causes of fuel poverty, along with low incomes and the cost of energy. It is estimated that four million people are currently living in fuel poverty. The Government has a target of eradicating fuel poverty for vulnerable customers by 2010 and for all customers by 2016.

13. Improving the quality and energy efficiency of housing in Britain will reduce both carbon emissions and consumers' energy bills, helping to eradicate fuel poverty. The Fuel Poverty Advisory Group (FPAG) has estimated that programmes of £1 billion per annum are required to meet the 2016 fuel poverty target.⁴⁷ Our view is that additional funding should come from general taxation and not from consumers via fuel bills given their regressive nature. The increased prices required could impact hard on those who, while not in fuel poverty, may be struggling to pay their bills. Alternatively, additional funding could be made available by recycling revenues from environmental schemes. For example, if government were to auction allowances under the European Emissions Trading Scheme (EU ETS) some of the revenue generated from this could be used to fund further measures to help tackle fuel poverty.

14. Improving the quality of housing stock should remain a key focus. Significant strides have been made through measures such as the Decent Homes standard, Warm Front and the Energy Efficiency Commitment, to improve energy efficiency and install cost effective heating systems in homes. These measures provide enduring and sustainable solutions to fuel poverty.

15. However, we share the concerns set out in FPAG's response about the lower standards of thermal comfort provided for in social housing under the Decent Homes Standard compared to Warm Front which is focussed on the private sector housing. We would encourage DCLG to take a "find and fix" approach: ensuring that, where work is being done on a property under the Decent Homes Standard, a comprehensive solution is provided to secure a Standard Assessment Procedure (SAP) rating of at least 65 where practical.

16. The challenge is not simply financial but also one of identifying those in fuel poverty and persuading them to take up the help available. We have consistently highlighted the need for an holistic approach to tackling fuel poverty and for Government, suppliers and third parties to work together to target help where it is needed most. An example of this was the Ofgem-led "winter initiative". This pilot took place in November 2006 and used Department of Work and Pensions data to send a targeted mailer to nearly 100,000 pensioners encouraging them to take up energy efficiency measures, benefit entitlement checks and energy tariff advice. This highlighted the value of information sharing where we believe there is a real prize for Government both in tackling fuel poverty and its wider commitment to providing a seamless service. For DCLG there are real opportunities in allowing local authorities access to the energy efficiency data of the Energy Performance Certificates and facilitating sharing within local authorities of information on council tax and housing benefit recipients. Tackling fuel poverty therefore requires a joined-up approach across Government involving BERR, Defra, DCLG, DWP and DoH.

17. We would be very happy to provide any further information that the Committee would find helpful.

Memorandum submitted by the UK Green Building Council

Our mission is to dramatically improve the sustainability of the built environment, by radically transforming the way it is planned, designed, constructed, maintained and operated.

In 2004, the Government's Sustainable Building Task Group reported that no one body or organisation concerned with sustainability was providing clear direction for the sector as a whole. The UK Green Building Council (UK-GBC) was launched in February 2007 to fulfil this role, and to bring cohesion to the UK green building movement.

We are a campaign for a sustainable built environment. Our members are in the main drawn from across industry, but are joined by NGOs, academic institutions and government agencies. We are committed to campaigning for action—by government, by the industry, by whoever has a role to play to deliver on our mission.

INTRODUCTION

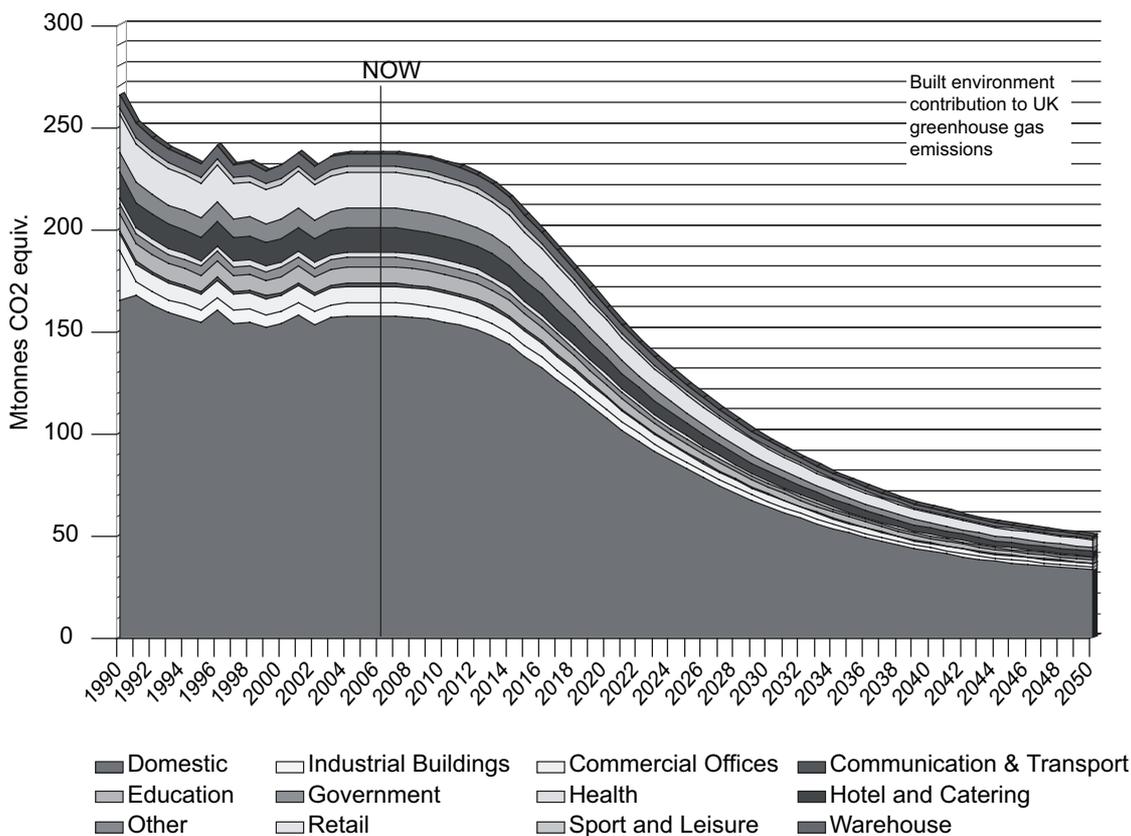
The UK-GBC congratulates the CLG Select Committee for initiating an inquiry into the existing housing stock and climate change. Huge and commendable progress has been made by Government, led by DCLG, on setting in place plans to reduce carbon dioxide emissions from new buildings, in particular homes, over the last year. It is understandable and sensible that Government wished to "stop the rot" in the new build sector before turning attention to the existing stock.

⁴⁷ Fuel Poverty Advisory Group for England, Fifth Annual Report (2006), p.2.

However, while much work remains to be done on overcoming challenges to deliver on the commitment for all new homes to be zero carbon by 2016, and to set in place a route to zero carbon in the new non-domestic sector⁴⁸, there can be no further delay in getting to grips with emissions from existing stock. Often characterised as the Cinderella of the green buildings landscape, if the Government, together with business and other stakeholders, do not galvanise support and escalate the level of effort around tackling existing homes, there is no chance of the UK meeting its targets under the upcoming Climate Change Bill framework—let alone showing leadership on climate change mitigation on the international stage.

The facts around emissions from the built environment, in particular existing homes, do not need rehearsing at length. 27% of the UK’s emissions come from energy use in our homes. Of the UK’s homes that will be standing in 2050, around two-thirds have already been built (if not more). And not only is the home an important direct source of emissions, but by engaging with home owners and occupiers on the importance of reducing energy use and carbon emissions, there is the added opportunity to indirectly affect other elements of lifestyle which are crucial to tackling climate change, such as transport use and consumption choices, which also revolve around the home.

The chart below is an illustration of the importance of the existing housing stock to mitigating climate change (the largest area on the chart is the domestic sector). This chart also shows the level of emissions reductions that the UK-GBC is advocating from the built environment by 2050 (at least 80%).



CURRENT PROGRESS

In late 2005, ODPM-as was launched a review of existing buildings, but its lack of profile has been disappointing. In addition, the Stock Take report by the Sustainable Development Commission, commissioned by ODPM in 2004 and submitted to CLG in July 2006, which recommended a holistic policy framework for tackling the efficiency of existing homes, appears to have had limited uptake.

Although the SDC’s recommendation that CLG develop a Code for Existing Buildings has not yet implemented, CLG is to be congratulated for bringing forward Energy Performance Certificates, phased in from August 2007. Despite suffering from a rocky introduction, related to controversy around HIPs, Energy Performance Certificates have strong support from the UK-GBC. We commend Government’s wish to strengthen implementation of the EU Directive by ensuring that the information contained within the EPC is current. The UK-GBC will take part in the consultation on EPCs (on point of production and age of certificate) due shortly and will advocate EPCs being no more than 12 months old, together with mandatory display of the EPC at the point of home marketing.

⁴⁸ The UK-GBC is a member of DCLG’s 2016 Task Group and the Steering Group for new non-domestic buildings. For the latter, the UK-GBC is leading a project on raising the energy performance standards in new non-domestic buildings above those currently set out in Building Regulations en route to zero carbon.

In summary, despite a number of related policy strands, there appears to be no coherent, holistic framework for tackling emissions from the existing housing stock. This is particularly disappointing given the ambitious, perhaps under-reported pledge made by Gordon Brown, when Chancellor, in a speech to Green Alliance in March 2007. He said:

“Over the next decade my aim is that every home for which it is practically possible will become low carbon.”

However, the introduction of EPCs, together with the need to achieve significant, measurable reductions in order to balance future carbon budgets as part of the Climate Change Bill framework, offer the ideal opportunity to make the radical progress which is so urgently needed—and to make good on the Chancellor’s target.

UK-GBC POLICY RECOMMENDATIONS

The UK-GBC, together with the SDC and BRE, has recently been working with stakeholders to analyse the barriers to progress on energy efficiency improvements in existing homes.

Essentially these barriers can be divided into:

1. Policy and fiscal barriers that deter action:
 - a. Full VAT on refurbishment.
 - b. Planning restrictions in conservation areas.
 - c. Energy regulation drives supply not energy efficiency.
 - d. Fragmented energy efficiency advice, guidance and assistance.
2. Behavioural inertia, based on the overwhelming perception that significant energy efficiency improvements are a low priority and not cost effective:
 - a. Relatively low cost of energy for middle income households.
 - b. The marketplace for energy efficiency is perceived as piecemeal.
 - c. A high level of confusion—about what is cost-effective, what grants or other incentives are available, and where to go for reliable advice and/or support from reliable installers of energy efficiency “kit”.
 - d. Too much hassle for too little benefit.

To overcome these barriers, the UK-GBC advocates a range of policies, broken down here into three groups:

LONG-TERM GOAL: A CAP ON DOMESTIC ENERGY SUPPLY

Despite Government interventions like EEC, which requires energy supply companies to promote and implement energy efficiency measures, the fact remains that energy suppliers make money by selling as much energy as they can to as many people as possible. Last year, the then Secretary of State for Trade and Industry, Alistair Darling, said:

“We need to transform the energy market. We need to turn conventional wisdom on its head. Today companies have the incentive to sell as much as they can and our inefficiency unintentionally creates more demand for energy . . . We must look at how we can change from just selling units of electricity to providing energy services—heating and lighting homes—making it their business to increase energy efficiency and cut demand.”

UK-GBC believes the most efficient way of facilitating this is to introduce a cap on energy supply, with suppliers trading permits with each other for the right to supply energy. Suppliers would have a powerful incentive to proactively help all of their customers to reduce wasteful energy use. This could unlock a wide range of innovative approaches to tackle the many barriers to energy efficiency and behaviour change, with competition for the most efficient provision of energy to the highest number of consumers.

LOW-HANGING FRUIT

A number of relatively easy to implement measures, although not without fiscal implications, could be brought forward immediately with significant benefit. Many were highlighted by the SDC in “Stock Take”, and many use the EPC as a building block, on which to measure retrofitting improvements to energy efficiency.

- (1) Stamp duty rebates for energy efficiency improvements.
- (2) Council tax rebates for energy efficiency improvements.
- (3) Temporary or permanent adjustments to Council Tax bands for properties with improvements.
- (4) VAT exemption/reduction on refurbishment/retrofitting “kit”.
- (5) Equalization of refurbishment and new build (could be revenue neutral).

(6) Consequential improvements in energy efficiency when carrying out extension work.

In addition, and related to the Housing Green Paper and Government's new target of three million new homes by 2020, including five new eco-towns, the UK-GBC support the principle of energy efficiency improvements in existing build to offset the emissions released in the construction of new homes. This would not only have the benefit of reducing emissions from the existing stock, but would help ensure the new eco-towns don't become "eco-islands", and smooth the introduction of new development in an area by ensuring there is tangible benefits to existing residents.

ACHIEVING A MARKET BREAKTHROUGH: ENERGY MORTGAGES

Even if the low-hanging fruit were to be picked, the reality is that progress is far too slow, and having nothing like the required impact. What is needed is a fundamental break-through in terms of a new market that will deliver energy efficiency on a huge scale to existing homes throughout the UK. The UK-GBC believes it is possible to create the conditions for a market solution that will radically improve the energy efficiency of existing homes, making a major contribution to the UK's efforts to reduce its carbon footprint and help mitigate the worst effects of climate change.

We believe energy efficiency improvements for existing homes need to be made a high priority and highly desirable. The potential drivers for this (based on the barrier analysis done in conjunction with the SDC and BRE cited above) are:

1. Rapidly increasing costs of domestic energy.
2. An increasing interest in the long-term asset value of energy-efficient homes (with EPCs becoming increasingly well-known and valued).
3. Wider social and environmental concerns linked to growing awareness of the threat of climate change.

As a direct result of increased awareness and demand, refurbishment and energy efficiency improvements can be made easy and affordable, with user-friendly financial packages, and a wide choice of accredited and reliable installers due to major investment by new entrants to the energy efficiency market. The energy mortgage is outlined below:

1. Prospective home buyer receives EPC and approaches mortgage lender.
2. Mortgage lender interprets EPC and recommends that the buyer upgrades the home's EPC rating, explaining the benefits in terms of major reductions in energy bills and long-term asset value improvement.
3. Mortgage lender explains that the cost of improvements can be added to the loan over the life of the mortgage, and that any additional cost will be more than offset by savings in energy bills within a few years.
4. Mortgage lender recommends an installer who, using the EPC data, recommends the best package of improvements for the home buyer.
5. Energy efficiency installer works in partnership with energy supply companies who can exercise their EEC obligations by subsidizing the home improvements, and seek to enter into an energy services contract with the home owner, to ensure they meet all their energy needs in the most cost and energy efficient way, over time.

The UK-GBC is in the process of bringing together the key stakeholders in this process to identify opportunities for collaboration on pilot projects and wider roll-out.

Memorandum submitted by Save our Parsonages

This letter constitutes our submission to your committee in respect of the steps that Save Our Parsonages considers should be taken in relation to the existing housing stock and its contribution to climate change.

There is a large trade in the supply of replacement materials for fittings, for example replacement doors and windows. These materials tend to be considerably less environmentally friendly than traditional ones. For example, plastic is now in almost routine use for replacement doors, windows, gutters, soffits and downpipes. There are many problems here. Firstly, these materials are rarely appropriate in either design or materials for the fittings they replace, and thus the aesthetics of the built environment markedly deteriorates. Secondly, in our observation homeowners are often persuaded that replacement materials are needed where in fact routine maintenance of existing materials is perfectly adequate. The mere act of replacement therefore wastes materials and energy. Thirdly, these materials are much more environmentally unfriendly than those they replace:

1. They are manufactured from finite raw materials such as oil.
2. They are inefficient in their consumption of those materials.
3. Excessive energy is consumed in the process of manufacture.

4. They are unsustainable in that they have a much shorter life than traditional materials such as wood and cast iron.
5. They are massively environmentally unfriendly in that they do not biodegrade.
6. They cannot be repaired like traditional materials but have to be entirely removed and dumped; in short, they are a classic product of the “throwaway” culture of the late twentieth century when we should be moving in another direction.
7. As if that were not enough, they are toxic as they release harmful chemicals into the atmosphere as they deteriorate.

It has been calculated that plastics last only about a quarter of the timespan of cast iron and a fraction of the timespan of good hardwood. While they are presently about half the cost to the consumer of cast iron, this economy is entirely false in terms of their duration and durability.

Government policy seems to us to be astonishingly and bafflingly ambivalent on these vital issues. First, we believe that the government should be actively discouraging the use of plastics and other unsustainable materials for building purposes as a matter of urgency. To this end, we consider the provision of information for households about these facts is vital. This would also make things more difficult for “rogue” traders. If that fails to persuade people, the government must next legislate to outlaw these unfriendly materials and the contribution they are making to climate change.

Thirdly, we consider that the encouragement of the use of greener and more natural materials should form an important part of the purpose of the Home Information Pack and should be a vital component of the energy efficiency rating of a house. There is a danger of unjust treatment of householders who use sustainable materials which must be avoided—it creates ill-feeling and defeats the government’s objectives. These householders should be actively encouraged, not penalised for not having “updated” their homes with newer but shoddier materials.

Note: the mission of Save Our Parsonages (SOP) is to encourage the Church to retain, use and value its historic rectories and vicarages and recognise them as vital assets fundamental to its work. We have strong links with other bodies concerned with conservation and heritage, and in the course of our work we encourage the use of traditional and environmentally friendly materials.

Memorandum submitted by the East Midlands Regional Assembly

The East Midlands Regional Assembly is the regional chamber for the East Midlands. It consists of 111 members drawn from elected representatives of the regions local authorities, together with business, social and environmental partners. The Assembly is responsible for scrutiny of the Regional Development Agency and is the Housing Planning and Transport body for the region. The Assembly is also responsible for coordination and integration of regional strategies.

The East Midlands Regional Assembly, in its role as regional planning body has been reviewing the Regional Spatial Strategy. As part of this review a range of studies were completed to aid the policy making process. Studies of the carbon footprint and trajectories to 2026 indicated clearly a need to respond rapidly to the reduction of the carbon emissions of all new development. (The draft Regional Plan and supporting research is available on <http://www.emra.gov.uk/what-we-do/housing-planning-transport/rss-review/documents>).

Carbon neutral new development is essential to ensure that there is no overall increase in the East Midlands carbon footprint. To this end the Draft RSS included policies for carbon neutral new development. The East Midlands Regional Assembly, as the regional planning body recognised that delivering carbon neutrality is a challenge and sees opportunities for bringing action on current housing stock into the planning process.

Policies in the Draft Plan have been drafted to be fit for purpose over the plan period. The choice of carbon neutrality as a target for new development mirrors the recent signposting from government policy, particularly with the Code for Sustainable Homes. The Assembly recognises that the challenge of delivering carbon neutral homes is significant and Policy 38 of the Draft Plan is designed to allow local authorities to develop appropriate policies for their own location and development market, recognising the diversity of the regional property market and the range of different development that might occur across the region over the Plan period.

Whilst this approach offers flexibility to planners and developers, it would be helpful to highlight possible approaches that might be appropriate for more detailed local policy. The ideal development is one that is designed to reduce the demand for energy from the building, then use energy efficient appliances throughout the development and supply all remaining energy needs from renewable energy sources on or close to the site, reflecting the energy hierarchy that underpins Policy 38. This development, would then be a true zero carbon development. However, this ideal would currently pose a significant burden on developers and it is not clear that the capacity in skills and supply chains is yet in place to enable it to be delivered. Developers

should still seek to deliver significant carbon savings through increasing thermal efficiency and some level of on site renewables on all developments, but the following options are offered as ways that carbon neutrality could be delivered:

Developments that cannot deliver 100% renewables on site practically or without excessive cost could meet carbon neutrality by:

- The developer could invest in offsite renewable generation at a capacity that covers the expected energy usage of the development over a specified life time. This approach offers the developer a practical way to offset on site emissions by equivalent generation and may be a cost effective business approach to carbon neutrality. This approach may be particularly useful for mixed usages sites, as industrial scale units may provide a better basis for economic renewable energy supply.
- Local authorities may wish to negotiate a contribution from developers for the estimated carbon emissions from the site and use the contribution for improving the thermal efficiency of existing housing stock within the local authority area. This approach may be particularly useful for local authorities with large stocks of housing with poor thermal performance, giving a resource to dramatically reduce emissions from existing stock. The local authority could also use the contribution to install renewable energy at local schools and community facilities, offering cost effective carbon reductions, community benefits and awareness raising opportunities.
- Developers may wish to develop some sites with renewable energy generation that has more capacity than required by that site. For example by installing a biomass generation plant close to one site and using the excess generation capacity to offset the emissions from another site within the same planning area.
- Developers may wish to enter into agreements with registered social landlords to offset emissions from their private developments, through improvements to social housing stock.
- Ensuring that all homes are signed up to a recognised green tariff. This approach is comparatively easy for a developer to achieve, but has the disadvantage that the occupants of the houses can change to a normal tariff at any point after occupancy.
- In general offsetting through tree planting should be the lowest of all options and should not be used to offset the full balance of carbon emissions from a site. Where tree planting is offered the trees planted should be native British trees to support biodiversity gains.

The targets in the Draft Plan include significant micro-generation quantities to reflect the importance that on site renewables are likely to play in the next few years. The research completed to support policy development indicates clearly that a mixture of large and small scale renewables as well as energy efficiency are essential for delivery of the 20% by 2020 targets. However, larger scale technologies are generally more efficient and cost effective at delivering carbon emission reductions and future policies and drivers could significantly alter the uptake of micro-generation positively or negatively. The policies also recognise the role of fossil fuels and other technologies. LDFs could include policies for the development of both targeted amounts of onsite renewables and emissions reductions from the above suggested flexible solutions, with carbon reductions being delivered within the planning authority area to aid monitoring. The Regional Assembly will promote these flexible approaches to local planning authorities.

The East Midlands Regional Assembly feels that a number of these options provide opportunities for coordinated action on current housing and could be targeted specifically at hard to treat homes, that currently fall outside the government funding regimes. The large scale treatment of existing homes by developers also offers economies of scale and engages those best placed to deliver the works. Economic benefits of new business and supply chains are also likely.

Memorandum submitted by the North West Regional Assembly

The NWRA is a partnership of local government, business organisations, public sector agencies, education and training bodies, trade unions and co-operatives together with the voluntary sector that works to promote the economic, environmental and social well-being of the North West of England.

The North West Regional Assembly (NWRA) welcomes Communities and Local Governments' inquiry into existing housing stock and climate change. The following comments represent officer level views from the NWRA.

⁴⁹ Communities and Local Government, 2006.

⁵⁰ "The Green House Effect" The Guardian, Thursday May 5, 2005.

 INTRODUCTORY COMMENTS AND STATISTICS

- NWRA considers that the impact of existing housing stock on climate change is significant. Nationally it is estimated that 2/3 of the homes standing in 2050 will have been built before 2005⁵¹. The average embodied energy in a new build home is estimated to be around 90,000 kwh whilst the average embodied energy in a full refurbishment is only 15,000 kwh⁵².
- 9.0% (England average 6.9%) of households in the North West lived in fuel poverty (based on income and heating costs) in 2005, down from 14% in 2001⁵³. In 2005 the region had the second highest proportion of households living in fuel poverty, but action is being taken to reduce this.
- 1,010,683 dwellings in the North West failed to meet the “Decent Homes” standard in 2003. This represented 34% of the region’s stock of dwellings (England average 31%).⁵⁴ However a number of successful initiatives are tackling this issue and the North West aims for 95% to meet the standard by 2010.
- A number of North West housing initiatives which are focussed on the Decent Homes Standard also have great benefits for energy efficiency and climate change mitigation.

EFFORTS TO REDUCE CARBON EMISSIONS FROM EXISTING HOUSING STOCK

Regional Spatial Strategy

The Examination in Public (EiP) of the Regional Spatial Strategy made a number of recommendations which further strengthened policies on climate change and energy efficiency. It is the intention for Climate Change to be “mainstreamed” throughout the RSS, and those policies most relevant to climate change and existing housing stock are highlighted below:

Policy DP8—Reduce Emissions and Adapt to Climate Change, recommended by the Panel report of the EiP, states that “As an urgent regional priority” regional activity should “contribute to regional policy to reduce CO₂ emissions from all sources”. The EiP particularly highlighted that “Policy makers should use the North West Integrated Appraisal Toolkit to assess and strengthen the climate change mitigation and adaptation elements of their plans and strategies” and that “Applicants and local planning authorities should ensure that all developments meet at least the minimum standards set out in the North West Sustainability Checklist for Developments”.

The North West Integrated Appraisal Toolkit has been developed by the NWRA and partners. Free training is currently being offered on its use. The Tool is equally applicable for use on developments to existing housing stock as to new build.

EM 16—Energy Conservation and Efficiency was also strengthened by the EiP to say that “Plans and Strategies should actively facilitate reductions in energy requirements and improvements in energy efficiency by incorporating robust policies which promote . . . implementation of energy conservation measures and efficiency of design, layout, location and use of materials and natural resources in new buildings and refurbishment schemes . . . [and] the wider adoption of energy efficiency measures in existing buildings.”

Full texts of DP8 and EM16 are provided in the Appendix 1.⁵⁵

Climate Change Action Plan

The North West Climate Change Action Plan has been developed with input from an advisory group of regional partner organisations, led by the NWRA, NWDA, Government Office for the North West and the Environment Agency.

The vision for the Climate Change Action Plan “A low carbon and well adapted Northwest by 2020” states: “Domestic buildings are appropriately heated & insulated and fuel poverty has been eliminated”. In order to achieve this vision the Action Plan contains a number of actions which relate to existing building stock. These are listed in Appendix 2 along with the 2010 target of having 272 Low Carbon Building Programme grants issued in the North West.

The implementation of the Climate Change Action Plan is being driven by a newly formed regional Climate Change Unit. Further information can be found at: <http://www.climatechangenorthwest.co.uk>

⁵¹ Communities and Local Government, 2006.

⁵² “The Green House Effect” The Guardian, Thursday May 5, 2005.

⁵³ Sustainable Development Indicators—Regional Fact Sheets.
http://www.sustainable-development.gov.uk/progress/regional/documents/north_west_factsheet.pdf

⁵⁴ Sustainable Development Indicators—Regional Fact Sheets.
http://www.sustainable-development.gov.uk/progress/regional/documents/north_west_factsheet.pdf

⁵⁵ Appendices 1 and 2 not printed.

TECHNOLOGIES AVAILABLE TO REDUCE EMISSIONS

Policy EM17—Renewable Energy states that “In line with the North West Sustainable Energy Strategy, by 2010 at least 10% (rising to at least 15% by 2015 and at least 20% by 2020) of the electricity which is supplied within the Region should be provided from renewable energy sources”.

Retro-fitting of micro-generation technologies onto existing building stock has the potential to significantly contribute to these targets. The partnership of NWRA, NWDA, GONW and EA has committed to empowering organisations and individuals across the North West to access funding and investment sources for such sustainable energy practices, recognising that co-ordinated advice in this area is currently lacking.

Full text of EM17 is provided in Appendix 1.

ROLES OF REGIONAL BODIES

The NWRA and the North West Development Agency (NWDA) are establishing a basis for a regional low carbon economy through the production of the Regional Spatial Strategy and the Regional Economic Strategy. A Climate Change Action Plan for England’s Northwest and a North West Sustainable Energy Strategy have also been launched by a consortium of organisations led by the NWRA, NWDA, Government Office for the North West, Environment Agency and other regional bodies.

Domestic Energy Alliance

The North West Domestic Energy Alliance (DEA), a regional partnership which includes the NWRA, was formed in 2005 in order to foster a sense of regional identity and unity within the North West by bringing together organisations that can contribute to the reduction of carbon emissions in the domestic sector, and the eradication of fuel poverty. The DEA has created a Low Carbon Housing and Fuel Poverty Action Plan 2007–09. The full activity plan can be viewed at: <http://www.nwdea.org.uk/>

Using Energy Savings Trust funding the Domestic Energy Alliance have also purchased a Toolkit for identifying and targeting existing hotspots for energy efficiency and microgeneration assistance in the region. Licences for use have been issued to 30 (of 43) Local Authorities so far, 19 of which have received initial training.

OTHER HOUSING ACTIVITY

The NWRA is actively pursuing issues of energy efficiency, climate change adaptation and mitigation in relation to the existing housing stock as part of the Decent Homes Standard.

The North West region is home to four of the nine national Pathfinder market renewal programmes (East Lancashire, Manchester and Salford, Merseyside, Oldham and Rochdale). Both refurbishment and clearance/rebuild have been key to the successes of these schemes which have included examples of modern methods of construction and energy efficient measures.

The NWRA is also looking to progress an equity loans scheme with private sector partners in the region, again working towards the Government’s standards on Decent Homes. Small scale model local authority schemes are active in the region releasing homeowner’s equity to fund improvements to properties.

The NWRA has recently commissioned the DEA to produce an advice note on the implementation of Code for Sustainable Homes. This will also cover the XB programme for existing homes. They will also be hosting a regional workshop on the issue on 10 January 2008.

OTHER REGIONAL RESPONSES

The NWRA consulted members of the NW Housing Forum before responding to this enquiry. The full responses of two member organisation’s officers are included in Appendix 3 and a third is enclosed in a separate document (due to the large file size).

Memorandum submitted by Waterwise

Waterwise is an independent, not for profit, non-governmental organisation focused on decreasing water consumption in the UK by 2010 and building the evidence base for large scale water efficiency. In England, we sit on the UK Environment Minister’s Water Saving Group alongside the water industry and regulators.

INTRODUCTION

The carbon footprint of heating water in homes, and of the water industry in purifying and pumping water to homes, and treating wastewater is significant. Reduced water use in the home will therefore reduce carbon emissions.

We examine this situation below and, in the final section, propose measures to address it.

(In addition, although this inquiry does not have within its terms of reference the impact of climate change on the existing housing stock, namely in terms of water availability, we would like to put this on record. In the past two years, the UK has seen the lowest and highest rainfall for a century—and both have led to water shortages. The impact of climate change on the water supply-demand balance in the UK is already significant, and is worsening, alongside pressures such as housebuilding to meet housing need in water-stressed areas, and rising domestic water consumption.)

EXISTING HOUSING COMPARED TO NEW BUILD—WATER METERING

Whilst all homes built since 1989 in England and Wales are metered, only 28% of existing homes are metered—making us almost unique in Europe, where full metering is the norm. Former Environment Minister Ian Pearson recognised that “Metering saves water, on average 10% per household”. The average daily water use per person in the UK is around 150 litres per person per day—in a population of over 60 million, full metering alone could cut total UK domestic water use by about 650 mega litres per day.

HOT WATER USE IN THE HOME AND ITS CONTRIBUTION TO UK CARBON EMISSIONS

Around a quarter of energy use in existing homes (up to 60% in small flats), is used to heat hot water for showers, baths and taps—and this excludes the energy used to heat water in kettles, washing machines, dishwashers and central heating. Domestic hot water use emits about 30 million tonnes of carbon dioxide a year—over 5% of the UK’s total greenhouse gas emissions. Through greater water efficiency a reduction of hot water use in households of just 15% would save the equivalent of taking 800,000 cars off the road.

Dishwasher efficiency has risen by over 60%, from an average of over 50 litres per wash in the 1970s to 15 litres now. However, 1/3 of UK homes have a dishwasher, and use it on average four times a week, and dishwashers account for about 8% of UK household water consumption. All of this water has to be heated.

New washing machines use about half the water and energy of an average 10 year old machine—many of the most efficient now use less than 50 litres per wash. However, 95% of UK homes have a washing machine, and use it on average four times a week, and 15% of household water use is through washing machines. Again, all of this water is heated, incurring carbon costs.

Furthermore, a Waterwise analysis of energy and water use of dishwashers and washing machines found that it is not safe to assume that an “A” energy rated washing machine will be water efficient: all water efficient machines are energy efficient, but not all energy efficient machines are water efficient. In fact, a machine rated “A” for energy has only a 50/50 chance of being a water efficient model.

Waterwise is currently looking into the energy and water implications of different showering behaviours, with the Energy saving Trust.

COLD WATER USE IN HOMES—UK CARBON COST OF PURIFYING WATER AND PUMPING IT TO HOMES

Water is heavy. Every litre of water delivered to UK homes in England and Wales—where the average daily water use per person is around 150 litres—has a carbon cost attached to via the water industry’s purifying and pumping process. Furthermore, the treatment of wastewater is often energy-intensive.

As the government has recognised, direct emissions from the water sector are responsible for roughly 4.1MtCO₂—the equivalent of around 1.5 million cars—with the water sector’s energy use having increased by 50% since 1990.

Every home in the UK has about half a tonne of water delivered and taken away each day. If everyone in the UK turned off the tap while brushing their teeth, enough water would be saved to supply the whole of Scotland. If a tenth of British homes fixed just one dripping tap, enough water would be saved to supply the whole of Coventry or Cardiff.

Toilets use about 30% of the water used in a UK household—there are around 45 million toilets in UK homes, using an estimated two billion litres of fresh water every day. Seven million of these are the old-style single flush toilet using up to 13 litres of water. New, extremely water-efficient dual-flush toilets use only six litres for a full-flush and four litres for a reduced flush—but these account for only five million of the 45 million toilets found in UK homes. The Twyford’s Galerie Flushwise toilet, which won the Waterwise Award Marque in 2007, has a 4/2.6 litre dual flush.

Water efficiency measures could mean a) fewer carbon emissions both in the home and in treatment and pumping, b) a need for fewer energy-intensive resource developments such as reservoirs and desalination plants (although Waterwise recognises there will need to be some reservoirs), and c) lowering the energy cost of wastewater treatment.

EVIDENCE BASE

Waterwise is developing an Evidence Base for large-scale water efficiency, for the Water Saving Group, for use by water companies and regulators in PR09.

There are currently around 20 large-scale water efficiency projects being carried out between the UK water companies and Waterwise, most of which comprise over 1,000 homes. The data from these projects is being compiled into an Evidence Base of scenarios which will enable water companies and Ofwat to plan for greater water efficiency expenditure in the next price review in 2009. For example, the Evidence Base will contain a detailed cost-benefit analysis of how much it would cost to carry out a particular toilet retrofit in a certain number of homes, how many litres of water this would save, and, when combined with other retrofit measures, provide through a series of layered scenarios the economic case for large-scale water efficiency that has not existed in previous price reviews.

The projects are already providing a useful measure of what works best in the design of a retrofit scheme—for example, if a retrofit product costs £10, and a plumber's visit to fit it around £60, then it is clearly more cost-effective to have the plumber visit once, not twice (ie leaving a cooling-off period).

Retrofit products provided free to the consumer in these projects can include toilets (typically a product which converts from single-siphon to low-volume dual-flush), showers, taps, and/or white goods. One of the projects, in social housing, involves a voucher from a well-known manufacturer for £50 off up to 100 water efficient washing machines.

The London Climate Change Partnership is also looking at energy and water retrofitting scenarios.

LABELS

A Waterwise analysis of energy and water use of dishwashers and washing machines found that it is not safe to assume that an "A" energy rated washing machine will be water efficient: all water efficient machines are energy efficient, but not all energy efficient machines are water efficient. In fact, a machine rated "A" for energy has only a 50/50 chance of being a water efficient model.

In 2006, Waterwise launched our own water efficiency award Marque, which is awarded annually to products which reduce water wastage or raise the awareness of water efficiency. We also very much welcome the Bathroom Manufacturers' Association's water efficiency labelling scheme which was launched in 2007.

PROPOSED MEASURES

Many of the most effective water efficiency actions—such as turning the tap off when brushing teeth, and only using washing machines and dishwashers when full—are free of charge, and can be achieved through public awareness-raising targeted at behavioural change. In this context, we welcome Water Saving Group plans for a national, long-term water efficiency campaign: in addition, we urge government to take forward water efficiency messages alongside low-carbon messages.

Waterwise proposes specific measures below to reduce water use in existing homes and therefore reduce carbon dioxide emissions (we do not propose measures relating to the water industry's own processes).

- Whole building and/or key fitting standards to be enforced on retrofit, refurbishment, or change of occupancy, pegged to the regulations for new homes, for example the whole house standard in Building Regulations which will be 125 litres per person per day from 2008, and the Water Fitting Regulations new minimum standards for key fittings such as taps and toilets, when these come into force.

(Sydney Water recently announced that from 1 July 2007, existing houses in Sydney will have to be retrofitted for water-efficiency before their owners can offer them up for sale. This will include the installation of low-flow showerheads, as well as devices to slow pressure from taps and weight-in-toilet cisterns. Sydney Water will retro-fit homes for a heavily subsidised \$22.)

- Stamp duty or council tax rebates linked to the above, on inspection, or exchange of property.
- Home Information Packs to include water efficiency performance certificate alongside EPC.
- Reduced VAT on water-efficient products, and reduced availability of non-water efficient products: the Prime Minister is working in the EU with Nicholas Sarkozy to allow VAT reductions for energy efficiency products, and this should also cover products such as low-flush toilets, low-flow taps and water efficient dishwashers and washing machines. Otherwise a significant opportunity will be lost to transform the market (and consumer behaviour) in water efficient products.

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- Government procurement is an extremely powerful tool in transforming the market in sustainable products. The Quick Wins specifications should be revised to set the standard for dishwashers and washing machines at the higher end of the market—on our website, Waterwise has ranked all dishwashers and washing machines currently available on the UK market, and current Quick Wins specifications for these products don't even match the average performers. As the recent SDC report showed, Government Departments aren't following their own procurement rules—these need high-level Departmental ownership.
 - Large scale programmes to be taken forward to install water efficient devices into existing homes—funded by water companies through the price review, according to the cost-benefit analysis and scenarios which Waterwise is producing for the Water Saving Group. The then Chancellor, Gordon Brown, announced in his March 2007 speech to the Green Alliance that he would make all homes low-carbon in the next ten years—water efficiency must be taken forward alongside this or it will be a missed opportunity.
 - Full metering to be taken forward across England and Wales as soon as possible, building on the Water Saving Group measures to make it easier for water companies to compulsorily meter in water-stressed areas—with a roadmap on how this is to be achieved, laid out in 2008.
 - Water neutrality (retrofitting programmes for water efficiency of homes to offset new homes being built in the same area) pilots to be taken forward in the Thames Gateway in 2008, then rolled out across all water-stressed areas, and developed into a standard land-use planning tool.
 - Continued promotion of water saving devices by retailers, manufacturers, government, water companies.
 - Hosepipe ban legislation, recently consulted on by the government, should become more enabling, and contain time-based restrictions, for example allowing the filling of paddling pools or watering of gardens for two hours once a week. This would save water by making consumers more likely to observe the restrictions.
 - Take forward a water efficiency label or an integrated EU water/energy label for “wet” goods such as dishwashers and washing machines.
 - Instigate a certificated water efficiency scheme for plumbers, linked to existing qualifications.

Finally, we would like to see progress on the government review of water efficiency in existing housing stock speeded up, to mirror the excellent progress made on regulating to improve water efficiency in new homes.

Memorandum submitted by Eaga plc

EAGA PLC—BACKGROUND

eaga plc welcomes the opportunity to respond to this consultation. We welcome the attempt to address the central role of improving existing housing stock to meeting Government's climate change and carbon reduction targets.

In order to put our comments into context, it may be helpful to briefly outline our role in the provision of services across the UK.

eaga has worked with Government and local authorities to help fight fuel poverty for over 17 years. eaga provides services, products and solutions that address the social, environmental and energy efficiency objectives of Government and the private sector throughout the UK, as well as in North America, India and the Republic of Ireland. The largest provider of residential energy efficiency solutions in the UK; we are a majority employee-owned plc working for Defra, Welsh Assembly Government and the Department for Social Development in Northern Ireland, Utilities and Local Authorities in managing the delivery of energy efficiency programmes throughout the UK for the past 17 years. We fit or repair a central heating system every minute of every working day, and deliver improvements in over 1,000 UK homes every day. To date we have delivered assistance to over five million vulnerable households in the United Kingdom through the installation of heating and insulation measures. Our response will focus on the steps Local Authorities can take on Climate Change Mitigation and Fuel Poverty.

We have also pioneered the development of Benefit Entitlement Checks (BEC) throughout the UK. BEC is a telephone service that offers confidential advice to people regarding the benefits they claim and what further benefits they may be entitled to. Through its dedicated team, eaga plc delivered roughly 70,000 BECs in 2006. Thanks to the recent expansion of the programme we expect to offer advice to over 95,000 people in 2007.

As well as our energy efficiency and social commitment, we are committed to helping the environment and combating climate change. eaga Renewables provide renewable energy solutions to private and social housing, specifically through the installation of solar thermal panels. This work is carried out in the private

sector, both with private-funded work and public-funded work. For example, eaga Renewables and eaga Social Housing Services is currently working on a large-scale installation of solar-thermal systems for Birmingham City Council.

Additionally, the independent Eaga Partnership Charitable Trust (Eaga-PCT) is a grant-giving trust that currently supports projects and research in two main areas: the relief of fuel poverty and the promotion of energy efficiency; and vulnerable consumers—multiple needs and preferences. Since 1993, eaga has given over £3.1 million to the Charitable Trust to distribute grants.

1. The significance of existing housing compared to new build and the different levels of performance each display

eaga has long recognized that the greatest contribution the built environment can make to Government's carbon reduction targets is through improving existing housing stock, rather than regulation focusing on improving new developments' performance. Even by 2050 it is estimated that over 60% of all UK buildings will pre-date 2006 regulations⁵⁶. Their standards must be improved—they are the key to meeting Government carbon emissions targets. The emissions of these homes can be substantially reduced by improving the thermal efficiency of the building itself, alongside improving the efficiency of heating systems.

Modern properties are far more energy efficient than older buildings, but new build accounts for only a very small percentage of total housing stock every year. The age of a home is a determining factor affecting its energy efficiency. In delivering Warm Front eaga has performed energy efficiency measures on millions of homes, the vast majority of which have been existing stock rather than new build. Providing energy efficiency measures to existing housing is an extremely cost-effective method for lifting people out of fuel poverty, and for making substantial carbon savings. Existing homes account for a clear majority of the 150 million tones (a 27% share) of the UK's carbon emissions that housing is responsible for. Space and water heating accounts for between 73% and 80% of these emissions⁵⁷.

As well as carbon savings, the health benefits of warm, damp free housing are well documented, as are the detrimental effects of poorly performing houses on social inclusion and educational performance. Since it may be reasonably argued that homes constructed to current building standards are free from cold and damp, these factors must weigh in favour of further investment in retrofit energy efficiency to older stock over comparable investment in further improvements to new build.

The Sustainable Development Commission highlighted the linkage between existing and new homes when it suggested low carbon and low-water homes could be delivered by “... [offsetting] any increase in CO₂ emissions or water consumption in the new Growth Areas by matching this with a commensurate reduction in carbon emissions or water consumption in existing homes in the same region.”⁵⁸ This step would have the advantage of providing funding for energy efficiency improvements in existing housing, paired with enabling developers to cut the carbon emissions building new homes.

2. The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency

Improving existing stock through schemes such as Warm Front has been central government's largest and most effective contribution to improving the performance of existing housing stock.

The main mechanisms currently in place for addressing energy efficiency in homes include the Energy Efficiency Commitment (EEC), Warm Front in England, HEES in Wales and Warm Homes in Northern Ireland. These latter three are the leading government-funded projects to deliver greater energy efficiency in private housing. Other local area based schemes have also proven effective on a smaller scale. Central government funding of national schemes has focused on privately owned or rented housing. Smaller schemes have targeted private and social housing. The Decent Homes Standard has required Local Authorities improve social housing stock to higher levels of energy efficiency. The replacement of boilers with energy efficient condensing boilers has been prominent in the social housing sector, but the vast majority of housing stock (80%) is privately owned.

Local authorities have successfully improved the energy efficiency of a great deal of social housing stock, as recently noted by the Minister for Housing. They also work in partnership with eaga and other schemes to ensure residents in non-social housing are aware of assistance to improve their home, but more could still be done in this area. Furthermore, councils could introduce energy efficient related Council Tax discounts when re-banding, so those with particularly efficient homes receive discounts, and those without do not. This, along with measures to assist those on low incomes, would provide an incentive for homeowners to improve the energy efficiency of their home. The savings on council tax, coupled with the “payback” of reduced energy bills in the longer term, make a compelling argument for those able to take such steps to do so. Those unable to do so should be better signposted to existing schemes.

⁵⁶ “*Transforming Existing Buildings: The Green Challenge*”, Royal Institute of Chartered Surveyors, 2007.

⁵⁷ *Stock Take*, Sustainable Development Commission July 2006; *Review of Sustainability of Existing Buildings* DCLG 2006.

⁵⁸ *Stock Take*, Sustainable Development Commission July 2006.

Landlords should be given more concrete incentives to improve their properties. At present they see little benefit in spending considerable sums of money improving properties to cut their tenants' fuel bills (and tenants see little benefit in paying to improve a landlord's property). This has particular impact on low income tenants in low quality or already hard to heat rented properties. Owners of private rented housing rated using the Energy Performance Certificate (EPC) should be required to carry out minimum energy efficiency improvements before the house can be let to new tenants to give the scheme maximum impact. In some cases required improvements would already be funded by the existing Warm Front scheme, based as it is on the residents' benefit entitlement. The Landlords Energy Savings Allowance (LESA) could be amended to provide further support for landlords to provide a safety net for those unable to pay for improvements, ensuring their tenants would not be forced to live in cold, damp, unhealthy homes.

Energy companies could aid in giving control back to individuals with the introduction of smart meters. While many able to pay consumers see energy efficiency as a low priority compared to other financial considerations, enabling them and other customers to better control their consumption may help overcome a lack of desire to improve their homes' energy efficiency. Smart meters would allow customers to more accurately decide when and how to heat their homes and cut heat wastage dramatically.

The Energy Efficiency Commitment has the potential to be the key tool to ensure energy companies enable customers to improve their energy efficiency. For example, they could be incentivised to assist certain customers in installing microgeneration technology by requiring them to reduce the consumption of their customers over time, an idea put forward in the recent Carbon Emissions Reduction Target (CERT) consultation⁵⁹.

3. *Energy performance certificates*

Energy Performance Certificates will identify issues in existing housing stock for new purchasers and this may over time drive up energy saving initiatives by house owners to help sell their property. However, this will be a slow process and will not impact where it is most needed: those private homes held by the more elderly in our society with little capital saved to invest in energy efficiency.

There is an opportunity for Government to meet this challenge through additional grant support. Funding could be channelled down this route following the completion of Decent Homes in 2016, although that would mean delaying urgently required action. Government support in the private sector is already considered necessary. For example, in many cases, elderly people with some savings are not able to receive grants to offset the cost of carrying out energy efficiency work, and many more people are asset rich but still in or close to fuel poverty. The issue of the elderly who do not qualify for grants could even be met by having the work funded by the Government, and the value of the work being gathered upon the sale of the property (or transfer of ownership) after the owner's death.

The recommendation report resulting from an EPC could be used to require the buyer and/ or seller of the home to make minimum improvements to meet an agreed standard of energy efficiency (funded by agreement of both parties in the sale of the home), rather than simply being a source of information. While this could have the effect of promoting the sale of newer build homes over existing properties, it would mean every house sold would have markedly improved energy efficiency.

4. *The provision of information for households and prospective house buyers, including energy performance certificates*

The extent of the debate on climate change has ensured that more individuals than ever have some understanding of the link between their life choices and their impact upon the environment. Better information on the costs and benefits of the most important energy efficiency measures (wall and loft insulation, a modern central heating system, and so on) should be communicated to consumers. While millions of households benefit from Warm Front schemes or Local Authority improvements, millions more living in private housing are not eligible for assistance. Many of these are likely to be able to pay for improvements, but do not investigate the possibility due to incorrect assumptions about the likely cost. This will only be overcome by providing clearer information on the costs and benefits of improving the energy efficiency of homes.

The steps detailed in the DCLG Green Paper *Homes for the Future* (August 2007) suggest Government is making efforts to provide a more unified and user-friendly service to provide householders with detailed information on the importance of energy efficiency and how to achieve it. Better information for residents and homeowners would also enable them to take greater control of their energy use. While space and water heating is the largest part of domestic energy use, there are other areas which individuals could impact upon. For example, while it is not the remit of this consultation, extending the energy ratings on electrical appliances to high-consumption products such as large screen televisions, "mini-fridges", outdoor heaters etc could impact on sales of those products in the same way it has done so in other markets, and therefore reduce domestic energy consumption.

⁵⁹ <http://www.defra.gov.uk/corporate/consult/cert2008-11/index.htm>.

Energy Performance Certificates have the potential to be an important factor in improving the energy efficiency of owned homes in the UK, but their impact is likely to be slow and gradual. Additionally, they will have minimal impact upon privately rented housing, an area where energy efficiency is recognised as a particular problem, in their current form.

5. Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

Existing policies are expected to lead to a 16% reduction in household CO₂ emissions (from 1990 levels) by 2010, considerably below the 20% target. The Energy Efficiency Innovation Review 2005 states that this is achievable by 2015⁶⁰.

Since 2002 the Energy Efficiency Commitment has been the Government's main instrument to deliver carbon savings from energy suppliers. By targeting priority groups who pay a larger proportion of income on energy bills, it plays an effective role as part of the Government's Fuel Poverty Strategy. eaga has submitted a full response to the consultation on The Carbon Emissions Reduction Target (EEC3).

As detailed earlier in this response, eaga delivers Warm Front and HEES on behalf of Defra, England and Wales' largest domestic energy efficiency programmes for private housing. These schemes have been extremely successful in lifting qualifying recipients out of fuel poverty. Local authorities have delivered even greater improvements to social housing stock. The Government and energy companies currently fund over £1 billion worth of energy efficiency measures in housing every year⁶¹.

The Decent Homes Standard has been extremely successful in delivering energy efficiency improvements to social housing. Despite only 20% of housing stock being social housing, it includes over one third of those in fuel poverty. The Standard Assessment Procedure (SAP) rating system is extremely useful, but limited to providing average measure of social housing within each Local Authority area. Earlier this year eaga provided funding for the Energy Audit Company (EAC) to deliver more detailed SAP information for Local Authorities⁶², enabling more effective targeting of resources.

6. The technologies available to reduce emissions and the Government's role in facilitating relevant further technological development

As the majority of carbon emissions are generated by space and water heating, the most effective way to tackle emissions is to improve the thermal efficiency of the building to ensure less energy is needed to heat the property. As noted, this means a combination of improving insulation and using efficient heating systems. Cavity wall insulation currently offers the largest potential carbon saving per dwelling. Other cost effective measures generally offer lower, but still relatively large potential carbon savings. Unfortunately these options have relatively high up-front installation costs that mean these are not particularly cost-effective for householders, landlords or local authorities (without additional support or incentives).

The Government's plan for the *Technology Strategy Board—Innovation Platform on Low Impact Buildings* to drive the development of new technologies and their growth to market is a promising development⁶³. Commercial partners should be given the opportunity to participate in the proposed research and innovation groups to share costs and build on existing knowledge and experience.

Renewable heat is also a cost-effective opportunity to reduce the energy consumption and carbon emissions of housing. At an average cost of £3,500 per building (falling with economies of scale), solar thermal heating provides up to 70% of a homes hot water needs annually, dramatically reducing carbon emissions for space heating. The solar thermal system, as used by eaga renewables, requires minimal maintenance and can be applied to almost any home and added to existing heating systems. Small-scale micro-generation such as wind or solar photovoltaic has many of these advantages, but much greater average installation costs, lower energy conversion efficiency and higher maintenance requirements. These micro-generation technologies are currently much more expensive, and many cannot be applied to all properties.

The Low Carbon Buildings Programme provided grant based funding for some householders to install micro-generation measures in their homes. The "competitive" nature of the process, and complicated application process itself, is likely to have meant many of those who would most benefit from such measures were excluded from the chance of receiving assistance.

As earlier mentioned, one method of increasing the take-up of renewable energy could be the introduction by the Government of requirement for energy suppliers to support renewable thermal/ microgeneration technology as part of the Energy Efficiency Commitment. Its possible inclusion in CERT is an important step in the right direction. This would improve consumer confidence, reduce up-front costs and put in place a foundation for "buy back" of surplus energy produced. Energy companies should be required to deliver an agreed reduction in consumption by their domestic consumers, incentivised by Government subsidy.

⁶⁰ Data and citation from *Stock Take*, Sustainable Development Commission July 2006.

⁶¹ *Homes for the Future*, DCLG Green Paper August 2007.

⁶² http://www.eaga.com/media_centre/press/may07/01_%20research_grant_brings_warmth_to_homes.html.

⁶³ *Homes for the Future*, DCLG Green Paper August 2007.

7. *The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty*

As already established, improving the thermal energy efficiency of homes with insulation and efficient heating systems is the most cost-effective method of reducing their carbon emissions. However, while the cost of doing so in non-hard to heat homes is relatively low, it is still out of reach for many groups. The impact of fuel poverty is particularly felt among low income groups. Defra's Warm Front scheme is primarily a programme to lift these households out of fuel poverty, and has had considerable success in doing so. As a national scheme it is funded by central government. As it is only available to those on qualifying benefits, those groups who do not qualify but are still unable to fund energy efficiency measures should be considered for receipt other forms of assistance. Those in fuel poverty, such as asset-rich pensioners or ineligible low-income households, do not always overlap with those who qualify for appropriate benefits to receive Warm Front (or HEES) grants. As the National Audit Office (NAO) has noted, around a third of those who are fuel poor may not be eligible as they are not on benefits, while between 40–70% of those who are eligible are not fuel poor. As a result too many homes are not targeted either for their lack of energy efficiency or because their occupiers are fuel poor. The requirement that 50% of EEC energy savings be made from fuel poor groups does not appear to do enough to bridge this gap.

The initial cost of energy efficiency measures is invariably offset by reduced fuel bills in subsequent periods, but to many householders this payback is too slow and incremental to be a deciding factor. The aforementioned idea of reduced council tax for those able to pay householders who improve the energy efficiency of their homes could provide an incentive to do so without creating an additional tax burden. The United States' *Residential Energy Efficient Property Credit*⁶⁴ also provides a model to enable householders to make selected energy efficiency improvements (for example insulation, solar thermal systems etc) tax-deductible. Able to pay customers should be incentivised to improve their homes, rather than subsidised to do so. Other assistance for residents, such as reducing or eliminating VAT on the installation and materials for energy efficiency measures, would reduce the cost hurdle considerably. The difficult to implement concept of Personal Carbon Credits would serve to ensure householders were regularly made aware of their home's energy efficiency performance and could provide a further taxation / credit based incentive for those able to improve their homes to do so⁶⁵. More accurate information on the financial and environmental benefits for individuals (for example, building on that provided by the Energy Savings Trust in the *Home Energy Check*⁶⁶) could also drive uptake.

8. *The specific challenges which may arise in relation to housing of special architectural or historical interest*

eaga has considerable experience in dealing with hard to heat homes, which can mean those with non-traditional construction, solid walls, or those not connected to the gas network. These factors, which will also affect a great number of homes of architectural or historical interest, mean that the most widely used methods (cavity wall and loft insulation), may not be appropriate or indeed possible. For example, over four million homes currently in use were built prior to World War One, and approximately one seven million homes have solid walls (as cavity walls did not become a building requirement until 1965)⁶⁷. These considerable numbers mean any effort to improve the energy efficiency of architecturally or historically important housing must include exigencies to improve a wide variety of hard to heat homes. eaga looks forward to the opportunity of working with the proposed Technology Strategy Board on tackling the challenges these millions of homes present.

When the simplest and cheapest measures become inapplicable, other more expensive improvement options must be considered. Other forms of insulation, such as external cladding, is possible for hard to heat homes, but probably inappropriate for those of architectural or historical interest. Internal cladding is more viable, but necessarily disruptive to residents and relatively expensive (when compared to cavity wall insulation). Of course, careful choice of materials could mitigate some of these problems. Dealing with homes like these would require a reassessment of the cost/ effectiveness equation currently applied to schemes such as Warm Front. Secondary glazing, as an alternative to double glazing, could also be an appropriate efficiency measure.

Many homes of this type, such as those in rural areas, may not be connected to the gas network, which incurs further cost. Where appropriate, Warm Front installs oil based heating systems in eligible homes. In cases where this is not possible microgeneration becomes a more cost-effective option. Efficient heating systems are still an effective method of reducing the carbon consumption of homes of this type, and when combined with a renewable option such as solar thermal would have considerable impact upon their carbon emissions.

⁶⁴ <http://www.irs.gov/newsroom/article/0,,id=153397,00.html>.

⁶⁵ *Stock Take*, Sustainable Development Commission July 2006.

⁶⁶ <http://www.energysavingtrust.org.uk/proxy/view/full/165/homeenergycheck>.

⁶⁷ *Homes for the Future*, DCLG Green Paper August 2007.

Memorandum submitted by Uttlesford District Council

On behalf of Uttlesford District Council, here is our evidence for your enquiry. We believe that there are a number of new approaches that can be taken to address the CO₂ emissions of existing housing:

- Give stamp duty relief to householders who install energy saving measures within one year of taking ownership of a property. This can be linked to EPC recommendations.
- Make low-interest “green” mortgages or loans available to cover the cost of relatively expensive energy efficiency projects such as insulating solid walled, historic or other hard to treat housing, or installing solar water heating.
- Move away from a grants-based market transformation approach for microgeneration and instead introduce an enhanced feed-in tariff for demand side renewable electricity installations. This has proven to be a very successful approach in Germany at no perceptible cost to energy consumers.
- Develop CERT further to reconcile the energy suppliers’ business of selling energy, their obligation to improve energy efficiency and their desire to grow—set caps on the total amount of energy they can sell. This will in effect transform their business into energy services companies and will greatly increase their motivation to improve energy efficiency as this will then be the principal means by which they can grow their business.

Finally, we recommend that the Government implement a policy of consequential improvement similar to that which was dropped from the Part L revisions to the building regulations in 2006. This was going to require energy efficiency measures to be carried out in dwellings whenever building works over a certain value were carried out, but was left out at the last minute.

However, our council has proven that consequential improvement is an effective way to reduce the carbon emissions of existing housing. We implemented a form of consequential improvement through our local planning policies, requiring cost effective energy efficiency measures to be carried out in an existing dwellings when they are extended. A full explanation is contained in the attached case study we have recently developed in conjunction with Energy Saving Trust, but in short, it works, increasing the uptake of simple, effective energy saving measures, benefiting householders and the environment alike. Having implemented this policy for over a year we have encountered no significant resistance and there have been no appeals against it. Uttlesford District Council was highly commended in the 2006 National Energy Efficiency Awards for this initiative.

To conclude, in light of our experience, we recommend that the Government reconsider implementing consequential improvement nationally through the building regulations or the planning system. I am more than happy to discuss this further with the Select Committee.

Memorandum submitted by Heritage Link

Heritage Link brings together 81 voluntary organisations concerned with heritage in England representing interests from specialist advisers, practitioners and managers, volunteers and owners, to national funding bodies and local building preservation trusts. Much of the historic environment is cared for—supported, managed or owned—by these organisations and thus they and their members—from local civic societies to the national amenity societies with statutory consultee status—have firsthand and longstanding experience of the heritage protection system as well as advisory and educational roles.

We welcome the Committee’s initiative in looking at climate change in relation to the existing housing stock. We have been alarmed by the focus on energy efficiency in new buildings and by implication, vilifying older buildings as “leaky” without evidence or understanding. We are concerned that decisions may be made under pressure from the clamour around climate change that lead to irreversible “solutions” for lack of more measured advice.

Several members are already active in mitigating and adapting to climate change including: the National Trust, the Council for British Archaeology, the Church of England with its Shrinking the Footprint campaign, and the Theatres Trust, while others have expressed a wish for further information and advice. We see climate change as the biggest challenge that the historic environment has ever faced.

Some of our members are commenting from their specialist viewpoints but Heritage Link makes four general points relating to the Inquiry’s last question on the specific challenges which may arise in relation to housing of special architectural or historical interest.

1. The Government’s focus on new build development is misplaced when nearly 40% of domestic stock was built before 1930s and, although outside the scope of this inquiry, it is worth noting that 30% non domestic was built before 1940 and 77% of non domestic stock was built before 1985 when Building Regulations introduced conservation of fuel and power.

The government's focus on new build fails to recognise the significant reduction in emissions that occur as a result of refurbishing and re-using older buildings and areas whether designated or not. Fiscal reform to encouraging refurbishment, including an equal rate of VAT for repairs and maintenance alongside new work, is a must.

A large proportion of our historic environment is residential. Houses predominate the backdrop against which we carry out our day to day business and far outweigh the visitor attractions in this category. While some of this housing stock is listed a significant number of older houses lie in Conservation Areas where incremental change can very quickly destroy that sense of local identity that is a key aspect of the character and appearance of the countryside, villages and towns. The challenge is to accommodate adaptive and mitigating measures that will respect the integrity of internationally nationally and locally designated historic places and avoid effects that would compromise the objectives of designation.

Beyond these, lies an enormous tranche of older housing which contribute through materials, vernacular style, and layout to a local community's identity and sense of place.

With local designations also being promoted through the Heritage Protection Review, the challenges of climate change are not restricted to listed residential properties. A distinction between listed and unlisted buildings is even more difficult to sustain when in several areas the Lists are out of date. We welcome the broader approach that English Heritage is taking in its forthcoming guidance on making historic buildings more energy efficient.

2. Existing building stock makes up such a large part of our environment that although English Heritage, BRE, the Centre for Sustainable Heritage and others are active in this field, there is still much to be done and further, swift research on comparative environmental performance is needed. This might take into account issues such as embodied energy, the energy required for demolition and replacement materials, the impact on landfill, the relative costs of refurbishment and new build to name just some where a sound evidence base would promote a more valid assessment and erroneous assumptions would be avoided. Research and dissemination is needed just as much by individual owners as those with large portfolios of listed properties such as Local Authorities and Social Landlords including Housing Associations and Almshouses.

3. With increasing community involvement in the planning process, there is a need to communicate highly technical issues without either blinding with science or dumbing down. Communities as they play a stronger role in place making for the future will need to understand change and participate in adaptation and mitigation measures that affect the historic environment. They may have to be prepared for visually intrusive measures on much loved buildings. For Government, the specialist heritage bodies and the media, this is going to be an enormous challenge.

4. A holistic approach is also needed to demonstrate the part that the historic environment plays in wider environmental sustainability. Energy efficiency issues go far beyond buildings and structures alone. Weighing up transport costs for visitors to a historic site, such as a historic house in a remote area, and the impact that site has on the local economy in revenue, procurement, employment and quality of life is just one example of the complex balance of social and economic factors.

Heritage Link is keen to develop the understanding of the voluntary heritage sector on this subject and is currently considering a webpage to signpost members and others to research and other initiatives on climate change and the historic environment. The 2008 issue of *Heritage Counts*, the annual sector-wide audit of the historic environment, is expected to bring together current research on the subject.

In this context, we welcome the Committee's inquiry and the contribution it will make to our understanding of the issues involved.

Memorandum submitted by the Fuel Poverty Advisory Group

1. The Fuel Poverty Advisory Group is a group consisting of representatives of external organisations, set up by the Government to provide advice on the practical measures needed to meet the Government's targets of eradicating fuel poverty in England. Defra and Berr are the sponsoring Departments. A wide range of organisations is represented on the Group from energy companies to fuel poverty NGOs and broader consumer and housing groups and experts. The membership and terms of reference for the Group are set out in Appendix 1.

2. A household is defined as being in fuel poverty if more than 10% of its income is required to meet its heating and other energy needs.

3. The Fuel Poverty Advisory Group has found it very difficult to persuade Communities and Local Government to engage seriously on reducing carbon emissions and cutting fuel poverty in the homes of low income households through increased energy efficiency. In particular it could take some very simple measures to enable Local Authorities to participate more effectively in programmes to reduce carbon emissions and fuel poverty in low income households, but they have so far not been prepared to do this.

They have also not been willing to face up to the implications of the poor thermal comfort (ie energy efficiency) provisions in the Decent Homes Standard—admittedly a more complex issue because of the resource implications.

4. As background we are attaching as Appendix 2 a description of the two main fuel poverty programmes, apart from the Decent Homes Standard itself. We are setting below the actions which we have, over a number of years, recommended to CLG (some of them in co-operation with other Government Departments):

- Fuel poverty targets should be included in the new Local Authority Framework and it looks as if this will now happen (along with climate change targets). This is important as Local Authorities will have little incentive to be proactive and to devote resources to fuel poverty if it is not included as part of their performance measurement. Subsequently it will be important that Local Area Agreements should give reasonable priority to fuel poverty.
- The Decent Homes Standard has been very helpful in raising energy efficiency standards in the social sector. However, the thermal comfort/energy efficiency provisions of the Decent Homes Standard are very low—on loft insulation, cavity wall insulation and heating equipment. Homes meeting the Decent Homes Standard will still, in some cases, have very significant carbon emissions and will leave households in fuel poverty. The Decent Homes Standards are lower than those of Warm Front, the Government fuel poverty programme for the private sector. Warm Front measures have to achieve a SAP rating (measure of energy efficiency) of 65 wherever practical. This standard for Warm Homes is welcome, but it is hard to understand why the social sector Standard should be lower than that in the private sector when public funds are being used in both cases.
- The Fuel Poverty Advisory Group proposes that in the period to 2010 a SAP of at least 65 should be achieved wherever practical if Decent Homes Standard work is in any case being carried out in a Social Housing Dwelling. For the post 2010 period all Social Housing should have a SAP of at least 65, either by a change in the Decent Homes Standard or through a duty on landlords to achieve a SAP of 65 by 2016.
- Local Authorities need access to the information, which will enable them to locate those who could benefit from the fuel poverty programmes, or who might also be helped by advice on Benefit Uptake. We have been strongly urging Communities and Local Government to allow access for LAs to the energy efficiency data of the Energy Performance Certificates so that they can effectively target information on fuel poverty and energy efficiency programmes. This is clearly important, both for the reduction emissions and for fuel poverty. Communities and Local Government are considering this, but have so far not been willing to agree it, which is very disappointing.
- Some, but not all Local Authorities are unable because of legal uncertainties to access the data within their own Authority on Council Tax and Housing Benefit recipients for the purpose of targetting the fuel poverty programmes. Exactly the same arguments seem to take place about the legal issues in a range of different Local Authorities—a huge waste of time. And the answers are different in different Authorities—very unsatisfactory. This is not the fault of the Local Authorities and we are urging the Government to clarify the legal situation to allow access for Local Authorities to their own data for the purposes of the fuel poverty programmes.
- The forthcoming Energy Bill is likely to allow data sharing between the Department of Work and Pensions and the energy/energy efficiency companies for the purposes of targetting fuel poverty programmes and offering special services and prices to some households on benefit. This is very welcome and helpful, but if this is allowed it is hard to understand why the data sharing position for similar purposes within a single Local Authority cannot be clarified.
- The Home Health and Safety Rating System and the Houses in Multiple Occupation Legislation will be important potential tools for acting on fuel poverty and energy efficiency in the private rented sector. It will be important that the legislation, especially on the energy related parts, is implemented effectively and that the necessary resources are made available for this. If a landlord refuses the offer of a free Warm Front or Energy Efficiency Commitment low income group measure, then this provides a prima facie case for an HHSRS inspection. It will be helpful for CLG to promote the use of these provisions and for them to monitor their application.
- It will be useful for CLG to implement programmes for developing and installing non-mainstream energy efficiency measures (eg household renewables and solid wall insulation) for social housing in co-operation with Defra and Berr. It will also be important for CLG to encourage research and development into solid wall insulation so that more cost effective and customer friendly methods can be developed.
- FPAG is urging the Government to take a more holistic approach to identifying, locating and referring customer in fuel poverty who could benefit from the various programmes so that the energy efficiency of their homes could be improved. Local Authorities or the Health Service or the Department of Work and Pensions will be in touch one way or another with most of these households, so we are proposing to the Government that they should adopt a proactive integrated

approach, using the numerous contacts and the data available, to find and help those in fuel poverty. This is very much in line with the Government's objective to transform Government and provide a more seamless service. CLG (and Local Authorities) clearly have a key role here.

In conclusion the challenge of eradicating fuel poverty is a cross Government one. Of the key departments involved, CLG is currently the least engaged and we hope that the Committee will be able to help to change this.

APPENDIX 1

FUEL POVERTY ADVISORY GROUP MEMBERS

Peter Lehmann	Chair	
John Chesshire	Vice Chair	Chair—Energy Efficiency Partnership for Homes
George Mayhew	Director of Corporate Affairs	National Grid
Ian Peters	Commercial Director for British Gas Residential Energy	Centrica Plc
Nick Horler	Managing Director Retail	Powergen Retail Ltd
William Gillis	Chief Executive Officer	National Energy Action
David Threlfall	Chief Executive Officer Retail	RWE Npower
Gill Owen	Chair	Public Utilities Access Forum
Sarah Webb	Director of Policy and Practice	Chartered Institute of Housing
Dr Noel Olsen	Public Health Physician	
	Trustee	National Heart Forum
Jerry Robson	Chairman	Association for the Conservation of Energy
Mervyn Kohler	Head of Public Affairs	Help the Aged
Jonathan Stearn	Head of Campaigns	Energywatch
David Pickles	Local Government Association	Energy Agency Manager
John Clough	Chief Executive	Eaga Partnership Ltd
Teresa Perchard	Director of Policy	Citizens Advice
Eva Eisenschimmel	Chief Operating Officer	EDF Energy

TERMS OF REFERENCE

The Fuel Poverty Advisory Group is an Advisory Non-Departmental Public Body sponsored by Defra/DTI. Its primary task is to report on the progress of delivery of the Government's Fuel Poverty Strategy and to propose and implement improvements to regional or local mechanisms for its delivery.

The role of the Group is:

- To consider and report on the effectiveness of current policies in delivering reductions in fuel poverty and the case for greater co-ordination.
- To identify barriers to the delivery of reductions in fuel poverty and to the development of effective partnerships, and propose solutions.
- To consider and report on any additional policies needed to deliver the Government's targets.
- To enthuse, and encourage, key players to tackle fuel poverty.
- To consider and report on the results of the work to monitor fuel poverty.

APPENDIX 2

MAIN FUEL POVERTY PROGRAMMES

There are very sizeable schemes which provide energy efficiency measures free of charge for low income households and these measures can in many cases significantly reduce families' fuel bills. The schemes also provide Benefit Entitlement Checks—to assess whether households are getting all their benefit entitlements.

WARM FRONT

Under Warm Front, eligible customers receive energy efficiency measures eg insulation, central heating, long life lightbulbs, free of charge. Those eligible are households with children and pensioners on means tested or disability benefits and tax credits in private sector housing. Households can also have central heating installed—if they do not have central heating. The scheme is for the private sector not social housing.

Benefits entitlement checks are carried out for all households who want them.

Warm Front is a scheme for England, with annual expenditure of about £300–£350 million pa. The devolved administrations have similar but not identical schemes. In Scotland there is also a scheme to install central heating for all pensioners not just those on means tested benefits.

THE ENERGY EFFICIENCY COMMITMENT

The Energy Efficiency Commitment is an obligation on the companies supplying electricity and gas to households to secure energy savings from their household customers largely via insulation, and efficient white goods. Half the benefits of the scheme have to go to “the Priority Group”—those on low incomes ie those receiving means tested benefits or tax credits or disability benefits. Many of the measures are provided free of charge to the Priority Group. This scheme covers both private and social housing sectors in Britain. The scheme is a sizeable one with expenditure by the companies of perhaps £200 million pa on the Priority Group from April 2005. This is likely broadly to double from April 2008.

There are six major companies involved—British Gas, EDF Energy(formally London and South West Electricity), RWEnpower (formally National Power), Eon UK (formerly Powergen), Scottish & Southern, and Scottish Power.

There are periods when some of the companies are not offering help under the schemes.

The scheme is being expanded and renamed from April 2008. It will be called the Carbon Emissions Reduction Target—CERT. Expenditure on the Priority Group is likely to be c £400 million pa.

Contacts for the Schemes

More detailed information about the schemes and contact details for them can be found on the website of the Energy Saving Trust <http://www.est.org.uk/myhome/gid/>

Memorandum submitted by the Black Country Housing Group Ltd

The significance of existing housing compared to new build and the different levels of performance each display

1. Existing housing is statistically much more significant than new build.
2. In the context of 2050 almost all existing housing and a significant proportion of “new” housing built up to 2016 will need to be upgraded, albeit only insulating external walls.
3. Insulation upgrades should be to the optimum standard for 50° -60° North in one go and neither the economic thickness nor a series of top-ups as in the past. (The problem with the economic thickness of insulation is that it is predicated on the cost of fuel (oil prices) and the cost of money (interests rates). If the costs fall the economic thickness falls).
4. The underlying data behind Home Energy Conservation Act reports is a good indicator of relative performance. Actual fuel bills would also be useful. There is no reason why Energy Performance Certificates should not publish actual fuel bills.

The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency

1. Residents are responsible for their behaviour and the cost of fuel will have an influence over that. Fines and incentives could also influence behaviour.
2. Building owners must be compelled to improve the performance of their buildings in the same way car owners are.
3. Local and central government can tax and hypothecate through penalties and incentives and can operate EPCs in a more MOT-like manner.
4. Local and central government must also co-ordinate distribution services for heat and power to make more efficient power generation, eg combined heat and power and generation by alternative technologies, eg solar photovoltaic panels cost effective and functionally efficient. The co-ordination needs to address the appalling inefficiencies of energy utility infrastructure provision and the tension between highways, road users and competing energy utility and other utility organisations, e.g. water and telecommunications.
5. The energy utility companies need to solve the technical problems of distributing electrical power from distributed generators. The current system does not work. This is an urgent priority.
6. Central government may need to legislate to force energy utilities to accommodate power from distributed generators.

7. Central government should explain that the cost of electricity generation is only about one third of the cost of electricity delivered to users. The balance covers the cost of distribution and administration. These costs do not change if you export electricity and therefore building owners/occupiers will never be able to sell electricity for the same price that they buy it.

Energy performance certificates

1. These should be mandatory, annual and should be against the 2050 target.
2. They should include actual annual fuel consumed.
3. They should operate in a similar manner to the MOT for vehicles with comparable penalties.

The provision of information for households and prospective house buyers, including energy performance certificates

1. They should include actual annual fuel consumed.

Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

1. The Decent Homes Standard should be repositioned as the lowest acceptable performance standard not a target that is aspired to.
2. There needs to be an audit of the housing stock that identifies those dwellings that cannot be treated and therefore have to be replaced.
3. There needs to be a schedule for replacement.

The technologies available to reduce emissions and the Government's role in facilitating relevant further technological development

1. Central government should commission R&D for insulation products that are an order of magnitude better than current products—especially for external walls.
2. Central government must facilitate solving the problem of distributing electricity from distributed generators.

The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty

1. The tax-payer will have to pay for this.
2. Where the tax payer improves their own building tax can be waived.
3. Sufficient tax must be levied to hypothecate to low-income households so that the cost of reducing carbon emissions does not worsen poverty.

The specific challenges which may arise in relation to housing of special architectural or historical interest

1. Central government needs to identify how many museum pieces are required and which they are.
2. There are huge swathes of older property that have no architectural merit but that are a key part of their urban fabric.
3. A new aesthetic would be just as valid as the existing appearance in the majority of older housing stock and could accommodate external insulation where internal insulation is not practical.
4. Some museum pieces will no longer be suitable as dwellings, but would be suitable for other uses, eg storage or office use.

This inquiry will focus on functions which are integral or semi-integral to housing fabric such as heating and lighting. The Committee will not examine the environmental performance of individual household appliances

1. This is a mistake. Electrical power must be considered. We are developing low-power distribution and appliances concepts.
2. Half of electrical power in many devices is wasted in transformer heat losses and fan-cooling. If devices only need low power they should be supplied with low power.
3. A new low-power standard for devices would demand a separate circuit built into the home and appliances designed to work from it.

4. The study should also consider the implications for future cooling of dwellings.
5. Central government should sponsor R&D into phase change materials that obviate the need for air conditioning.

Memorandum submitted by the National Landlords Association

The National Landlords Association is pleased to be able to respond to the Communities and Local Government Select Committee enquiry into the existing Housing Stock and Climate Change.

The enquiry seeks to examine a number of areas which are contributory factors to the current situation regarding energy efficiency in the existing housing stock. The enquiry is wide ranging and attempts to draw out the issues of key importance to improving energy efficiency in the existing housing stock. The NLA recognises that the issues identified for examination are entirely appropriate to the enquiry. The NLA response necessarily concentrates on those areas in which the Association has expertise.

1. BACKGROUND: ABOUT THE NLA

1.1 The NLA is the largest single landlords association in the country. It has members right across the United Kingdom, including five special corporate members, Birmingham Midshires, Bristol & West, Mortgage Express, Mortgage Trust and Paragon, and fifty local authorities who are associate members.

1.2 The NLA protects and promotes the interests of private landlords of residential property and represents their views to government, local authorities and the media. The NLA seeks a fair legislative and regulatory environment for the private-rented sector while aiming to ensure that landlords are aware of their statutory rights and responsibilities. It campaigns to raise standards in the private-rented sector whilst fostering a professional and amicable relationship between landlord and tenant.

1.3 We deplore, and do what we can to dispel, the notion of the “get-rich-quick” phenomenon of speculative investment. The NLA believes that residential property investment is a long-term proposition which must be managed properly and that private landlords must make themselves aware of the regulatory and commercial environment in which they operate. We offer our members the services they need to achieve this via, for example, our advice line available to members every day of the working week, and the bi-monthly journal *UK Landlord*.

The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency.

2. THE ROLE OF THE PRIVATE RENTED SECTOR LANDLORD

2.1 The National Landlords Association recognises the important role the Private Rented Sector has to play in dealing with the challenges facing us owing to climate change. As a founder member of the Private Rented Sector Sub-group of the Energy Efficiency Partnership for Homes, the NLA has played a leading role in publicising and promoting energy efficiency issues to landlords and informing policymakers about the challenges facing the private rented sector. The NLA is also a member of the All Party Parliamentary Climate Change Group.

2.1.1 We accept that the private rented sector has been seen as a difficult sector to reach in terms of promoting energy efficiency measures in homes. For the most part this has been because the most tangible benefits of energy efficiency—such as lower energy bills and higher levels of comfort -do not, except in some multi-occupancy properties, directly affect the landlord, whilst it is the landlord who has to pay for the improvements. Moreover, there is limited scope to recover the, sometimes considerable, costs of improvements via increased rents. The NLA has nevertheless consistently outlined the benefits to landlords. These include:

2.2 Decrease voids

In areas of low demand, an energy-efficient property may give an edge over the competition. In areas of high demand, where there is a more environmentally aware younger professional tenant market, the same considerations will increasingly apply. Advertising schemes are already being drawn up by the Energy Savings Trust and other groups to promote to student communities the existence of Energy Performance Certificates, with the hope that the message will be taken on as they leave university and make their first move—usually into the private rented sector.

2.2.1 Maintaining fabric of the property

It is sometimes overlooked that energy efficiency improvements will help maintain the fabric of the building. Damp, mould and frozen pipes are less likely in an energy efficient property, thus keeping maintenance costs down. The improvements will also, hopefully, encourage the type of tenant who will appreciate the improvements and look after the property.

2.2.2 Market advantage

Whilst few tenants currently ask questions about energy efficiency measures, they do regularly ask about the cost of heating and lighting. There is an opportunity for the landlord who has made improvements—who has perhaps supplied energy efficient light bulbs and appliances—to use this as a market advantage by pointing out the cost benefits the improvements will provide.

2.2.3 Boscombe Model Energy Efficiency Scheme

As an example of what can be achieved in promoting energy efficiency measures, the NLA has been actively promoting what was achieved under the NLA members should look to what has been achieved by NLA (Dorset) in The Boscombe Project. The area houses many of the most vulnerable residents of Bournemouth. In a partnership between local NLA members, the local Energy Savings Trust and the local authority, all houses in multiple occupation (HMOs) in the Boscombe area of Bournemouth were made thermally efficient.

2.3 As is the case with the owner-occupier sector, with the exception of some very ecologically motivated landlords, the decision to make energy efficiency improvements will inevitably be based on financial considerations.

2.4 Whilst the Decent Homes standard is not a direct indicator of energy efficiency in a property, it contains an assessment of thermal comfort. On this basis it shows that that the private rented sector has been consistently working to achieve an improvement in standards. The Government's most recent English Housing Condition Survey 2005 indicates that 59.4% of the housing stock in the private rented sector now meets the Decent Homes Standard. This figure has steadily been increasing over the past few years. The thermal efficiency statistics for the sector—based on a SAP rating—put the figures for the private rented sector and the owner-occupied sector at almost identical levels, at 46.0 and 46.1 respectively.

2.4.1 The findings also indicate that the number of vulnerable households living in non-decent accommodation in the private rented sector is higher than in other sectors. This is a challenge facing the sector and we recognise this. We feel there are a number of key factors to be considered. The majority of landlords in the UK do not belong to a landlords association. Consequently they may have only limited access to useful and authoritative information and advice on how to set about improving the energy efficiency of their property. Furthermore, they may not know that they can obtain information on grants and other incentives to make energy efficiency improvements. There are also rogue landlords who may prefer not to become members of an association or make themselves known to the local authority so as to avoid their responsibilities. These landlords should be encouraged to improve or else marginalised from the sector.

3. ROLE OF TENANTS

3.1 The NLA would welcome an impetus from the market to make energy efficiency a higher priority than it currently is. Until now there has not been widespread interest from tenants calling for investment in energy efficiency measures.

3.1.1 Anecdotal evidence from our members suggests that the energy efficiency of a property is usually a long way from being a prime consideration to the average prospective tenant. If energy efficiency measures are mentioned at all by the tenant it is usually in the context of asking if the double glazing keeps the traffic noise out.

3.1.2 The Regulatory Impact Assessment on HMO Licensing November 2004 shows that:

- 42% of tenants have lived in their home less than a year, compared with 11% of social tenants and 7% of owner-occupiers;
- 40% of tenants are under 30 (up from 29% in 1994).

3.1.3 The tenants who do not plan to stay long-term in rented accommodation are less likely to ask their landlord to make energy efficiency improvements since they do not have a vested interest in long-term efficiency gains. Younger tenants tend to be less concerned about thermal efficiency of properties and more concerned with other aspects of the accommodation, such as proximity to work, friends and public transport.

3.1.4 We recognise that there may also be some fears from a small minority of tenants over retaliatory eviction if they press their landlord for energy-efficiency improvements to the property. Whilst there are rogue operators in the sector who may act in this manner (the NLA does not recognise them as “landlords”), the perception of this problem may be more of a barrier to requests for improvements than the actual extent of the problem.

4. THE SIGNIFICANCE OF EXISTING HOUSING COMPARED TO NEW BUILD AND THE DIFFERENT LEVELS OF PERFORMANCE EACH DISPLAY

4.1 It is difficult to obtain detailed information on the sector. However, we would invite the Committee’s attention to the following, taken from the Regulatory Impact Assessment:

- Much of the stock is old—In 2001 43% of properties were pre-1919 and 59% pre-1944;
- 30% of landlords rent only one property.

4.1.1 It is clear from this that the practical challenges facing the sector are considerable. The age of the stock alone multiplies the difficulties and costs of upgrading the properties. Two specific points can be made: the vast majority of pre-1919 housing will have solid walls and therefore not be capable of being improved by cavity wall insulation. And secondly, the sector has a disproportionately high percentage of flats, most of which are ineligible for loft insulation. The older the property the more often repairs are required, and the more costly any potential energy efficiency improvements may be.

4.1.2 The third of the sector that owns only one let property presents yet more potential challenges. They are not able to introduce measures in as cost effective a way as owners of multiple properties and may be disinclined to do so. Moreover they are possibly less likely to join a landlords association and do not have the ready access to advice on grants, fiscal incentives and advice on best practice that membership of the better-founded landlords associations offers.

4.1.3 Despite these difficulties the sector has been improving in recent years as is shown in the decent homes figures for the private rented sector.

5. ENERGY PERFORMANCE CERTIFICATES

5.1 Two key aims of the Directive are to encourage prudent use of natural resources and to improve energy efficiency. The mechanism chosen to help achieve this is that all properties—owner occupied and rented—should make a valid Energy Performance Certificate (EPC) available to the prospective buyer or tenant before the property is sold or let.

5.1.2 The NLA has been involved in the consultation process held by DCLG for the design and information content of the EPCs. The NLA believes that the EPC will be a driver for improvements in the sector when they are introduced in Autumn 2008. The NLA has consistently stated that it would welcome market-driven improvements to energy efficiency of properties; however, we would be concerned if the measures were made mandatory. Such a step would not address the worst properties run by the rogue operators who may currently operate without the knowledge of the authorities. Moreover it would lessen acceptance by the majority of landlords who comply with current legislation and are already feeling the weight of existing levels of regulation.

5.1.3 We strongly urge that the recommendations contained in the EPC should remain recommendations and not become requirements. Were the certificates to have elements of compulsion acceptance of the policy by the sector that the NLA has been working hard to achieve may be jeopardised. The EPC has been presented to landlords as an opportunity to market their properties rather than as yet another piece of legislation imposed on landlords.

5.1.2 The format of the EPCs in Scotland and Northern Ireland is still unclear. The NLA has members across the United Kingdom. We recommend consistency in the implementation of the directive across the devolved assemblies to avoid confusion over differing styles of presentation, information and requirements.

6. WE WOULD ALSO LIKE TO HIGHLIGHT THE EXISTING MECHANISMS WHICH COULD BE USED TO IMPROVE ENERGY EFFICIENCY IN THE PRS

6.1 *Building Regulations. Part L 2006*

Part L regulations refer to the energy efficiency of a building and apply to new buildings or alterations to existing buildings of any sort—domestic, industrial or commercial. Under the regulations the Dwelling CO₂ Emission Rate must be lower than the Target CO₂ Emission Rate. This regulation will apply if landlords are making material alterations to the interior or exterior of the building. CLG suggests that changing the windows in a property may trigger these regulations.

6.1.1 Housing Health and Safety Rating System (HHSRS)

The HHSRS has replaced the old fitness standard with a risk assessment procedure. Excessive, cold and damp, and mould growth, are two of the hazards which HHSRS will consider. This will be of particular interest to landlords in parts of the country where the climate is colder and wetter, and energy efficiency improvements may improve the rating.

6.1.2 Local authorities already have powers to require energy efficiency improvements. The NLA would not support the imposition of more regulation on the private rented sector, which is trying to cope with the wide-ranging changes recently introduced by the Housing Act 2004 and tenancy deposit protection.

7. CURRENT ASSISTANCE FOR LANDLORDS

7.1 *Green Landlord Scheme*

Many NLA members have heard of the Green landlords Scheme as it has received a relatively large amount of publicity. It was originally mentioned in the 2004 budget that the Chancellor would develop incentives for landlords to be “green”. Unfortunately there is very little to show for the scheme itself three years down the line, apart from welcome developments on Landlords’ Energy Savings Allowance. The NLA believes that government should do more to develop a package of measures, including fiscal incentives for energy efficiency improvements.

7.1.1 Landlords Energy Savings Allowance (LESA)

The allowance has provided landlords with a deduction on income tax to a maximum of £1,500 when they install loft or cavity wall insulation in their let property. The NLA welcomed the extension of the LESA in this year’s budget, which enabled landlords to also claim the allowance for installing draught-proofing and insulating hot-water systems. This is an attractive tax break for landlords, though we would like to see it extended to include any energy efficient measures. There is a danger that if specific types of investment are targeted the technology may become out of date, resulting in properties not suitable for existing measures to lose out.

7.1.2 Warm Front

Warm front is a government grant scheme which provides funds to cover insulation and heating improvements. It offers up to £2,700 on heating and insulation improvements, or up to £4,000 to cover oil central heating projects if they are deemed desirable.

7.1.3 Access to the fund is based on the tenant’s circumstances and the tenant must be in receipt of benefits to be eligible. The drawbacks to the scheme are that it is the tenant who must make the application for the fund and not the landlord. There are practical implications which arise from a fund which is based on an individual’s eligibility, and it can exclude the most vulnerable. For example, if the tenant is resident in an HMO the work cannot be carried out on the whole property just because one eligible tenant is living there. Furthermore, landlords can be concerned about the contractors used by the local authorities to carry out improvements. The landlord has no power over who carries out the work and often has little opportunity to decide exactly when the work will be done. Moreover the landlord who agrees to this scheme has also to agree not to increase the rent for a 12-month period afterwards.

7.1.4 Local Authorities

Many local Authorities run grants for energy efficiency improvements independently of the schemes above. As the grants are funded from each local authority’s individual budget, interested landlords are required to contact the local authority for information on what might be available to them. As yet we have been unable to obtain authoritative information about the level of take-up of grants.

8. THE TECHNOLOGIES AVAILABLE TO REDUCE EMISSIONS AND THE GOVERNMENT’S ROLE IN FACILITATING RELEVANT FURTHER TECHNOLOGICAL DEVELOPMENT

8.1 The NLA is not expert in the development and application of new technologies. Nevertheless, it is actively seeking to assess ways of making energy efficiency products available to its membership. Retro-fitting in the industry as a response to the consequences of climate change which are already being felt needs further examination. The NLA is concerned that, owing to the structure of the sector described above, the costs of retro-fitting will be relatively high for private landlords.

8.1.1. The NLA is developing links with suppliers of energy efficiency products. This has so far focused on metering systems. Raising tenant awareness of the amounts of energy used will be attractive to those properties, often multiple occupancy, where the energy bills are covered by the landlord as part of the rent.

8.1.2 The NLA has also been examining the use of water efficiency systems and is discussing possible links with Waterwise, a not-for-profit NGO seeking to reduce water consumption.

9. THE PROVISION OF INFORMATION FOR HOUSEHOLDS AND PROSPECTIVE HOUSE BUYERS, INCLUDING ENERGY PERFORMANCE CERTIFICATES

9.1 The provision of information to the private rented sector has been poor. Consequently, knowledge in the sector of energy efficiency issues has been poorer than that of the owner-occupier sector. The NLA has developed its energy efficiency strategy over the past two years and promoted and explained energy efficiency to our membership. Whilst we have been pleased with the interest shown, the message is not being sufficiently reinforced in wider circles.

9.1.2 As outlined in other areas of this response, much more can and should be done by central and local government to promote energy efficiency in the private rented sector. Moreover, by focusing on providing incentives for landlords letting to housing benefit claimants (a minority), current incentive schemes have failed to raise the profile of the energy efficiency beyond a small section of the sector.

10. SUGGESTED ROUTES FOR IMPROVEMENT IN THE SECTOR

10.1 *Grants*

Grants would be a good way to incentivise the sector but the grants must be promoted and advertised by central and local government and possibly through landlords' organisations.

10.1.1 Tax incentives

Tax incentives must be administratively effectively. Stamp duty reductions or increased tax allowances would need to be looked at closely and may not be the most effective method of encouraging energy efficiency improvements in the sector. The focus of fiscal changes in this way should be on the use and supply of energy.

10.1.2 VAT reduced rate for non-grant schemes

The government should consider extending VAT reduction for the supply and installation of energy efficient products or materials to non-grant schemes for landlords employing contractors. Currently the reduction only applies where the landlord installs the measure himself. This situation discourages improvements.

Realignment of the taxation system could be an effective method of addressing the supply and demand of energy. Dealing effectively with these two issues will, we suggest, have a positive effect on energy efficiency levels in the sector. We strongly recommend the government to reform VAT levied on:

- Domestic appliances purchased for use in let residential property.
- DIY materials purchased and installed by landlords and homeowners.
- Repair, maintenance and improvement of domestic properties.

10.1.3 Tenant Education

Responsibility for addressing the problems arising from climate change should also fall on tenants. In unfurnished properties in particular the choices a tenant makes on which appliances to buy and how they are used can have a significant effect on the consumption of energy in the home. Tenants, and should be given positive incentives to buy energy efficient products. Tenants' responsibilities should be advertised by government. Landlords can recommend suppliers or products, but they should not be required to insist that a tenant uses or buys certain types of products.

10.1.2 EEC/CERT

Under the Energy Efficiency Commitment (EEC), electricity and gas suppliers are required to achieve targets for the promotion of improvements in domestic energy efficiency. The EEC contributes to the Climate Change Programme by cutting greenhouse gas emissions. At least 50% of energy savings must be focused on a priority group of low-income consumers in receipt of certain benefits and tax credits/pension credit. In this way it is expected that the EEC will contribute to the eradication of fuel poverty.

A key challenge is for landlords' representatives and energy companies to work together to develop packages under the EEC commitment—and subsequently CERT—to produce packages that will incentivise the private rented sector. The NLA is currently in discussions with two large energy suppliers to develop schemes designed to provide tangible benefits to its membership. The NLA has been disappointed, however, that more energy suppliers are not seeking to develop their own packages. In fairness many suppliers have schemes that will pay the full costs of improvements in properties with tenants in receipt of housing benefit. This will improve conditions for some of the most vulnerable and some of the worst accommodation. From our conversations with suppliers the uptake of even these free improvements has been poor. A possible reason for this is a concern that the energy companies will try to tie the landlord or the property in question into a business relationship. More needs to be done by government and the energy companies to fully explain the way the schemes will work. It is also important to develop packages that do not seek simply to benefit the most vulnerable but can be applied to the whole of the sector.

Memorandum submitted by the Institute of Historic Building Conservation

The Institute of Historic Building Conservation (IHBC) is the professional body of the United Kingdom representing conservation specialists and historic environment practitioners in the public and private sectors. The Institute exists to establish the highest standards of conservation practice, to support the effective protection and enhancement of the historic environment, and to promote heritage-led regeneration and access to the historic environment for all.

The Institute welcomes the opportunity to submit a memorandum to this Inquiry.

The Institute's interest in the Inquiry arises because an estimated 25% of the housing stock consists of historic buildings and those of similar traditional construction. Broadly speaking, this is constituted by nearly all pre-1919 stock and some post-1919 stock. The Institute is also interested because a substantial proportion of post-1919 housing stock is in conservation areas and other areas of visual quality which it is desirable to preserve and enhance.

The Institute welcomes the Government's drive to reduce greenhouse gas emissions and switch to alternative energy sources. We welcome the approach that pays close attention to improving the performance of existing buildings and recognize that historic buildings do have a part to play in achieving the overall aim.

However, the Institute is concerned that much of the drive for energy efficiency is based on new technologies and their use in the construction of new housing. This largely ignores traditional and vernacular approaches many of which have merit, particularly when the future of traditionally built stock is being considered. Examples of these approaches are set out in Appendix A to this memorandum.

The Institute has four broad areas of concern:

- The desirability of a whole life-cycle approach to energy use in existing buildings.
- The need for well-structured independent guidance on energy efficiency in the existing housing stock.
- The importance of improving the energy efficiency of historic property in ways that do not undermine its integrity.
- The importance of quality of place in improving and maintaining the value of existing housing.

WHOLE LIFE-CYCLE APPROACH TO ENERGY USE

When dealing with existing buildings, the Institute believes it is important to consider the whole life-span of the building in energy terms and not just its energy performance in use as the Building Regulations do. With new construction the energy requirement in construction may vary from project to project but there can be no offset for the embodied energy of existing fabric. With existing buildings account can, and should, be taken of this.

The construction and demolition industries account for about a quarter of all waste produced. The Housing Market Renewal Pathfinders have caused the demolition of large numbers of dwellings many of which, it has been shown by Urban Splash and others, could have been remodelled and re-used. Many building materials have high energy inputs in their manufacture including bricks and especially cement. Yet it is estimated that 70% of all brick manufacture is merely replacement of stock lost through demolition. It is important, therefore, to prolong the lifespan of buildings and thus avoid the manufacture of new materials with its energy implications wherever possible.

Where buildings do have to be demolished, re-use of materials should be promoted wherever possible. It is known that sometimes recycled materials are not used because there is no guarantee of their long-term performance. Government guidance on how to evaluate life-expectancy of recycled materials would be useful. There is a strong argument for demolition to be brought within full planning control. This would allow approval subject to conditions which might regulate the destiny of salvageable components and materials and thus reduce energy use overall.

The Institute would like to see a shift in the balance of the Government's approach to energy efficiency towards:

- The use of whole-life energy audit of houses as an assessment of their energy efficiency.
- Where houses are proposed to be demolished and replaced, full whole-life energy audits of both refurbishment and replacement informing the decision.
- Better recognition of traditional building techniques and materials that promote recycling and recyclability of materials.

NEED FOR GOOD INDEPENDENT GUIDANCE ON ENERGY EFFICIENCY IMPROVEMENT

Improving the energy performance of existing buildings needs to be done in ways that are complementary to the nature of the building and its original construction. Traditionally constructed buildings do not perform in the same way that modern buildings do. Modernisation techniques based on air-tightness and ill-considered positioning of vapour barriers are often incompatible with property built traditionally in which the ability of the fabric to move and breathe is vital for its long-term safety and future.

It is important, therefore, that in any campaign to improve the energy efficiency of existing dwellings, proper independent advice is available. This needs to ensure that property owners do not find that the promised long-term financial benefits of thermal improvements (there are rarely any short-term benefits) are not overshadowed by disbenefits caused by deterioration to the fabric of their home.

uPVC windows are an example of a building component frequently installed in the interests of energy efficiency without consideration to whole-life energy implications. The decision to install them is usually taken on the basis of estimates of heat loss reductions (the information supplied by the window's salesman). The following aspects are often ignored:

- The energy used in manufacture (from a fossil fuel source).
- The energy used in disposal (uPVC has a much shorter life-span than well-maintained, good quality timber).
- The polluting effects of disposal.
- If the house is of traditional (pre-1919) construction, the possible adverse effects on its fabric and the costs involved in remediating them or in a shorter lifespan for the house.
- The effect on the value of the house or its location by the alteration of its visual appearance.

The Institute believes there needs to be much better information on the costs and benefits of energy improvements for householders. The relationships between the costs and benefits, in both financial and energy terms are complex. These are well known in the case of some simple techniques (draught proofing and loft insulation, for instance) but far less so in others, particularly those involving higher costs (double glazing, wall insulation, microgeneration).

It is to be hoped that the building industry might be engaged in the process of disseminating best practice. This should involve a more holistic approach that placed emphasis on the interests of the property rather than the supposed benefits of individual products according to their manufacturers and suppliers.

MAINTAINING THE INTEGRITY OF HISTORIC BUILDINGS

The listed building regime is shortly to be replaced with a unified register of historic assets. It is important that any changes to regulation or advice on the energy efficiency of housing take this into account. There is a strong argument for extending special consideration to all houses of traditional construction (say all pre-1919 houses) to ensure that new energy efficiency initiatives do not undermine their fabric and longevity.

Historic buildings are protected because of their historical and cultural value. While improving the energy efficiency of listed buildings is a laudable goal which the Institute supports, the techniques to be used must be compatible with the need to preserve the historic character and appearance of the building. Energy efficiencies can be incorporated into listed buildings without harm, but many modern techniques can cause serious harm to the fabric of the building or otherwise adversely affect its character or appearance.

So it is vitally important that listed buildings retain their exemption from the full rigours of Part L of the Building Regulations with possible extension of this to pre-1919 houses. In recent consultations about extensions to permitted development rights, we argued that the setting of listed buildings was an important aspect which had been missed when the proposals had been drafted. There is a danger that proposals for energy efficient improvements (that would clearly benefit the building for which they were proposed) might be seriously detrimental to the character and appearance of a nearby listed building. In this context wind turbines and external cladding spring immediately to mind.

Historic buildings were usually built in a manner we would call sustainable today: local materials, low energy inputs and reusable and recyclable components. In particular, lime was (and is) a particularly green material because it fixes CO₂ whereas cement production causes 3% of all greenhouse gas emissions.

Returning to environmentally friendly methods of construction should be a complementary part of the process to the primary aim of reducing buildings' energy in use for existing buildings (including historic ones) and new construction alike.

BS 1793:1998 *Guide to the principles of the conservation of historic buildings* provides a good starting point for the development of best practice on energy efficiency for historic buildings, but will need further development and a significant price reduction to bring it into more widespread use.

MAINTAINING THE QUALITY OF PLACES

Housing stock makes up a substantial percentage of the nation's wealth. It is important that this should continue to be valued and invested in. Some of the country's most treasured areas are designated as conservation areas. It is important that the visual quality of conservation areas is not impaired by insensitive proposals to alter existing dwellings. This is explicitly accepted in the Government's drive to improve the quality of places through improved design.

In recent years there have been many examples of ill-considered alterations to houses that have undermined the historic and visual qualities of conservation areas—loft conversions, external cladding, plastic windows etc. The Institute would wish to see Government policy and guidance on energy efficiency developed in such a way that does not contribute to degrading the visual appearance of historic places. Proposals for energy efficiency should not just take into account the benefits for the individual building but also the wider environmental impacts.

We would be grateful if these comments could be taken into account. The Institute would be happy to give more detailed evidence on any aspect raised in this memorandum.

APPENDIX A

The IHBC and its members work towards the sustainable reuse of existing buildings by:

- Promoting the reuse of buildings rather than demolition and redevelopment—the manufacture of 30 bricks uses the equivalent of one gallon of petrol. 90,000 houses—the equivalent of a town the size of Derby—are demolished annually.
- Promoting the use of local craftspeople who contribute to the viability of their local community rather than supporting mass production and extensive carriage distances for products and materials.
- Supporting local business premises and community buildings through grant aid.
- Promoting the use of natural long lasting materials which are produced without generating noxious side effects.
- Promoting the use of sustainable timber and locally available materials.
- Keeping our activities to levels that do not permanently damage the environment by taking a long term view.
- Ensuring that decisions about the historic environment are made on the basis of the best possible information.
- Developing projects that incorporate these policies, including promoting best practice to developers, home owners and the wider public.
- Promoting designs for new buildings in historic areas which exploits the natural advantages of the site to maximise heat gain and minimise heat loss. This includes main windows on sunny aspects with cat slide roofs and few or small windows on cold sides, shelter from cold north easterlies provided by walls, hedges, trees along boundaries etc.

Memorandum submitted by the Environmental Industries Commission

EIC was launched in 1995 to give the UK's environmental technology and services industry a strong and effective voice with Government.

With over 330 Member companies EIC has grown to be the largest trade association in Europe for the environmental technology and services (ETS) industry. It enjoys the support of leading politicians from all three major parties, as well as industrialists, trade union leaders, environmentalists and academics.

EIC's Energy Efficiency Working Group represents over 80 companies involved in providing advice and technology in the field of energy efficiency.

INTRODUCTION

EIC believe that tackling the climate change impact of our homes is crucial if the Government is to fulfil its commitment to reduce UK carbon emissions by 60% by 2050. In 2004, 27% of the UK's total emissions of carbon dioxide came from the energy we use to heat, light and power our homes.

If the domestic sector took a proportionate share of the Government's target to reduce carbon emissions by 60% on 1990 levels by 2050—as set out in the Climate Change Bill—carbon emissions in the domestic sector would need to fall from around 154 million tonnes of carbon dioxide to around 62 million tonnes of carbon dioxide.

However, there are two factors that could mean that a far greater reduction will be needed:

1. The increase in housing development—the Government is committed to building three million new homes by 2020.
2. The commitment in Gordon Brown's Labour party Conference speech to review the targets under the Climate Change Bill. If the targets increase the domestic sector will need to make a greater contribution than what is already required.

New homes are of course crucial to this. In this area the Government recently announced an ambitious target for all new homes to be zero carbon by 2016, which EIC welcome.

However, at least 75% of homes are still expected to be in use in 2050, therefore tackling the carbon footprint of existing homes is crucial.

EIC do not believe that there is a panacea for reducing the contribution of existing homes to the UK's carbon emissions. Instead a mix of measures is crucial.

A coalition of thirty-six cross-party MPs and leading business and environmental organisations—led by EIC—recently launched a Joint Statement on Energy Efficiency outlining 11 clear and achievable measures to help people and companies waste less energy.

As part of the Joint Statement signatories called on the Government to introduce a number of measures aimed at reducing the climate impact of existing homes.

I enclose a copy of the Joint Statement for your information with a full list of signatories.

CARBON EMISSION REDUCTION TARGET

One of the Government's key measures for reducing carbon emissions from existing homes has been the Energy Efficiency Commitment (EEC). Under the scheme electricity and gas suppliers are required to achieve targets for the promotion of improvements in domestic energy efficiency.

The first phase of the EEC ran from 1 April 2002 to 31 March 2005 and is expected to save 0.3 million tonnes of carbon annually by 2010. The second phase of the EEC runs from 1 April 2005 to 31 March 2008 and is expected to save 0.5 million tonnes of carbon annually by 2010.

Despite these expected savings, the Scheme has suffered from a significant lack of ambition and more than fails to fulfil the potential for energy savings in households. For example, the EU Energy Efficiency Action Plan concluded that the largest cost-effective savings potential lies in the residential sector, where the full potential is now estimated to be around 27% of energy use by 2020.

Alongside the recent Energy White Paper, the Government, therefore, launched a statutory consultation on a new Carbon Emission Reduction Target (CERT), which will replace EEC for the Phase III period of 2008–11.

The framework of CERT will be broadly the same as the EEC but it will include a wider range of measures that suppliers can use to meet their commitment, such as microgeneration. These are in addition to the energy efficiency measures of the current EEC. Furthermore, the design of the Scheme has been amended to reflect a new focus on reducing carbon emissions.

Level of Obligation

EIC welcome the Government's proposal that the level of obligation for supplier under CERT will be approximately double the level of activity of the current EEC 2005–08.

Furthermore, EIC broadly welcome the Government proposal that the total CERT obligation on all suppliers for the period 1 April 2008 to 31 March 2011 should equate to an annual saving of about 1.1 MtC by the end of the programme.

Whilst EIC welcome the increased level of the obligation on suppliers, Members believe that there is still far greater potential to improve energy efficiency in households.

The aforementioned EU Energy Efficiency Action Plan states that the largest cost-effective savings potential lies in the residential sector, where the full potential is now estimated to be around 27% of energy use by 2020.

EIC believe, therefore, that the targets for CERT must be more ambitious to reflect the full potential for energy savings in the household sector.

The Role of Energy Efficiency in CERT

The primary purpose of CERT will be to place a statutory obligation upon electricity and gas suppliers to meet a target for the promotion of improvements in energy efficiency among household consumers through the promotion of measures such as cavity wall and loft insulation, energy efficiency light bulbs, boilers and appliances.

EIC believes that, whilst a proportion of the EEC should support microgeneration, energy efficiency should remain the primary focus on the EEC.

As aforementioned the opportunities for energy efficiency are huge.

Transition from EEC to CERT

It is proposed that suppliers will be able to count towards their CERT targets any action taken under Phase II of EEC (2005–08) that is surplus to their Phase II obligation.

The recent Ofgem report “A Review of the Second Year of the EEC 2005–08” concluded that to the end of the second year of phase II of the Energy Efficiency Commitment the suppliers combined had achieved 93% of the overall target.

Whilst, of course, it is welcome that suppliers have made such positive progress, the speed at which they did so highlights that EEC targets in Phase II are not commensurate to energy efficiency potential—this will result in a significant surplus that can be carried over to CERT.

The Ofgem report shows that 6 out of 8 of the major suppliers already have a surplus from Phase II of EEC. Telecom Plus, for example, have a 365% surplus that can be carried over.

The unambitious targets for Phase II of EEC will, therefore, result in a significant proportion of a supplier’s CERT obligation being met through action they have taken under EEC, before CERT even begins.

EIC are concerned that this will undermine the CERT obligation by significantly reducing the overall CERT target suppliers will have to meet.

EIC believe, therefore, that a limit should be set on the amount of surplus action a supplier can carry over to CERT.

EIC believe that this limit should be proportionate to a supplier’s total surplus. For example, 10% of a supplier’s overall surplus could be carried over.

This would continue to incentivise suppliers under Phase II of EEC as it will still mean that the greater their surplus the greater the amount of their obligation they can carry over. However, it will ensure that the maximum amount of CERT is met during 2008–11 and not by action taken in Phase II of EEC.

Innovation Under CERT

Since there is a risk that innovative solutions might result in a lower level of carbon saving than anticipated, or none at all, EIC welcome the Government’s proposal that suppliers will be allowed to meet up to 5% of their CERT obligation from demonstration activity or from market transformation activity, or from a combination of both types of activity as long as the total innovation activity does not go beyond the 5% limit.

1. DEMONSTRATION ACTIVITY

This proposal will allow a supplier to count towards their obligation innovative measures to which accurate carbon savings cannot yet be attributed.

Under this approach there is a danger that technologies will contribute to meeting a suppliers obligation when in fact it has resulted in a lower carbon saving than expected.

EIC propose, therefore, that Ofgem establishes a minimum “projected” carbon saving that an innovative measure must achieve in order to qualify to contribute to a supplier’s CERT obligation.

2. MARKET TRANSFORMATION ACTIVITY

This continues the approach in Phase II of EEC of incentivising activity, which relates to innovative measures for which carbon savings can be attributed.

EIC welcome the proposal that if an energy supplier puts forward a product that is innovative, the supplier can count a 50% higher contribution towards their EEC requirements than would otherwise be the case.

Post 2011 Supplier Obligations

EIC welcome the commitment in the Energy Review to keep an obligation on household energy suppliers until at least 2020.

Alongside the CERT consultation the Government published a call for evidence for the proposed Household Energy Supplier Obligation, which will run from 2011 until at least 2020. The proposed Household Energy Supplier Obligation will replace CERT in 2011.

EIC believe that it is crucial to ensure that the targets for CERT and future obligations on household energy suppliers are, at the very least, in line with the energy saving potential outlined in the EU Energy Efficiency Action Plan.

Furthermore, the targets for future obligations must in be inline with the interim 2020 target set by the Climate Change Bill to ensure that the obligations make a proportionate share of the UK's overall target for reduce carbon emissions.

To achieve this, EIC believe that the proposed Climate Change Committee, which would be established under the Climate Change Bill, should be consulted on the appropriate targets for CERT.

Energy Performance Certificates

The Energy Performance of Buildings Regulations implemented a requirement for all homes put on the market to include a Home Information Pack (HIP). The HIP must include an Energy Performance Certificate proving information on the overall energy rating of the home and recommendations for the improvement of the energy performance of the home.

The introduction of the Energy Performance Certificates were delayed at the last minute and, instead of being introduced for the sale of all homes, they were only required for the sale of four bedroom homes. This has recently been extended to include three bedroom homes.

EIC believe that it is crucial to ensure that the necessary provisions are put in place for Energy Performance Certificates to be rolled out to all homes at the earliest opportunity.

EIC believe that Energy Performance Certificates will play an important role in helping householders reduce carbon dioxide emissions, as well as saving on their fuel bills. EIC, therefore, welcome the introduction of information on energy efficiency to the process of buying and selling homes—EIC believe that improving consumer awareness of climate change and energy efficiency measures will play an important role in achieving the Government's overall emission reduction targets.

Energy Performance Certificates will, however, only fulfil their potential if they are supported by measures to enable householders to act on the recommendations set out in the Certificate.

The House of Commons' Environment, Food and Rural Affairs Select Committee highlighted in their report "Climate Change: The Citizen's Agenda" that the information people are given about climate change is not being backed with adequate resources to enable individuals and community groups to reduce their carbon emissions.

EIC believe, therefore, that the recommendations set out on the Energy Performance Certificate must be backed up incentives to encourage homeowners to act on the information provided by the Certificates. For example, a stamp duty rebate for homeowners that make significant improvements in energy efficiency to a property within six months of purchase.

Furthermore, EIC believe that the recommendations set out on the Energy Performance Certificate should be listed in order of cost effectiveness and the energy savings they can be expected to achieve.

Calculating Energy Performance

One of the most significant issues raised by meeting the Government's target for all new homes to be zero carbon by 2016 was how to define "zero carbon."

The Government recently announced that the definition of zero carbon should include emissions from all energy use—including from appliances and cooking. Including emissions from energy use associated with domestic appliances in the home will require modification to the Standard Assessment Procedure (SAP) for measuring the energy performance of the home.

SAP in its existing form does not adequately take account of these emissions, nor does it provide for proper accounting for the range of technologies that will reduce them.

The Department for Communities and Local Government, jointly with the Construction Products Association, recently established a Technical Working Group on SAP Modification, which will report to Ministers early in 2008 on the modifications to SAP that are required.

Energy Performance Certificates are calculated using SAP, therefore EIC believe that when SAP is amended to take account of emissions from all energy use—including from appliances and cooking—Energy Performance Certificates should also be amended so that the overall energy display includes information on this energy use.

Low Carbon Buildings Programme—Households

Households are required to undertake a number of energy efficiency measures before they are eligible to apply for a grant from the Low Carbon Buildings Programme. Before applying the Government require householders to have:

- Insulated the whole of the loft of the property to meet current Building Regulations eg 270 mm of mineral wool loft insulation or suitable alternative.
- Installed cavity wall insulation (if applicable).
- Fitted low energy light bulbs in all appropriate light fittings.
- Installed basic controls for the heating system to include a room thermostat and a programmer or timer.

Furthermore, there is a requirement for householders to have planning permission before applying for grants under the Programme.

EIC believe that the Energy Performance Certificate scheme could be linked to the Low Carbon Buildings Programme. For example, householders would be required to have implemented the four measures above before applying for a grant or have achieved an equivalent rating on the Energy Performance Certificate.

Metering

The Government is currently consulting on the proposal that, from May 2008, every household having an electricity meter replaced and every newly built domestic property should be given a real-time electricity display, free of charge. Furthermore, it is proposed that energy suppliers should give any household requesting a real-time display for their electricity meter one free of charge.

A significant barrier for the achievement of greater energy efficiency in the home is a lack of consumer awareness and interest in energy efficiency and EIC believe that ensuring householders have direct access to information about their energy use within their homes will enable consumers to manage that use and reduce their carbon emissions.

Incentivising Action

A significant barrier for the achievement of greater energy efficiency in the home is a lack of consumer awareness and interest in energy efficiency.

Energy Performance Certificates should go some towards reversing this, however the Certificates will only be available to the purchasers of property.

More needs to be done, therefore, to encourage those householders who will not be selling their property in the near future to improve the energy performance of their home.

EIC believe that one of the ways of stimulating consumer demand in energy efficiency products is to introduce fiscal incentives. For example, stamp duty rebates, council tax rebates, a reduction in (or zero) VAT on all energy efficiency goods, 100% grants to the poorest households and, for social housing, incentives for housing bodies.

Memorandum submitted by the Construction Products Association

SUMMARY

- Space and water heating in the existing housing stock accounts for 19% of UK carbon emissions—equivalent to 30MtC per annum.
- The existing housing stock is on average four to five times less energy efficient than housing built to the current building regulations.

- Many of the investments that householders need to make to improve the energy efficiency of their homes do not provide a payback in a time frame that they find attractive.
- If properly marketed, Energy Performance Certificates can provide a real catalyst for action, but they need to be a much better signpost to what householders should do.
- Householders that act on measures recommended in the EPC within a specific period of time should receive a refund on some of the Stamp Duty they have paid.
- The Comprehensive Spending Review should set a clear programme for bringing all social housing up to the Decent Homes Standard, and beyond that for raising levels of energy efficiency towards those required by existing building regulations.
- Government should look at ways that will increase the rate at which older, lower efficiency central heating boilers are replaced by high efficiency condensing boilers.
- Government should continue to press the EU to allow a lower rate off VAT on energy efficient products used in the DIY market.
- There needs to be a much longer term programme for support measures aimed at energy efficiency improvements so that manufacturers and suppliers can make investment decisions with a greater degree of confidence.
- Government needs to reintroduce some focused support for the renewables industry.

INTRODUCTION

1. The Construction Products Association is an umbrella body that represents the manufacturers and suppliers of construction products and materials. Its membership comprises the 24 major companies in the industry and 43 sector specific trade associations representing the full range of products and solutions that are required to deliver the improvements necessary to the existing housing stock to address the issues of climate change. A full list of the Association's membership is at Annex 1 and these members represent more than 85% of the £40 billion UK construction products industry.

THE SIGNIFICANCE OF EXISTING HOUSING COMPARED TO NEW BUILD AND THE DIFFERENT LEVELS OF PERFORMANCE EACH DISPLAY

2. We are currently building around 210,000 new homes and demolishing about 10,000 homes a year in the UK, and this means we are adding only 0.7% pa to the housing stock. As a result, nearly 70% of the homes we will be occupying in 2050 have already been built.

3. Dwellings currently account for 27% of UK carbon emissions (41 MtC pa) and 73% of these emissions derive from space and water heating which therefore accounts for 19% of our carbon emissions—equivalent to 30 MtC pa.

4. In terms of energy efficiency, the performance of the existing housing stock compares very unfavourably with houses built to the latest requirements of the building regulations. Nearly 40% of the existing housing stock was built before the 1930s when the industry started building using cavity walls, and 77% was built before 1985 when the building regulations first set standards for the conservation of fuel and power. New build housing is on average three to four times more energy efficient than the existing housing stock.

5. At the same time, consumer expectations have been growing. In 1970, the average UK house was heated to an average of 12°C, whilst by 2003 this had risen to 18°C. Hot water usage also continues to rise with the average number of showers and bathrooms per household increasing.

THE RESPECTIVE ROLES OF DIFFERENT STAKEHOLDERS IN PROMOTING AND DELIVERING GREATER ENERGY EFFICIENCY

Residents/homeowners

6. The primary role of residents is to be as efficient as possible in their use of energy in the home. Whilst energy use for space and water heating has been falling it has been increasing for other uses such as for appliances. Energy efficiency and the use of non-carbon generating sources of energy needs to be embedded in the culture of all residents and homeowners. Better information through smart metering has an important part to play in this.

7. Residents also have to be persuaded to invest in measures to make their homes more energy efficient. Few will do this unless they see there is "something in it for them" and Government policies have to be geared to creating that feeling. We comment further on this later in the submission.

Landlords

8. Landlords have to be persuaded that there is value in ensuring the property they own is more energy efficient. The requirements of the Energy Performance in Buildings Directive will assist, but they need to have access to easily useable delivery mechanisms to make the necessary improvements.

Local Government

9. Local Government has a direct responsibility for a substantial amount of public housing and needs to focus its resources on improving this not just to the basic “decent homes” standard, but (where practicable) to levels more in line with the existing building regulations and beyond. They also have a role to play in raising the awareness of public sector housing tenants to the importance of energy efficiency and providing information to allow them to act accordingly.

10. At the same time local government can help disseminate information to all householders in their areas and look at the kind of incentives that they can offer to homeowners to invest in energy efficiency measures such as a temporary reduction in Council Tax for those who make significant improvements.

Central Government

11. Central Government must set the policy framework that brings about a significant reduction in the carbon emissions from the existing housing stock as part of the overall UK target for carbon reduction. This will involve a combination of regulation and financial incentives. Government also needs to raise awareness of the importance of these issues in a way that will influence the behaviour of householders and it can set an example through the importance it attaches to energy efficiency in public sector buildings such as the accommodation it provides for the armed forces.

Energy Industry

12. Through the Energy Efficiency Commitment, and in future the CERT scheme, the energy industry is seen as a major source of the funding through which householders will improve the energy efficiency of their dwellings. Also the energy industry has a renewables obligation. However well the existing housing stock is insulated, there will always be a residual energy need from the national grid, and so it is important that as much of this energy as is economically possible is from non carbon emitting sources.

Construction industry

13. Although not listed in this part of the brief for the Inquiry, the construction industry has a major role to play in improving the existing housing stock to ensure its impact on climate change is reduced. Product manufacturers and suppliers need to have available the products and solutions that will improve the energy efficiency of the existing housing stock through higher levels of insulation and efficient low and zero carbon generating forms of energy, whilst contractors need to ensure that these products and solutions are installed to the quality required to deliver the performance levels intended.

14. One factor that may well discourage many householders from investing in these kinds of improvements is the poor reputation the construction industry has for dealing with small works of this kind. What the industry needs to develop is companies that have a reputation in this area for giving a top class service of value that householders can trust and rely on.

ENERGY PERFORMANCE CERTIFICATES AND THE PROVISION OF INFORMATION FOR HOUSEHOLDS AND PROSPECTIVE HOUSE BUYERS

15. If the behaviour of households is to be changed in a way that responds to the challenge of climate change they need reliable information about the energy performance of their homes. The Government is committed to supporting the wider installation of smart meters to provide information to householders, and whilst this is welcome, it will take time to achieve widespread coverage. In the meantime, the introduction of Energy Performance Certificates offers a real opportunity to encourage those moving to a new home to take action to improve the energy efficiency of the property they are moving to, although the controversy over their introduction as part of the HIP package has been unhelpful in giving them the positive profile that is needed.

16. Nevertheless, if properly marketed, EPCs could be a real catalyst for action. To achieve this more effectively, the report that a householder receives needs to be less bland and provide much more of a signpost for what the individual householder needs to do to improve the energy efficiency of the dwelling. It needs to point more clearly to those who can give independent advice on the issues that have been raised and how a householder can get in touch with bona fide companies that will be able to act on the various recommendations that have been made.

17. However, even with timely information about energy efficiency, the majority of households will still only act in response to this if they see a direct benefit to them. Many of the necessary investments to achieve savings have pay back periods that do not easily persuade householders to make the necessary investments. There therefore needs to be some kind of incentive for the householder to act on the findings of the EPC within a specific period of time from when they receive it. Those moving home tend to spend money on improvements within the first 18 months of their move. What the Government needs to do is to ensure that the investment they make is expanded from largely cosmetic improvements such as a new kitchen to measures that will improve the energy efficiency.

18. To achieve this, we would like to see all householders that act on the recommendations in their EPC within, say, 12 months of moving into a house receive a % of what they spend on these recommendations as a refund on the stamp duty they paid. The refund need not be that large, but it would help influence priorities in that crucial initial period following purchase. Such a package of incentives could complement the support provided by the CERT scheme which could be focused on those properties which fall below the stamp duty threshold as well as the large number of houses that are not being bought or sold.

19. Basing Government financial support on the EPC report will also ensure that householders invest in those measures which provide the best return in energy efficiency terms. It will also help demonstrate a longer term commitment by government to supporting energy efficiency measures and therefore address one of the concerns of companies in the construction products industry when it comes to investing in new capacity to provide the products and solutions needed to deliver these improvements.

GOVERNMENT EFFORTS TO REDUCE CARBON EMISSIONS FROM EXISTING HOUSING STOCK IN PUBLIC AND PRIVATE OWNERSHIP, AND OTHER RELATED PROGRAMMES INCLUDING DECENT HOMES

20. Information from the English House Condition Survey consistently shows that the single most important reason why a house fails to meet the Decent Homes standard is a lack of effective insulation or efficient heating required to meet the thermal comfort criteria, with 4.4 million or 75% of non-decent homes failing to meet this criteria.

21. The Government drive to bring all public housing up to a Decent Standard by 2010 has helped cut the number of homes in the social sector failing the thermal comfort criterion from two million to 850,000. However, it is disappointing that the Government has acknowledged that it will not know meet its target and that some 140,000 of these homes will still not meet the Decent Homes Standard in 2010. The 2007 Comprehensive Spending Review needs to set a clear target for removing the backlog of non-decent homes, and commit to a longer term programme for raising still further the energy efficiency of all social housing in this country.

22. Government's efforts to reduce carbon emissions from existing housing in private ownership have been fragmented and dependent on a combination of regulation and financial incentives provided through the EEC on the energy suppliers. Building Regulations have been introduced requiring higher standards for retrofitting of windows and boilers, but these only impact when people choose to change these elements of their homes, and in the case of the requirement that (with a few exemptions) all new boilers should be condensing boilers, the higher initial cost has actually deterred people from changing their boilers.

23. Although the introduction of new regulations in 2005 market effectively changed the market overnight and nearly 90% of new boilers are now the higher efficiency condensing boilers, the total number of new boilers sold during 2005 actually fell 7%. Whilst there has subsequently been a recovery in sales over the last 18 months, this is largely attributable to an increase in the number of new homes being constructed and the Government's social housing refurbishment programme. Confirmation that these new regulations have deterred people from installing new condensing boilers has come from the boiler manufacturers who say that they have been inundated with requests for spare parts for old boilers, indicating that householders are patching and mending old inefficient boilers rather than installing the more efficient, but more expensive, condensing boilers.

24. Government seems content that its policy has been successful because it has delivered the significant shift in percentage terms towards higher efficiency condensing boilers. It should, however have sought to raise both the standards and numbers of boilers installed. Some form of modest incentive to encourage people to change boilers over a certain age would have created a "win win" situation. Increasing the rate of replacement by just a sixth from 1.2 million boilers to 1.35 million a year over the next five years would provide an additional carbon saving of 450,000tCe from the existing housing stock.

25. Government has also sought to incentivise the installation of professionally-installed energy efficient products by reducing the rate of VAT to 5%. This lower VAT rate does not apply to all energy saving products that could be used in the home and does not extend to purchases for DIY. Many householders are, for example, quite capable of installing loft insulation themselves and yet they are paying the full rate of VAT on a product Government must surely want to encourage them to purchase. We therefore believe that the Government should reduce the rate of VAT on key energy efficient products, irrespective of how they are installed. We recognise that this requires agreement at EU level and support the Government's efforts to secure the necessary reform of the VAT Directive.

 TECHNOLOGIES AVAILABLE TO REDUCE EMISSIONS AND THE GOVERNMENT'S ROLE IN FACILITATING RELEVANT FURTHER TECHNOLOGICAL DEVELOPMENT

26. Most of the technologies needed to deliver significant reductions in carbon emissions from the existing housing stock are fairly basic tried and tested solutions such as cavity wall and loft insulation and internal and external solid wall insulation. The products are therefore already available. What the construction products industry needs, however, is a stable long term policy framework so that the manufacturers can invest in the capacity needed to supply the products, and installers can commit to training their workforce in order to apply the solutions. This is the one thing that the EEC programme has failed to do.

27. Taking as an example the impact on the companies manufacturing the products needed to fill the estimated 8 million homes that still have unfilled wall cavities. The table below provides information on the level of cavity wall installations undertaken as part of the EEC II programme and the estimates going forward.

<i>Calendar Year</i>	<i>Number of cavities filled</i>
2005	362,029
2006	444,767
2007	*
2008/2010	900,000 pa (est)

* Outcome for 2007 is dependent on whether any arrangement is introduced to allow CERT arrangements to commence before the end of 2007. Without this the number for 2007 is likely to be of the order of 300,000.

28. The unpredictability of demand and the short forward programme is a total nightmare for manufacturers and suppliers. On the figures above, demand for product in 2007 is likely to be 30% down in 2007 compared with 2006, but then in 2008 it will have to triple for a period of three years, but with no certainty that demand will remain at that level beyond the end of the current CERT programme in April 2011. The result is that in times of famine production capacity stands idle with all the overhead costs that are then incurred. At the same time, future investment decisions cannot be made with confidence against a programme that is only committed for the three years to 2011 when the payback time for the investment in an additional furnace is typically eight to ten years. Expansion therefore needs to consider prospects for the industry through to the end of the middle of the next decade and have some confidence about the consistency of the demand for the products that they manufacture. Companies are used to taking risks, but the uncertainties created by the short term nature of Government policy which has the ability to turn the tap on and off overnight are not ones that companies find easy to factor in to their calculations.

29. This short term nature of policies also affects research and development. Companies only invest today's profits into tomorrow's products if they believe that will increase tomorrow's profits compared to not investing those profits in research. If the market for tomorrow's products is unclear then research and development decisions will be more difficult.

30. One of the other problems has been a lack of support for the "D" in R and D. The UK has a good record in basic research but not such a good record compared to other countries in bringing the research to market through new goods and services. Part of this is due to a lack of support for the development phase compared to other countries, including the near to market phase. Long term support such as California's 10 year \$3 billion PV programme (One Million Roofs) is crucial to bringing technologies to mass market. The UK has probably had more programmes than anyone else, which is part of the problem. There is a lack of confidence in the value and length of programmes. The recent history of Clear Skies and Low Carbon Buildings Programme is typical, with the significant changes in grant support.

31. Government's hopes that the CERT programme would provide consistent support to micro-renewables is misplaced as CERT encourages the lowest cost options for carbon savings to be taken first. This will result in an early peak for cavity filling followed by a peak later on for micro-renewables, a situation that is unsatisfactory for both industries. Given that the Low Carbon Building Programme is being replaced by provisions in CERT, this delay is sending the wrong messages to the industry about the Government's interest in the development of renewables. Whilst renewables are not necessarily the main focus for the initial means of improving the existing housing stock, there are opportunities to install these with some benefit on more modern housing. Given the impact that the way the CERT funding arrangements will have on support for renewables, the Government needs to re-consider the need for a specific funding stream to support the development of this important, but still embryonic industry.

32. Amongst other research (albeit not related directly to technology) that the Construction Products Association is involved in and which the Committee should be aware of is a three-year project funded by the BERR programme Meeting the Challenge of Zero Emission Enterprise. Through consultations, reviews and case studies this project will identify criteria and develop decision-making tools for implementing low emission housing refurbishment in the public and private sectors. Led by BRE, other partners in the project include architects, engineers, housing associations, developers, energy charities and government agencies.

 THE COSTS ASSOCIATED WITH REDUCING CARBON EMISSIONS FROM EXISTING HOUSING

33. The current approach is to look primarily to the energy providers through the EEC programme and in future CERT, to support existing home owners in improving the energy efficiency of their properties. Government input is in upgrading of public sector housing stock, the funding it provides for the Energy Savings Trust, the support to help raise people out of fuel poverty, and the tax it foregoes by reducing VAT on certain energy efficient products.

34. Clearly private sector homeowners and private landlords must be expected to make an input to the cost of upgrading their properties as they stand to benefit financially from this, but the problem cannot be left entirely to them as the payback period on a number of the investments needed is not sufficient to justify (in many of their minds) them making the investment. That is why we believe that Government has to intervene more to incentivise the right kind of investment, not necessarily to ensure there is a pay back in economic terms, but more to provide that catalyst for action by private householders and landlords.

35. In the case of those on low incomes in fuel poverty, Government has to recognise that the decisions it makes on this are part of a quite legitimate social policy, but not necessarily one to do with addressing the issues surrounding climate change. It is perfectly legitimate to help old and low income households to afford the installation of central heating, but it is wrong to suggest that this is in any way part of a policy to tackle climate change.

CONCLUSIONS

36. Senior Government figures continually remind us that climate change is the largest single threat that mankind has to face and yet there seems to be concern that a number of measures that are proposed by industry to encourage householders to make their houses more energy efficient will carry some “dead weight” and therefore cannot be supported. This approach does not seem to be consistent with the importance that we are being encouraged to give to this issue by the statements of our senior politicians.

37. There is great frustration in many parts of the construction products industry from companies and sectors which have a major part to play in improving the energy efficiency of the existing housing stock, that the Government is not setting a framework that will encourage them to invest in the capacity that is needed to meet the carbon reduction targets that are set or deliver the products and solutions that will allow this to be done effectively and efficiently. We would very much like the opportunity, together with some of the major companies, within our membership to develop a number of the key themes in this Written Evidence when the Committee comes to taking Oral Evidence later in the year.

Annex 1

CONSTRUCTION PRODUCTS ASSOCIATION MEMBERSHIP 2007

Major Companies

Aggregate Industries	Baxi	BSS
Caradon	Castle Cement	CEMEX
Corus	CRH	Etex
Grafton Group	Hanson	Jeld-Wen Group
Kingspan Group	Knauf	Lafarge
Marshalls	Pilkington	Saint-Gobain
SIG	Tarmac	Travis Perkins
Wavin	Wolseley UK	Worcester Bosch

Affiliates

ACO Technologies	Decra Roofing Systems	Dow Chemical Products
ICI Paints	Intatec	Kee Klamp Ltd
Simpson Strong-Tie	Yorkshire Building Services	

Associates

British Board of Agrément	The Building Centre	Building Research Establishment (BRE)
BuildStore	The Cavity Insulation Guarantee	CMP Information
Emap Construct	HSS Hire Group	Pinsent Masons
RIBA Enterprises	TRADA	Unimer, United Merchants

Trade Association Members

Association of Interior Specialists	Association of Specialist Fire Protection
Bathroom Manufacturers Association	British Electrical and Allied Manufacturers Association
Brick Development Association	British Aggregate Association
British Cement Association	British Ceramic Confederation
British Fire Protection Systems Association	British Non Ferrous Metals Federation
British Plastics Federation	British Rigid Urethane Foam Manufacturers Association
British Precast Concrete Federation	
— Architectural Cladding Association	
— Autoclaved Aerated Concrete Products Association	
— Box Culvert Association	
— Concrete Block Association	
— Concrete Pipeline Systems Association	
— Concrete Sleeper Manufacturers Association	
— Concrete Tile Manufacturers Association	
— Precast Concrete Paving and Kerb Association	
— Precast Flooring Federation	
— Pre-stressed Concrete Association	
— Structural Precast Association	
British Woodworking Federation	Builders Merchants Federation
Cementitious Slag Makers Association	Clay Pipe Development Association
Clay Roof Tile	Contract Flooring Association
Council for Aluminium in Building	Door & Hardware Federation
Engineered Panels in Construction	European Phenolic Foam Association
Eurisol-UK	Flat Glass Manufacturers Association
Flat Roofing Alliance	Glass & Glazing Federation
Guild of Architectural Ironmongers	Gypsum Products Development Association
Hemp Lime CPA	Lead Sheet Association
Metal Cladding & Roofing Manufacturers Association	National Association of Rooflight Manufacturers
Quarry Products Association	
— Agricultural Lime Association	
— Asphalt Products Group	
— British Lime Association	
— British Marine Aggregates Producers' Association	
— British Ready-Mix Concrete Association	
— Mortar Industry Association	
— Silica and Moulding Sands Association	
Single Ply Roofing Association	Society of British Water and Wastewater Industries
Society of British Gas Industries	Steel Lintel Manufacturers Association
Timber Trade Federation	UK Steel Association
UK Timber Frame Association	Waterheater Manufacturers Association
Wood Panel Industries Federation	

Memorandum submitted by Places for People Group

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2. The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting energy efficiency.
3. Energy Performance in Buildings and the provision of information and prospective house buyers, including energy certificates.
4. Government efforts to reduce carbon emissions from existing housing stock whether in the private or public ownership and other related programmes.
5. The technologies available to reduce emissions and the governments role in facilitating relevant further technology development.

6. The costs associated with reducing carbon emissions from existing housing, who would meet those costs and particularly, in respect of low-income households, interaction between carbon emissions and the government's ambitions to reduce poverty.
7. The specific challenges which may arise in relation to housing of special architectural or historical interest.
8. Recommendations.

1. SIGNIFICANCE OF EXISTING HOUSING COMPARED TO NEW BUILD

Environmental sustainability in the housing sector is not just about new build housing, and the race to develop zero carbon homes. Improving the energy efficiency of the UK's existing housing stock will have a far greater impact on reductions in carbon dioxide emissions and in turn be effected by growing effects of climate change. The challenge is now to deliver both mitigation and adaptation.

Existing housing accounts for 99% of all housing in the UK, and by 2050 will still account for 75% of housing. Over 500,000 existing homes would have to be refurbished every year from now until 2050, if we are to meet the Government's long-term target of cutting carbon emissions by 60%. This is a monumental task and already the housing industry is failing to keep pace.

The housing sector urgently needs to develop an overarching environmental strategy that focuses on existing stock as well as new homes. The challenge for the sector is to reduce fossil fuel use by creating a clear energy hierarchy that focuses on:

- Energy production (energy to the home)
- Energy demand (the energy efficiency of the home)
- Energy use (the use of energy by people in the home)

In new build properties there is far greater opportunity to impact on energy production and energy demand. New homes provide us with a blank canvas to create buildings that have very low energy demand that is supplied from community energy, low carbon and renewable energy sources.

These are all technologies which Places for People has installed or is piloting in numerous developments across the UK. However, the challenges in new build homes are significant themselves and should not be underestimated.

Early estimates by Cyril Sweet Consultants, indicate that zero carbon homes will cost an additional £33,000 per unit and that the UK is ill equipped in skills, building and renewable technologies as well as basic infrastructure, to deliver this by 2016. The challenge for existing homes is even greater.

Once existing homes have the basic energy efficiency measures installed, such as loft and cavity wall insulation, the limitations—because of the existing fabric, impact on the community and neighbours, planning and the cost of refurbishment—shift the emphasis onto energy use and to a lesser extent energy production.

Put in simple terms the options are far more limited and the costs much higher. It is no surprise therefore that much of the emphasis on improving energy efficiency has been on new build properties.

However Places for People has demonstrated how significant steps can be made to raise the standard of existing homes far above the national average. Through our "Affordable Warmth" Strategy' we have invested millions of pounds in our homes, and have delivered energy bill savings for our customers of up to £200 year. This has seen our homes receive an average "SAP" rating—which measures a building's energy efficiency—of 70:

Performance of the Sector (SAP 1–100):

Private Rented	national average 48
Owner Occupier	national average 50
Places for People	Places for People score 70

For example, at one of our existing schemes in Newcastle we have installed new high efficiency boilers and small-scale combined heat and power units, which have reduced energy consumption by 25%.

The key to the investment has been the Energy Efficiency Commitment funding from energy companies. Places for People has had a strategic relationship with Powergen for over three years, to deliver this programme. The Energy Efficiency Commitment is the best example of a simple, focused and unbureaucratic funding programme.

The partnership has seen 6,500 homes insulated at a cost of over £3 million; resulted in the installation of new energy efficient boilers, cavity wall and loft insulation; and has provided over 300,000 free low energy light bulbs to residents.

By working with Powergen we have been able to help over 100,000 customers save a massive £13.4 million pounds in energy costs, whilst reducing carbon dioxide emissions by over 46,000 tonnes.

Furthermore Places for People are seriously concerned about the impact climate change will have on rising sea levels and the effects that this will have on existing housing stock in coastal areas.

It is estimated that global average sea levels will rise by between 9 and 88 cm between 1990 and 2100 (Intergovernmental Panel on Climate Change, 2003), forcing coastlines back by hundreds of metres, and placing thousands of homes in jeopardy.

As part of future proofing our communities, homes and business we have undertaken a detailed asset management strategy, which looks at the risk faced by coastal homes. This is an approach that balances climate change adaptation and mitigation.

2. THE RESPECTIVE ROLES OF RESIDENTS, HOMEOWNERS, LANDLORDS, LOCAL GOVERNMENT, CENTRAL GOVERNMENT AND THE ENERGY INDUSTRY IN PROMOTING ENERGY EFFICIENCY

Residents

Residents have a vital role in promoting energy efficiency, but are currently disconnected from energy production and carbon saving. By informing and empowering people we believe that significant savings can be made, both financially and in carbon savings.

Places for People is committed to delivering new homes and neighbourhoods that are of a high quality, have a limited effect on the environment and are cost-effective to run. As part of that vision it is also dedicated to encouraging its customers to think about the energy they use, its cost and impact on the environment.

It is currently trialing the use of “Electrisave” smart meters at Broughton Atterbury, an environmentally friendly scheme in Milton Keynes. The simple devices show residents at any point in time how much electricity they are using and how much it is costing. Using a small display screen, placed anywhere in the house, it can also tell people how much harmful CO₂ they are emitting, encouraging residents to think about the energy they may be wasting.

Tests in Australia have shown that they are one of the best ways of reducing a household’s electricity bill—up to 25 percent. Whilst they are relatively new to this country, other country’s are well advanced in installing smart meters—Italy for example has 33 million smart meters installed.

From 2008 all meters or replacement meters installed in the UK will have to be smart. However we are disappointed that the government has chosen to make display meters a legal requirement rather than using an incentive scheme, such as the EEC to distribute them. Using EEC—and so helping energy suppliers to achieve their energy saving target cost effectively—would have motivated the energy suppliers to market them as a positive offering to their customers.

We believe that the legal route taken will be seen as another requirement by utilities and it will be treated negatively and rely on informed consumers demanding display meters from their suppliers.

Places for People is interested in the wider potential of these units within their new developments and existing stock, and thus chose to trail the Electrisave meter at Broughton Atterbury and monitor the electricity use and gather feedback from users.

Initially 20 homes at Broughton Atterbury had a meter installed, free of charge and a further 20 homes were used to form a control group. In addition Places for People provided some simple tips on saving energy and using the Electrisave meter to help householders to get the most from the units and maximise their savings.

Electricity meter readings were taken at the 40 homes and the meters were read again after about a week to gain some early data. This second visit also provided an opportunity to check that the installed units were working and to engage with residents to understand what they thought of these devices.

The meters were then read again after about six months to get electricity use data over a longer period. At this point, those who had units were again asked about how they rated them. Homes in the control group were also provided with units at this point to enable some before and after data to be collected.

The trials have shown that the average electricity saving on the estate is 13.8%, helping residents to reduce their electricity bills and help protect the environment.

Motivating residents is the biggest hurdle but once achieved it has to be supported by good advice and guidance. The UK’s consumers are currently very poorly served with energy advice. There is a patchwork of provision across the UK, some of it based on the Energy Efficiency Advice Centres, some on voluntary groups and local authority activity. Even the Energy Saving Trust supported EEAC network provides highly variable services and is rooted squarely in an old fashioned form filling output driven approach.

While there are some good examples, broadly this no longer meets the aspirations of consumers nor is it capable of rising to the challenge of delivering long term significant carbon savings.

Given the limitations on reducing carbon in existing homes, and the increased role of householders, good energy advice that produces long term changes is vital.

Homeowners

Incentives must be introduced for homeowners to encourage the uptake in energy efficiency measures and the use of renewable energy.

Places for People is keen to see the introduction of feed-in tariffs, which have been widely used in Germany, Netherlands, Norway and Sweden with much success. Feed-in tariffs work by paying an above-market price for electricity fed from clean technologies into the grid.

The German experience has been extremely successful. The country now has 200 times the solar power capacity and 10 times the wind energy capacity of Britain, despite our country being windier.

Furthermore it generates 12% of its electricity from various renewables, compared with 4.6% in Britain. It has created a quarter of a million jobs in renewables—a number that is growing fast. Britain has only 25,000, a number that represents the amount of jobs created in the industry in Germany in the past year alone.

The UK also has a very poorly developed energy services market—Energy Services being broadly the provision of the products of energy, heat, light etc, rather than just fuels.

Allowing the cost of energy efficiency investment to become part of an energy supply contract, would revolutionise the UK energy supply markets.

Ironically the UK's position as a world leader in market deregulation should have made this possible. However the entire emphasis by Government and the regulator has been on driving down the unit price of energy and protecting consumers.

Whilst understandable in the 1990s at the early stages of market liberalisation, this has had the effect of stifling any innovation in domestic energy supply. Ten years on, deregulation has delivered the savings it promised, but only in the short term, and has kept consumer confidence, but it must now move to a new stage that focuses on carbon saving and the need for long term investment in reducing energy demand.

Energy suppliers, and others, must be encouraged to create new energy service packages for residents, homeowners and landlords that reduce costs by reducing energy demand.

We also believe that customers should be given real time information on the amount of energy they are using and its cost. As has been demonstrated in our Electrisave meter trial at Broughton Atterbury, if you make the connection between energy use and its impact apparent to customers, then massive savings can be made.

Local Government

Local government has a clear role to play in supporting and promoting energy efficiency awareness. However if they are to meet Government aspirations on reducing carbon, they need to be setting local targets that feed directly in to the UK's targets. All too often standards are set which contradict and work against wider targets such as the Code for Sustainable Homes.

The recent debate about the “Merton Rule” is a good example of this. Before the creation of the Code for Sustainable Homes, the Merton Rule, which required new developments to produce 10% of their energy from renewables, was a brave and innovative step by a local authority.

To now continue with this, when the primary aim should be to reduce energy demand, is at best a distraction and worst will undermine the delivery of better, lower carbon homes in the future. It would be better to be building lower energy demand houses than be building standard homes with renewable energy devices, simply to meet the Merton rule, and that have a lifespan much less than the house itself.

Local Authorities must also give far more support and encouragement to planners at all levels so they can make decisions that encourage and facilitate innovation and the use of renewable technologies. There is an ongoing crisis of confidence in planning departments, partly the result of simple lack of staff, but also because of a lack of training, skills and knowledge.

Places for People works with over 200 Local Authorities, and has found that even the most progressive authorities have a disconnect with their planning departments who stymie the use of renewable technologies.

For example we have been seeking planning permission to install wind turbines at a housing scheme, yet have faced constant delays over six months from the local council's planning department.

Each turbine is capable of generating up to 10kw hours of electricity per day, depending on the wind speed. We believe that a realistic annual amount at an urban site is 660kW hours, equating to a daily average production of 1.8kW hours. By using wind turbines, which operate at slow speeds with low noise emissions and vibrations, we believe we can provide free electricity to residents at the scheme, with any excess being relayed back to the National Grid.

Central Government

We feel that central government must shift the emphasis from low unit-cost energy to energy diversity and the use of local energy production and renewables. This can be done through:

- A planning process which facilitates community energy and reduces barriers to small-scale renewables.
- Encouraging financial incentives, such as feed-in tariffs so that generating electricity from solar photovoltaics or wind, gets a guaranteed payment of four times the market rate—currently about 35p per unit—for 20 years.
- Refocusing the role of the regulator, OFGEM, away from cost savings to carbon savings.
- National long term targets including 10 year outline for building regulations.

Even more fundamental is the lack of focus for UK energy policy. It is currently spread amongst DEFRA, CLG and Department for Business, Enterprise & Regulatory Reform (DEBRR)—this leads to competing priorities, no overarching strategy to reduce carbon emissions and a range of initiatives and policies that reflect the priorities of their own departments and not that of carbon reduction.

For example DEFRA funds the Energy Saving Trust that promotes energy efficiency in housing, but CLG is responsible for housing policy, at the same time DEBRR sets energy policy that has a vital role to play in sourcing and funding domestic energy provision. All have their own funding regimes, policies and strategies.

The UK needs one government department that is responsible for energy policy supply, sources, distribution, consumption, infrastructure, innovation and renewables and all with one goal—carbon saving.

The UK must establish a better way of bringing these issues together, otherwise carbon saving will remain confused, muddled and unfocused, and more importantly undelivered.

Landlords

Landlords have a vital role to play in improving existing homes. There are over 1,500 social landlords in the UK, and around 13,000 private landlords.

However there is little incentive for significant investment in energy efficiency simply because the cost of investment falls to the landlord yet the savings are made by the resident.

Programmes such as EEC have helped to close this gap but in the longer term new energy service and feed-in tariffs would have to be introduced to see further investment in energy efficiency and renewables.

If this became possible then landlords would be able to develop a strategic approach that develops an energy hierarchy (as described in section 1) and ensure that it is focused on carbon reductions.

Places for People has developed pilot schemes aimed at reducing carbon emissions and electricity consumption at Broughton Square in Milton Keynes by installing “Electrisave” smart meters, slashing hundreds of pounds of resident’s soaring fuel bills.

The simple devices show how much electricity you are using and how much it is costing. Using a small display screen, placed anywhere in your house, it can also tell you how much harmful CO₂ you are emitting. The impacts for residents have been quite dramatic with savings of over 10% on energy costs but just as importantly it has changed the way resident perceive energy. No longer is flipping a switch divorced from impact but people can see what appliances cost the most—in both financial and environmental terms.

Places for People chairs the Managed Housing Group of the Energy Efficiency Partnership for Homes, funded by DEFRA and supported by the Energy Saving Trust.

The aim of the Energy Efficiency Partnership for Homes (the Partnership) is to achieve energy efficiency in homes and alleviate fuel poverty through engaging cooperation and collaboration within the supply chain for energy efficient products and services.

The Partnership has a comprehensive footprint within all relevant industry and social sectors and provides an effective mechanism for cross-sector cooperation and joint delivery of energy efficiency initiatives.

Places for People has chaired the managed housing group for the last two years. The Group has representatives from Sustainable Homes, BRE, the Housing Corporation, NHF, CIOH, Audit Commission and a range of housing providers.

Places for People would like to install further energy efficiency measures and renewable energy in all of its homes. However this currently has to be balanced with other demands for funding, such as kitchens, roofs and bathrooms that is paid for from rents. We would like to be able to install the measures and technologies and be able to recoup their cost through a “Feed In” tariff or Energy Services model neither of which are currently available or practical.

A particular limitation for affordable housing providers is the inability for investment in carbon reduction to be reflected in rent levels, because of the constraints of rent convergence. If this situation had greater flexibility, more investment could be made available for the existing housing stock; with residents gaining the advantage of reduced running costs and carbon emissions.

Energy Industry

The energy industry has a key role to play but must adapt, if we are to make the step change in energy efficiency that is required, especially in existing homes. The UK industry led the world in deregulating, but is still based on the post war paradigm of large scale energy producers and long distance distribution paid for by meeting demand from consumers, rather than managing it.

However, one of the successes of this approach has been the Energy Efficiency Commitment, which whilst resulting in significant levels of investment, is still nowhere near that required.

Deregulation led to a welcome break up of the regional electricity and national gas monopoly, however it has led to an overemphasis, reinforced by the regulator, on reducing energy costs in the short term by reducing unit energy prices. Recent global changes in energy prices have shown that this is no longer sustainable and long term price stability can only be achieved by reducing energy demand, increasing energy diversity, reducing reliance on fossil fuel and increasing the use of renewable energy, with energy produced and consumed on a more local and regional level.

The UK approach to deregulation also led to the “28 day rule” that allows consumers to change supplier every 28 days—only suspended recently—which had some benefit in protecting consumers in the early stages of competition.

But it had become a barrier to developing an energy services approach that would allow investment in capital measures to be paid through on going revenue payments. Similarly this approach by the regulator and Government also appears to be one of the reasons why the UK has not developed the Feed in Tariff model that has transformed the German renewables market.

The “Energy Efficiency” Industry

What must not be forgotten is the UK Energy Efficiency Industry—those employed in energy ratings, energy assessments, consultancy, advice, research and to a lesser extent energy efficiency measures and technology. This industry can be proud of some of the world class work it has done in developing standards and processes that have often been copied by other countries, for example the use of BREEM and the creation of the international LEED standard.

However, this success has now become a barrier and the UK is now spending too much time and resources creating standards and requirements that are not actually improving energy efficiency. Examples of standards that now apply include SAP, NHER, RDSAP, EcoHomes XB, EcoHomes, Code for Sustainable Homes, Best Practice Standards, Scheme Development Standards, AECB Silver/Gold, Housing Quality Indicators, Lifetime Homes, Urban Design Compendium, Regional Sustainability Checklists, Zed Standards, zero carbon and various renewables targets.

Much of this work is also being repeated at regional and local levels as local authorities and regional assemblies try to “out green” each other. Many of these are worthy targets in themselves but together they create a “fog” of energy efficiency confusion and have in many cases become a substitute for real action.

For example new home-owners might receive an energy performance certificate, that has already two ratings on it, a SAP rating, a regional sustainability rating and code for sustainable homes rating. This does not lead to clarity for consumers nor does it help to build better, lower carbon homes.

The Energy Saving Trust is an integral part of this industry. Before carbon saving became the priority it is today, it worked hard, and often with limited and fluctuating funding, to keep energy efficiency on the agenda. We have worked successfully with both the Trust for many years and have received significant funding from its various programmes.

However their role in the past is now becoming a disadvantage and the Energy Saving Trust has simply not changed to meet the radical agenda shift we have seen in the last two years. The policies, guidance documents, good practice standards, events, consultations and discussions groups had a role to play, but this past is now informing and constricting too much of its future.

There is a role for a neutral, non governmental, organisation that asks the questions and provides the solutions that Government and the industry would always struggle to come up with. However the Trust, constrained by its past, is not it. It should be closed and new approach taken that's focuses on carbon reduction outcomes delivered to a clear timetable and preferably reflecting a similar change in government structures.

Places for People's experience of other countries, including our participation in DTI missions to Canada and Japan, have made it clear that what is needed is a clear national direction and only one standard that is applied to both new and existing homes. A standard that is understandable to the consumers, challenges the construction industry, is future proofed to avoid change, sets a clear timetable for improvement and delivers the long term carbon savings over time.

The UK has half of this in the Code for Sustainable Homes, but this has to become THE standard which will allow for the long term investment in skills, knowledge, technologies and user involvement that will deliver the savings needed. This should be backed up by one Government department and one non governmental organisation, all focused on delivering carbon savings.

3. ENERGY PERFORMANCE IN BUILDINGS AND THE PROVISION OF INFORMATION AND PROSPECTIVE HOUSE BUYERS, INCLUDING ENERGY CERTIFICATES

Places for People welcomes the introduction of the new Energy Performance in Buildings Directive (EPDB). We believe that providing a simple "energy label" to all homes will help to create informed consumers and stimulate increased demand for more energy efficient homes.

Despite this we have serious misgivings about how the energy certificates will be implemented. The CLG proposals are too complex; too costly; lead to confusion for customers; and result in a reduction in energy efficiency investment in the UK.

Places for People has played an integral role in the implementation of the EPDB over the past two years. The Group:

- is the only housing group represented on the CLG stakeholder implementation Group from 2005;
- is a representative on the CLG's technical group;
- submitted a detailed response to the CLG's position paper in January 2007;
- offered input in to the Regulatory Impact Assessment;
- conducted national research and piloted certificates for Housing Corporation;
- has taken part in the CLG Social Housing Pilots throughout Summer 2007;
- is the sole housing representative on the CLG implementation group September 2007.

We estimate that the building and housing industry will face significant costs as a result of having to implement the EPDB. Places for People faces an annual bill of around £1.5 million, whilst the total cost incurred by housing associations offering social rented properties could top £40 million.

There is a considerable risk that the EPDB could result in significant money being diverted away from low carbon measures into an overly bureaucratic form-filling process. Places for People is calling for an urgent review of the implementation of the EPDB.

We also believe that the Government backed methodology for undertaking an energy survey on existing homes (known as RDSAP), far exceeds the requirements of the EPDB and does not lead to more accurate or useful ratings or advice for consumers.

For example the energy consumption data is based on broad assumptions that are already out of date because it is based on 2005 data. This gives consumers misleading information about how much energy they are using and what it will cost them.

Furthermore the requirement for RDSAP to be changed every few years will result in a lack of consistency in calculating the energy efficiency of an existing home. A rating certificate produced for the same house, with no energy saving changes, would be different today from one produced in five years time. Again this will lead to confusion amongst consumers who have no concrete reference point from which to assess any recent changes made to a home.

This complexity also means that energy certificates will be expensive to produce. In the social rented sector, which has the most energy efficient housing of all, this could equate to £40 million per year—funding that could be far better spent on reducing energy demand and fuel poverty.

Put simply, where is the sense in spending £100 for a certificate that tells someone they would benefit from a loft insulation, when the £100 could have delivered the insulation and improved the energy performance of the home.

An alternative would be to use existing data sources such as annual stock condition surveys to generate energy reports, which could be labelled as the code for sustainable homes for existing homes. This would still provide consumers with the same information and give them a clear understanding of the actions they can take to reduce energy demand. It would also avoid millions leaking out of energy investment into bureaucracy.

4. GOVERNMENT EFFORTS TO REDUCE CARBON EMISSIONS FROM EXISTING HOUSING STOCK WHETHER IN THE PRIVATE OR PUBLIC OWNERSHIP AND OTHER RELATED PROGRAMMES

Government programmes like Warm Front, Energy Efficiency Commitment (EEC), Blue Skies, Low Carbon Building Programme, Decent Homes and the Energy Saving Trust have had some success, but they are no longer able to meet neither either the need for change nor consumers' appetite for change.

These programmes and initiatives were all products of a time when energy efficiency was seen as an optional extra. They are also separate entities that rarely work together efficiently towards a common goal. For example Blue Skies and the Low Carbon Building Programme are aimed at building the market for renewables; Warm Front to tackle affordable warmth, but only in certain sectors; the EEC to achieve carbon savings and deliver affordable warmth; and Decent Homes aimed to improve in broad terms social housing, but has had a minimal impact on energy efficiency investment.

Research commissioned by Places for People through the Energy Efficiency Partnership for Homes has indicated that over £14 billion needs to be invested simply to eliminate fuel poverty in UK housing. At the same time the UK spends over £1 billion per year on winter fuel payments that is having no long term impact on reducing fuel poverty or reducing carbon emissions.

Places for People believes that a streamlined approach could improve efficiency, where the focus is solely on carbon reduction, which is backed up by the code for sustainable homes.

With the exception of the EEC programme, most of the above initiatives have been overly bureaucratic and do not deliver the scale of investment that is urgently needed. Similarly the Decent Homes Standard has delivered significant improvements in housing standards, but is set too low to make any impact on reducing carbon emissions.

To reach the level of carbon reductions that are needed, Places for People proposes that:

- One national standard is adopted.
- Adopting a model based on the German feed In tariff. Feed-in tariffs work by paying an above-market price for electricity fed from clean technologies into the grid. This has been enormously successful in Germany. If you want to roll out micro-generation and renewables, it is the cheapest, most-effective way to do it.
- The development and promotion of energy services models.

5. THE TECHNOLOGIES AVAILABLE TO REDUCE EMISSIONS AND THE GOVERNMENT'S ROLE IN FACILITATING RELEVANT FURTHER TECHNOLOGY DEVELOPMENT

The UK renewables industry has had an enviable reputation at various stages in the past but is now little more than a cottage industry. This is the time for business and the housing industry to show leadership, and play a major role in cutting carbon emissions. By adopting a sustainable approach it can incentivise business; create new opportunities; and develop technologies that will help reduce carbon emissions and greenhouse gases.

If we do not invest in the renewables industry, the impact will be poor quality renewables that are high in cost, yet low in availability. The problem will seriously hamper efforts by the housing and business sectors to meet the Government's targets to cut carbon emissions.

There are a range of simple renewable technologies available, which have been extensively piloted across the country. These include:

Solar Thermal

The technology is simple, relatively cheap to install and cost effective.

Ground Source Heat Pumps

This technology has been around for a number of decades, and is popular in countries such as America. The system is a simple one that basically transfers the heat that already exists in the ground in to the homes heating system.

Wind

The process of using wind power to generate energy can be done on both a small and large scale basis. There have been many misconceptions around large-scale wind turbines. However we believe that the technology will have a key role to play in the next 20 years. The UK has more usable wind power than any other European country, and large scale wind turbine farms on and offshore will become a major supplier of electricity to the national grid. However that aside, small scale wind production is at a critical point. It is in serious risk of over-promising and under-delivering.

Combined Heat and Power (CHP)

Small scale and domestic. Small scale is once again on the agenda and may have a critical role to play in new housing developments. Domestic CHP has had a faltering start with only one product on the market which is still being imported from New Zealand.

Biomass

Places for People believes that biomass technologies have an important role to play especially in combination with CHP, However technological problems have stunted any wider uptake of the technology, and the supply and storage of fuel is a major issue. We also believe that there are still major issues to be resolved around the impact biofuels will have on food supply and price increases. There are already clear signs that the world's thirst for environmentally friendly biofuels is driving up food prices on a global scale.

Heat recovery and ventilation

This could be a simple and effective technology that delivers highly insulated homes.

While there may be some new products emerging over the next decade, it is not the technologies themselves that are the barriers—it is their cost; their quality; the industry that produces them; the cultural and skills barriers to their use; the planning obstacles; and the lack of incentives that allow high capital costs to be paid off over time.

It must be remembered that renewables are not the answer but only part of it, and we should conform to the energy hierarchy, ie to reduce energy demand first, and then consider where the energy comes from and how it is used. This is a much greater challenge in existing homes with limited opportunities for improving the existing fabric beyond basic insulation measures.

Places for People would propose a range of measures, in order to ensure that the UK has a world class renewables industry. For example we would propose:

- That a national programme be drawn up to develop the renewables industry. This must also have a serious focus, and central investment on research and development, and in to how production can be scaled up.
- The removal of stop-start grant funding, which hampers the uptake of renewable technologies.
- The replacement of winter fuel payments with a UK energy efficiency investment programme over 15 years.
- The introduction of feed-in tariffs, similar to the German experience, which now has 200 times the solar power capacity and 10 times the wind energy capacity of Britain. Feed-in tariffs have also been used in Norway, Sweden, and the Netherlands with considerable success. It is vital that we learn from these experiences.

At Places for People we have piloted and installed a number of the above technologies in developments across the UK.

For example we have been working closely with Viridian Solar, a new solar panel manufacturing company, to develop a new product that is low cost, efficient and high quality. As a result the cost of the units are less than a quarter of traditional solar thermal systems making them far more affordable for new housing.

In 2006 Places for People installed the innovative solar hot water systems in Places for People homes to rent at Norfolk Park in Sheffield. The pilot is part of our ongoing national research into renewable technologies. In conjunction with other technologies we are working on, it can be a useful method of achieving higher renewable energy targets on our developments. Above all, it offers our customers significant savings on their energy costs.

We have recognised that we must invest in the technologies now to ensure that we have input into their design, and also to ensure that their supply continues to be available and their costs low. In 2007 Places for People joined the board of Viridian Solar to make this possible.

We have also built a number of schemes that incorporate renewable technologies and meet today's high energy efficiency standards. This includes; Broughton Atterbury in Milton Keynes which is one of the largest schemes in the country to obtain the old EcoHomes Excellent rating; ground source heat pumps in Cambridge; wind turbines in Milton Keynes; solar panels in Sheffield; and a highly efficient district heating system in Edinburgh.

This is important, as renewable and low carbon technologies are destined to play an increasingly important role in housing in the future. They bring a wide range of benefits including reduced carbon emissions, increased energy diversification, and the protection against future energy price rises so helping to eliminate fuel poverty.

This environmental work was recognised when we won a Gold Award for Environmental Sustainability from the Housing Corporation in 2007, beating off strong competition from 26 property groups.

Yet we realise that we must do more. We will continue to move our environmental agenda forward in the next few years. Our five-year EcoPlan called Beyond Carbon sets out our vision to deliver Zero Carbon homes, a low carbon business and affordable warmth for our residents.

It will include much research, partnering to realise new ideas, and a range of ambitious projects to deliver the long-term results needed to create a more sustainable future.

6. THE COSTS ASSOCIATED WITH REDUCING CARBON EMISSIONS FROM EXISTING HOUSING, WHO WOULD MEET THOSE COSTS AND PARTICULARLY, IN RESPECT OF LOW-INCOME HOUSEHOLDS, INTERACTION BETWEEN CARBON EMISSIONS AND THE GOVERNMENT'S AMBITIONS TO REDUCE POVERTY

The costs associated with reducing carbon emissions from existing housing, who would meet those costs and particularly, in respect of low-income households, interaction between carbon emissions and the government's ambitions to reduce poverty.

We believe that the long-term aim must focus on stripping out the costs of reducing carbon emissions from the system. This can be achieved by:

- Making the overall objective one of carbon savings—so whichever approach is used then that becomes the outcome.
- The replacement of winter fuel payments with a UK energy efficiency investment programme over 15 years.
- Encouraging clear standards, timetables and targets, and removing bureaucracy from the system, as is highlighted in the EPDB and the competing grant funding regimes.
- Creating a world class renewables industry that can deliver high quality, low cost products.
- Developing the funding regimes that allow the high capital costs to be spread over long periods of time, such as in Germany and the use of energy service contracts.
- Allowing landlords to benefit from the investment in renewables.

Ultimately there is a cost to this but it will only be met if the costs are spread amongst the energy industry, consumers, government, landlords and local authorities.

Largely there is a connection between reducing carbon and reducing energy costs. Places for People recognise that energy costs are the second biggest household expenditure and have a direct impact on poverty.

Through our involvement with the Energy Efficiency Partnership for Homes, we commissioned a national piece of research on energy prices and the impact on fuel poverty (people are classed as being in fuel poverty when they are spending more than 10% of their household income on energy).

This highlighted the disproportionate impact that energy price rises have on low income households:

- Between 2003 and 2006 electricity prices surged by 39% and gas prices by 61%, plunging an extra 1.73 million households across all housing tenures into fuel poverty.
- One in three people (or 650,000 households) renting from a local authority or registered social landlord struggled to meet rising energy bills in 2006, paying an average £814 a year. These households are now three times more likely to be fuel poor than tenants in 2004, who paid £590 per year on bills.
- By 2016 nearly 25% of social housing residents would be at risk of fuel poverty.

Places for People is committed to helping eradicate fuel poverty amongst its customers. As well as piloting a range of technologies, we have worked with numerous partners in order to offer customers affordable warmth and energy.

However, even with this investment we need to do far more and we are now developing a wider range of interventions including:

- A tariff swapping service
- Investing in renewable energy

- Promoting and making available comprehensive energy advice
- Running energy awareness events
- Reaching a SAP 65 target for all homes

In the majority of cases these interventions will also lead to carbon savings, and the principle that carbon saving also reduces costs is reinforced.

7. THE SPECIFIC CHALLENGES WHICH MAY ARISE IN RELATION TO HOUSING OF SPECIAL ARCHITECTURAL OR HISTORICAL INTEREST

The impact on buildings of special architectural or historical interest is an area which has little impact on the vast majority of existing homes in the UK, although our housing stock in Edinburgh is subject to significant limitations which reduce our ability to improve energy efficiency.

The real barrier for most housing is the specific challenges which arise in relation to existing stock and the planning system. All too often the focus is on “the visual amenity” of buildings when considering technologies such as wind turbines in urban areas, rather than the potential environmental gain, even in densely populated urban environments.

For example we have been seeking planning permission to install wind turbines at a housing scheme, yet have faced constant delays from the local council’s planning department, despite the obvious benefits that they will bring to residents.

8. RECOMMENDATIONS

- Energy policy and strategy, at all levels, must become the function of one Government department rather than the current three. Its ultimate aim should be carbon reduction. This should be reflected in any non governmental agencies, any grant regimes and the regulator.
- Urgently review and radically simplify the CLG’s proposals on implementing the Energy Performance in Buildings Directive (EPDB).
- Set one national energy standard for both new and existing homes—the code for sustainable homes.
- Set a clear timetable to meet new building regulations standards.
- The replacement of winter fuel payments with a UK energy efficiency investment programme over 15 years.
- Have a stated national aim of creating a world class renewables industry by 2015, and introduce tax incentives for investment in UK renewables.
- Introduce a feed in tariff system, similar to the German model.
- Support the introduction of energy services models that would fund energy efficiency measures and renewables for householders, but also be available to landlord.
- Close the majority of Government funded grant regimes for renewables and energy efficiency measures. These to be replaced by market incentives such as energy services, feed-in tariffs and the continuation of EEC.
- Any Government financial support to go towards building a world class renewable energy industry.
- Implement the proposal to allow small scale renewables to be a permitted development.

APPENDIX A

ABOUT PLACES FOR PEOPLE

Places for People is one of the largest property development and management companies in the UK, with around 59,000 homes either owned or managed in a mixture of different tenures. With 2,500 employees, it is a unique organisation that provides a diverse range of products and services to build quality, safe and sustainable communities.

In 2006–07, Places for People had a £330 million turnover and a not-for-dividend profit of £19.7 million. During 2006–07, we built 1,202 new homes and had a £2.5 billion asset base. In addition we achieved a full set of green lights in our last Housing Corporation Assessment (October 2005).

Places for People regards itself as a housing and regeneration organisation that puts people first. We provide solutions that not only cover a range of different housing tenures but also offer a range of support services including affordable childcare, elderly care and financial services—all the things that contribute to making neighbourhoods of choice; prosperous, popular and truly sustainable.

Places for People currently has 44,600 affordable rented properties, 4,800 properties available for market rent and some 9,000 properties where we retain a freehold stake as part of either shared ownership or “right to buy” arrangements in a number of developments throughout the UK.

Our portfolio is designed to “Create neighbourhoods of choice for all” and covers the following broad mix of products:

- Places for People Neighbourhoods—investment, regeneration & placemaking.
- Places for People Homes—neighbourhood & property management.
- Places for People Individual Support—support for independent living.
- Places for People Property Services—in-house maintenance services.
- Places for People Development—master planning & building new developments.
- Places for People Financial Services—financial products for customers.
- Places for Children—early years childcare.
- Emblem Homes & Blueroom Properties—lifestyle homes for sale & rent.
- Making Places—a joint venture with Cofton, set-up to acquire land and deliver thousands of homes over the next five years.

When we create new places for people to live we plan a mix of tenures and house types designed for communities that have people from different social backgrounds.

All of our homes whether for sale or for rent are designed and built to the same high standards with the same specification making different tenures indistinguishable.

In February 2007 Places for People formed Making Places, a new joint venture with Cofton—the land regeneration and development specialist—to acquire land and deliver thousands of homes across the UK.

The venture has been formed to procure land for large scale and complex developments that will help to address the country’s chronic housing shortage and meet the growing demand for new high quality, energy efficient homes. The partnership will invest £300 million in land acquisition over the next two years and currently has plans to develop over 14,000 new homes on sites in Newcastle, Swindon, Corby and Harlow.

Memorandum submitted by Save Britain’s Heritage

1. I am Catherine Townsend BA(hons). I write this submission in two capacities. First as Buildings at Risk Officer at SAVE Britain’s Heritage, a charity concerned with the protection, restoration and re-use of historic buildings. Secondly having recently submitted a dissertation for a Masters degree. The document focused upon energy efficiency, renewable energy and sustainability in historic and traditional buildings in the context of a changing climate.

INTRODUCTION

2. SAVE Britain’s Heritage is a registered charity. It was founded in European Architectural Heritage Year—1975—to campaign publicly for the protection of threatened historic buildings and areas. Through press releases, books, exhibitions and reports, SAVE has championed the cause of architectural heritage in this country. There are many buildings now restored and in beneficial use that, had it not been for SAVE, would have been destroyed.

3. SAVE has been at the forefront of the conservation movement in the UK, pushing for changes in legislation and in government policy to give greater protection to our built heritage, and in raising awareness amongst politicians, professionals and the public about the vital contribution made by historic places and spaces to the quality of life in this country.

4. In particular SAVE has championed historic areas and building types that have been under-appreciated or which have not previously been recognised or studied and which have been threatened by redundancy, disuse and demolition. These have covered an enormous range of buildings, from textile mills, through to railway buildings, from closed historic hospitals and mental asylums, to deconsecrated churches and Victorian pubs threatened with refurbishment. SAVE publishes an annual Buildings at Risk Register. *Opportunity Knocks* published in April 2007 featured approximately 120 new entries that had come to our attention since 2006. We are continuously made aware of buildings with uncertain futures. These buildings are three-dimensional historic documents with architectural and historic value, their futures should be made certain.

5. SAVE has always sought to demonstrate that old buildings can be put to new uses. We said in 1975, and we still find today, that all over the country buildings are condemned before real attempt has been made to find them a new use. On many occasions, SAVE has worked with leading contemporary architects—for example with Lord Rogers of Riverside Billingsgate Market—to show how buildings can be imaginatively converted. In this manner SAVE has championed the conservation of numerous historic buildings.

6. In SAVE's 1st report in 1975, over thirty years ago, we already recognised the ecological detriment that modern planning and architecture can incite. We wrote "Buildings—and not just historic ones—represent energy, labour and materials, which either cannot be replaced or can only be replaced at enormous cost. The fight to save particular buildings or groups of buildings is not the fancy of some impractical antiquarian. It is part of a battle for the sane use of all our resources." It continues "No old building is worthless in a time of shortage of resources . . . For example it has been calculated recently that the equivalent of ten tons of coal from our energy supplies is needed to build a new house, but only one ton is needed to renovate an old one."⁶⁸ These arguments still hold true.

7. Global warming is arguably one of the toughest issues facing the world today. Thus it is that climate change is a reality that every person in every sector must now acknowledge and seek to tackle and rectify. As in other professions, those involved in heritage and conservation of historic buildings must also rise to the challenges that climate change poses. Efforts need to be made to ensure that the finite resources, that are our historic environment and our natural environment, continue in perpetuity.

8. Climate change introduces a number of specific challenges for housing of special architectural or historic interest. These include direct challenges from the weather, problems as a result of implementing governmental policy and the rise of interest in small scale renewable energy.

9. Up until now, the focus has been upon creating new build homes with low to zero carbon emissions. Currently existing homes account for roughly 99% of housing stock and it has been estimated that 60% of the buildings we will live in in the next century have already been built.⁶⁹ Already 80% of the existing building stock has stood for over half a century, of which 20% is of a historic character.⁷⁰ There is undoubtedly a role for existing building stock to play in reducing green-house gas emissions. For existing buildings of historic character, just how that is done must be carefully administered.

10. The historic built environment can answer many issues of sustainability. Finding new uses for derelict and deteriorating existing buildings ensures not only that buildings of architectural and historic merit are safeguarded for future generations, but that they are also "recycled". Marrying a vacant building with a new function conserves the embodied energy of that structure, minimises waste sent to landfill and eliminates necessity for manufacturing, packaging and transport of large quantities of materials.

11. Furthermore practicing building conservation philosophy is a cornerstone for environmentally considerate behaviour. Sensitively administered repairs such as "like for like" repairs and minimal alterations, minimise the quantity of materials that must be employed on a project which saves resources. Furthermore, such methods of upkeep, repair and maintenance therefore prolongs the lives of buildings, making them vehemently sustainable.

12. Although a traditional construction cannot ever hope to achieve the energy efficiency or carbon zero targets of a new-build eco-home, its products are less polluting, and there are evident environmental advantages to their retention.

THE SIGNIFICANCE OF EXISTING HOUSING COMPARED TO NEW BUILD AND THE DIFFERENT LEVELS OF PERFORMANCE EACH DISPLAY.

13. The construction industry is responsible for 47% of the UK's annual carbon dioxide emissions. Construction waste removed to landfill amounts to 70 million tonnes each year.⁷¹ Plus cement production releases 1500 million tonnes of carbon dioxide emissions each year.⁷² Despite the number of existing homes and the demand for housing, particularly that with "character", existing buildings continue to be knocked down to make way for new houses. Demolition and construction further contribute to the great quantities of polluting gases that are emitted.

14. Despite government targets that all new homes will be zero-carbon by 2016, the quantity of embodied energy in existing housing stock is too regularly overlooked. The Building Research Establishment produced a report in 2003 in which they recreated a typical Victorian terrace house. One was built in original traditional materials and one in its equivalent modern materials. Experiments were carried out in order to assess the embodied energy levels of each as well as their embodied carbon dioxide levels. It found that both the traditional and modern construction methods had similar levels of embodied energy. Embodied CO₂ was found to be much greater for the modern materials, showing them to be less environmentally friendly. Furthermore, experiments deduced that a single Victorian terrace contains the energy equivalent of 15,000 litres of petrol.⁷³ Demolition therefore disposes of huge quantities of energy.

⁶⁸ SAVE report, *The Architects' Journal* 17/24 December 1975.

⁶⁹ James Howard, Assoc. Director of Urban Splash, quoted in an exhibition held at Create, Bristol for the debate "Ecohomes—Where Next? Meeting the Greener House Challenge". 20th June 2007.

⁷⁰ Cassar, May. *Engineering Historic Futures*. Centre for Sustainable Heritage, University College London, London, 2005. Available from: www.ucl.ac.uk/sustainableheritage/historic_futures.htm [Accessed 02/07/07]

⁷¹ Ian Pritchett, IJP Ltd. Quoted in *The Traditional and Sustainable Building Directory*, p. 36.

⁷² *The Traditional and Sustainable Building Directory*, p. 42.

⁷³ Anderson, Jane. *Measurement of Residual Embodied Energy in Heritage Housing: Final Report*. Building Research Establishment Ltd, Watford, 2003.

14a. *Case Study—Pathfinder/Housing Market Renewal Initiative*

The Government's Pathfinder projects intended to demolish up to 400,000 terrace houses in Northern towns and cities. Through hard work from SAVE and local community groups, the target has been reduced to circa 52,000. Not only does the success ensure the preservation of the built environment, but massive savings are achieved in energy wastage and landfill. By refurbishing the Victorian terraces money, resources, regional and local distinctiveness are saved.

15. Building Standard 7913 recognises that the re-use of buildings is sustainable and conserves energy:

In environmental terms the continued use of existing building stock . . . coupled with measures to improve energy efficiency is a global priority.

In global environmental terms, the balance of advantage strongly favours the retention of existing building stock, particularly when performance in terms of energy consumption in use can be improved.⁷⁴

16. Traditional construction, in general, boasts very low embodied energy. Considering the accumulative inputs of energy, it can be interpreted that refurbishing old building stock is a "green" exploit. In contrast, constructing new developments necessitates greater amounts of energy. For the refurbishment of an old building, the total embodied energy is that of the existing materials and the new materials, plus the energy required for the building to operate. However, in a new building these same considerations must be added together, but the new materials will have emitted greater quantities of green-house gas emissions during their production, and the old house must first be demolished and then re-built. Demolition requires further energy to be invested into construction, with the expulsion of yet more pollutants.

16a. *Case Study—Severalls mental hospital, Colchester.*

This vast disused mental asylum was built 1910–13 by William King and Son to the designs of County Architect F Whitmore and William H Town. By 1937, it had a capacity for 2,000 patients. The massive site has been vacant for many years, but could easily be converted to provide housing for approximately 700 people or could serve as a ready built university campus. Existing buildings put to new uses therefore serve to protect the environment from further carbon emissions released during construction and from unnecessary landfill. Reducing carbon emissions reduces the severity of climate change.

17. Planning Policy Statement 1: Delivering Sustainable Development writes the following under the section "Prudent Use of Natural Resources":

The prudent use of resources means ensuring that we use them wisely and efficiently, in a way that respects the needs of future generations. This means enabling more sustainable consumption and production and using non-renewable resources in ways that do not endanger the resource or cause serious damage or pollution . . .

Development plan policies should seek to minimise the need to consume new resources over the lifetime of the development by making more efficient use or reuse of existing resources, rather than making new demands on the environment.⁷⁵

18. A traditional approach to conservation with empathy for re-use is inherently sustainable. Not least because of the adoption of locally sourced skills and traditions, but also the careful replacement and maintenance of component parts of a building which ensures its life is prolonged. Very often in old buildings, materials were locally sourced thus reducing travel distance, packaging and requiring fewer processes. Again allowing for further reduction in energy expenditure and carbon dioxide emissions.

THE SPECIFIC CHALLENGES WHICH MAY ARISE IN RELATION TO HOUSING OF SPECIAL ARCHITECTURAL OR HISTORICAL INTEREST

Direct Effects of the Weather Upon Existing Buildings as a Result of Climate Change

19. It is predicted that major changes will occur in the weather as a result of climate change. Temperatures are expected to rise between 1.5°C and 5.8°C by 2080, with knock on effects including sea level rise as a result of melting polar ice caps.⁷⁶ Whilst temperatures will overall rise and total rainfall each year will fall, the temperatures and weather conditions will be dramatic and variable, bringing intermittent heavy showers. Conservation intends to slow down the rate of change for buildings, but the changing climate is making that increasingly difficult.

⁷⁴ *Building Standard 7913* (1998) quoted in English Heritage, *Building Regulations and Historic Buildings*, London, 2002, p. 3.

⁷⁵ *Planning Policy Statement 1: Delivering Sustainable Development (PPS1)*. Office of the Deputy Prime Minister, London, 2004.

⁷⁶ Projections from International Climate Change Panel and UK Climate Impacts Programme, written in The National Trust, 2005. *Forecast?—Changeable!* Available from: http://www.nationaltrust.org.uk/main/w-climate_change-forecast_changeable.pdf [Accessed 02/07/07], p. 9.

20. Water is currently the principal cause of damage and deterioration in historic buildings in the UK. Heavy rainfall is likely to overburden current rain water drainage systems allowing water to overflow gutters, leading to water ingress, which in turn causes mould, rot and deterioration. Every effort must be made in order to ensure that the building envelope remains intact. Regular planned and careful maintenance and a philosophy of good housekeeping are essential. Although installing wider or more rainwater goods may seem like a sensible solution, such alterations would undoubtedly interfere with the special interest and character of the building and its original design.

21. Erosion and decay accelerated by strong winds and variations in temperature can be initiated by the presence of water within porous materials. Moisture encourages the movements of salts causing them to crystallise elsewhere where they exert pressure on surrounding stone causing them to spall. Drying out of fabric must be carefully administered, as forcing fabric to dry will cause faster deterioration.

22. Climate change and the associated rise in sea levels combined with heavy rainfalls are likely to increase flooding in low lying conurbations and riverside properties. There are often many properties of historic and architectural value in such areas which will be affected. These risks and rising insurance premiums may deter owners from properties potentially leaving greater numbers of buildings at risk of vacancy and deterioration, in itself a waste of existing buildings and their resources.

Energy Performance Certificates & The Provision of Information for Households and Prospective House Buyer

23. The new Home Improvement Packs (HIPs) include a rating through the Standard Assessment Procedure (SAP) to produce an Energy Performance Certificate. This produces results illustrated by an easy to read coloured chart, with a scale between one and 100 and A–G for both energy efficiency (heat loss) and environmental impact rating (CO₂ emissions). However, buildings of traditional construction (those built before 1919) which do not have cavity walls and may have original windows are never going to achieve high results in assessments. This is due to the style of assessments, which do not distinguish between modern and traditional construction and the high rate of air exchange in order to keep fabric in good condition. The negatives of traditional construction are never missed by their critics, but its benefits are.

24. There are methods that can be employed to improve energy efficiency in historic properties. These include installing secondary glazing, laying more insulation in the roof without blocking ventilation (using sheep's wool for greater environmental benefits) or by bringing original shutters back into use where the option exists. Even ensuring that pointing is still in good condition can reduce unnecessary heat loss. Provisions of this nature are unaccounted by assessors. EPCs do not recognise these alterations.

25. The results of the survey are entered into a computer programme that produces ratings and recommends improvements accordingly. Acting upon the advice is not compulsory, but the standardised method does not consider the fundamental differences between traditional and modern building fabric. Therefore the feedback risks initiating rushed and ill-considered alterations as traditional buildings will inevitably produce low rates reflecting energy efficiency and high fuel rates.

26. Due to the special nature of traditional construction methods, in which fabric must be allowed to “breathe”, recommendations produced with the assessments are not necessarily suitable for copying onto traditionally constructed dwellings. For example replacing original wooden windows with uPVC double glazing is not environmentally friendly, aesthetically correct or compatible with the “breathability” of building fabric. Yet generic advice, divulged through feedback from EPCs, is written with modern construction in mind. Suggestions threaten to rectify the air exchange in traditional fabric by blocking ventilation which is necessary for the health of the fabric. Air flow can be reduced, but stopping it prevents moisture from evaporating and risks increasing the rate of deterioration and decay.

27. Furthermore products on the market advertised as being compatible with old buildings may not be. The “breathability” of a building is a delicately balanced cycle which can easily be disrupted by the introduction of impervious materials and by removing sources of ventilation. In particular methods of internal and external wall insulation which combine synthetic products are a cause for concern. Despite the inclusion of synthetic fibres which are alleged to wick moisture away, their compatibility with original fabric has not been proven to be suitable in the long-term.

28. Historic and traditional buildings can not be subject to generic advice. Each case requires individual assessment and solutions. Environment and building conservation must be weighed against one another.

Government Efforts to Reduce Carbon Emissions

29. The government signed the Kyoto Agreement in 1990 which intended to reduce greenhouse gas emissions by 2010, and carbon dioxide emissions by 20%. These targets remain a distance away from being accomplished. Government needs to act to reduce CO₂ emissions. The Energy White Paper published in 2003 states the increasing energy efficiency is a cost effective way by which to reduce CO₂ emissions and to ensure that long-term targets are met. It further aimed to reduce CO₂ emissions by 60% by 2050.

30. The action it has taken in order to reduce carbon emissions has largely been focused upon domestic building stock which is responsible for around a quarter of annual UK carbon emissions. Part L of the Building Regulations, Conservation of Fuel and Power, is intended to improve energy efficiency. Existing buildings that are altered, extended or subject to a new use must comply. In order to protect historic buildings from incompatible guidelines intended for modern construction, Approved document Part L2, Section 4 recognises their importance.

The need to conserve the special characteristics of such historic buildings needs to be recognised. In such work, the aim should be to improve energy efficiency where and to the extent that it is practically possible, always provided that the work does not prejudice the character of the historic buildings, or increase the risk of long-term deterioration to the building fabric or fittings. In arriving at an appropriate balance between historic building conservation and energy conservation, it would be appropriate to take into account the advice of a local planning conservation office.⁷⁷

31. The government intends that by 2011 all light-bulbs will be energy efficient, marking the end of incandescent tungsten filament lighting. This is an easy way for houses to improve their energy efficiency, but a wider range of designs that suite historic interiors will be welcomed.

Technologies to Reduce Emissions From Existing Housing Stock—Small Scale Renewable Energy

32. Methods of obtaining renewable energy pose the most suitable solution to reducing world-wide green-house gas emissions. The acceptability of integrating small scale renewable energy generators into historic fabric is still in its formative stages. *Planning Policy Statement 22: Renewable Energy* notes that “Small-scale projects can provide a limited but valuable contribution to overall output of renewable energy.”⁷⁸ In terms of the historic built environment, these technologies probably can be integrated, if it is ensured that they do not impose upon the special integrity, character and appearance of a building. It seems the combination is achievable in certain circumstances. PPS22 does recognise this significance:

In sites with nationally recognised designations planning permission for renewable energy projects should only be granted where it can be demonstrated that the objectives of designation of the area will not be compromised by the development, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits.⁷⁹

33. Domestic wind turbines have yet to prove that they have a place upon historic buildings. Their low efficiency and huge visual impact makes them unsuitable in terms of building conservation.

34. Solar panels should in most situations be discretely located so that the appearance of the building and its local vicinity are preserved. There are solutions by which solar photovoltaic solar electricity panels and solar panels for hot water can be sited on historic buildings. Locations such as valley gutters or behind parapets provide sites with minimal visual disruption. Mobile panels located within surrounding grounds do not require listed building consent and could provide an appropriate alternative.

35. Ground source heat pumps are visually unobtrusive but their application to historic property must still be carefully administered. Internal alterations may be required which could cause more than minimal alterations.

36. The roots of hydro power go back several millennia to the first water wheels. By the middle of the nineteenth century the invention of turbines allowed water to be harnessed to produce electricity. Old mills have the potential to gain power from their local water supply in order to contribute towards their electricity supply thus reducing the carbon footprint of the building and its effects upon the environment.

37. SAVE strongly holds that existing housing of architectural and historical interest can play an important role in the fight against climate change. To sum up: the retention of existing housing stock and its subsequent re-use saves upon energy and resources which in turn reduces green-house gas emissions in order to limit the severity of climate change. Adaptations towards energy efficiency and towards changing weather conditions can be tolerated but must respect the value and integrity of the property, and be carried out with thorough understanding and knowledge of the buildings and its construction.

⁷⁷ *Building Regulations Part L: The Conservation of Fuel and Power*, 2002, Part L2 Section 4.

⁷⁸ *Planning Policy Statement 22: Renewable Energy (PPS22)*. Office of the Deputy Prime Minister, London, 2004, no.1, part v, p. 8.

⁷⁹ PPS22, no. 11, p. 11.

Memorandum submitted by the Association of British Insurers

I am writing to you in response to the Communities and Local Government Select Committee inquiry into *Existing Housing and Climate Change*. The Association of British Insurers (ABI) has been leading the debate on the need to adapt our planning regime and building stock to the consequences of climate change. Addressing the resilience against extreme weather of new and existing housing stock is a vital part of this.

If the Government is to meet its climate change targets, it must develop a comprehensive strategy for dealing with the existing housing stock. Increasing the energy efficiency of existing homes is an important part of this. The ABI welcomes the significant action being taken to address efficiency and reduce greenhouse gas emissions in the package of recent proposals put forward by the Department for Communities and Local Government.

However, whilst there is no doubt that reducing carbon emissions will help prevent future damage, the climate will also continue to change over the next 30–40 years in any case because of historic emissions. We therefore need to take action now to protect our communities.

Climate change will result in significant impacts on housing. Increasing frequency and severity of storms and floods will lead to more frequent and costly repairs, and declining housing quality in difficult locations. Higher temperatures will result in health problems. This requires the strengthening of building standards to deal with more frequent extreme weather conditions, together with higher standards for social housing and housing for vulnerable groups. The poor will suffer most here in the UK, as abroad.

Our strong belief is that the planning regime needs to stop construction of new housing and commercial buildings in high-risk areas. Since 2002 over 800 developments have gone ahead against the Environment Agency's advice that the risk of flood was too great. The EA now has new powers and we are urging local planning authorities to work with them to ensure the risks associated with new developments, including the flood risk to existing properties, are properly understood and acted upon by the relevant planning committee.

Where developments are agreed, measures should be taken to protect the development itself and neighbouring properties from the risks of river or coastal flooding, and from the increased risk of drainage problems. This requires strong directions (and sanctions) from the planning process, tougher building regulations, new measures to make sustainable drainage systems practical and a developer's "connection charge" to fund protection for the wider community.

Good quality housing addresses the social and environmental needs of people today as well as future generations. It should be sustainable in every sense of the word—minimising the impact on the local environment and natural resources, adaptable, able to cope with changing environmental conditions and social needs. By meeting these requirements, good quality housing will remain insurable and mortgagable.

Memorandum submitted by the Home Builders Federation

1. The Home Builders Federation (HBF) is the principal trade body representing private home builders in England and Wales. Our members include companies of all sizes, ranging from major national companies through regional businesses to smaller, local companies. Between them, our members are responsible for about 80% of the new homes built each year.

INTRODUCTION

2. The companies represented by HBF primarily build new homes and are not usually involved directly in work to improve the condition and performance of the existing housing stock. In the context of current action to tackle climate change, however, we do see a number of ways in which the work of home builders may also bring benefits in tackling the energy and carbon efficiency of the existing stock. We seek to explain these potential synergies in this Memorandum.

DETAILED COMMENTS

The significance of tackling the existing stock

3. It is undoubtedly the case that the energy efficiency of the existing housing stock is a far more important factor overall in determining the country's ability to reduce carbon emissions than that of newly built homes.

4. There are some 25 million existing homes which will still constitute two thirds of the housing stock by 2050 even allowing for an increased rate of housing supply in the interim. The energy efficiency of many of these homes is considerably less than that of homes being built to the current Part L 2006 building regulations and will compare less favourably still as we move towards the objective of building to a national zero carbon standard from 2016.

5. As a result of the 2006 Part L regulations, homes being built today are 40% more energy efficient than those built under building regulations current five years' ago. Taking a longer-term view, Victorian houses are up to six times less energy efficient than those of today.

The approach on new build and its relevance to the existing stock

6. The HBF is working closely with Government and other stakeholders with a view to achieving the twin objectives of an improved housing supply of 240,000 annual net additions to the stock and zero carbon performance standards for all new homes from 2016 onwards. The HBF's Executive Chairman, Stewart Baseley, jointly chairs the 2016 Task Force overseeing work on these objectives with the Housing and Planning Minister.

7. The agreed approach in pursuing the zero carbon standard is to make three further changes to the Part L regulations so as to increase energy and carbon efficiency standards compared to the 2006 regulations by 25% in 2010 and 44% in 2013 before requiring the zero carbon standard itself from 2016.

8. This clear set of national steps will provide the framework within which home builders can work with the supply chain and energy providers to identify the best solutions for achieving the zero carbon standard as effectively and efficiently as possible.

9. A number of home builders are already undertaking projects to explore how to achieve higher standards of carbon efficiency and, in addition, there will be structured opportunities for demonstration projects via initiatives such as English Partnerships' Carbon Challenge and the Government's plans for a number of new eco-towns. HBF and its members are actively participating in all these discussions.

10. The HBF believes that arising from this approach there could be a number of opportunities or outcomes that might also be helpful in seeking improvements to the energy efficiency of the existing housing stock.

11. The most obvious such opportunity is likely to result from the further innovations and proving of technologies inherent in the zero carbon homes objective. While it is common ground between HBF and many other bodies that the first priority is to make further improvements to the fabric efficiency of new homes, we do not expect to be able to achieve the zero carbon standard purely through this means. There will be residual heating and power needs that will need to be met by appropriate forms of low and zero carbon generation.

12. Whether such needs can best be met in particular cases through micro-generation, on site facilities, community energy supplies or via additional low and zero generation capacity accessible through the grid is still a matter of some uncertainty. Many of the technologies that might be used are not yet adequately proven in terms of their performance outputs and durability in given contexts.

13. An important outcome—if the zero carbon objective is to be met successfully—will therefore be to establish clarity about the capabilities of particular technologies and low and zero carbon energy supply facilities and scenarios. This knowledge should in turn be relevant and helpful to efforts to improve the energy efficiency of the existing housing stock which is equally likely to require low carbon solutions for residual energy requirements over and above what can be achieved through improvements to fabric efficiency.

14. A more profound potential synergy should also be actively considered. Since the average new build development is quite small—perhaps 30 or 40 homes—we think that technically effective and commercially viable solutions for providing a post-2016 residual energy supply will often need to be non-site specific. If so, that consideration immediately opens up the question of how a sufficient critical mass of consumers can be assembled to underpin investment in new facilities.

15. One way in which this might happen would be for a facility to serve both existing and new homes in an area. Efficiency—including via balancing the load of demand as evenly as possible through the day—could prospectively be further increased by also including non-domestic forms of demand such as local commercial, retail, office and public amenities.

16. We are currently discussing such possibilities with Government, energy companies and others via the 2016 Task Force process. These discussions are at a very early stage so we cannot yet set down firm conclusions on the scale of opportunity that might realistically be available. We do believe, however, that where feasible such an approach could yield significant benefits for all parties.

17. We should add that in order to explore such ideas it will also be necessary to consider how the regulatory regime affecting the generation, transportation, trading, balancing and sale of energy affects the ease and viability of what we might call new forms of community-wide energy generation and supply. These issues are already being looked at in the context of the Government's objectives for promoting renewable energy supply, but the need for a reduced carbon footprint for new and existing homes is introducing an important new dimension to such discussions. Overall we do not consider that existing rules are yet sufficient to encourage the necessary investment flows.

18. A further link to other policy objectives may lie in the way in which the Energy Efficiency Commitment evolves in future. In particular, HBF believes it might be helpful and worthwhile to look into how the future CERT scheme could assist the development of new low and zero carbon community-wide

energy supply facilities of the type outlined above. An appropriate element of financial contribution linked to such new facilities through a post-2011 CERT scheme could in principle make them easier and more viable to bring forward and would seem to be consistent with wider Government objectives in this field.

Other issues

19. Among other issues raised by the Committee's inquiry we would wish to draw attention to the importance of establishing effective and trusted means for accrediting new technologies relevant to the achievement of energy and carbon efficiency objectives for housing.

20. It is vital that such assurance mechanisms are present and robust in order to avoid the risk that public confidence will be lost in policy objectives and actions to promote energy efficiency. This is certainly a very material consideration for new build where we have pointed out to Government that it would be counterproductive for all parties if inadequately tested technologies and processes were rolled out, leading to consumer concerns and a loss of confidence in the product and the process. These concerns would be no less for measures relating to the existing housing stock.

21. Secondly, we welcome the introduction of Energy Performance Certificates. We consider these will help to encourage greater public interest in energy efficient homes although it is not clear at present that they will rapidly lead to a decisive change in perceptions given the very pressing concerns that exist about housing availability and affordability.

Memorandum submitted by the Commission for Architecture and the Built Environment

The Commission for Architecture and the Built Environment (CABE) welcomes the opportunity to submit evidence to the Communities and Local Government Select Committee for its inquiry on "Existing housing stock and climate change". This short paper sets out CABE's response to the Committee's inquiry. Before addressing the specific questions asked by the Committee, we set out CABE's role and experience in relation to housing and climate change:

1. CABE was set up by the first Secretary of State for Culture, Media and Sport in 1999 with the mission to promote high quality architecture and design within the built environment in England. CABE's vision is of a country that by 2010 will lead Europe in understanding and harnessing the ability of great buildings and spaces to transform neighbourhoods, to generate social value and to sustain economic growth.
2. CABE is now jointly funded by Communities and Local Government (CLG) and the Department for Culture, Media and Sport (DCMS). The sponsorship arrangements are with DCMS.
3. CABE's statutory role, as set out in the Clean Neighbourhoods and Environment Act (2005), includes the promotion of education and high standards in the management and maintenance, as well as the design, of the built environment.
4. CABE's enabling programme provides hands-on expert advice to public sector bodies that are procuring new buildings or masterplans, giving strategic advice on how to get better value from their projects through better design. The advice covers issues such as project vision, client resources, briefing and competitive selection of design and developer teams.
5. Our enabling programme is experienced in working with housing masterplanning projects around the country, as well as mixed urban, town centre, and public realm projects. It is closely tied into areas of public investment identified in the government's sustainable communities plan, such as housing market renewal, housing growth and mixed communities. In the case of housing market renewal, we have offered a bespoke programme of advice and on-the-ground enabling assistance to each of the Pathfinder organisations.
6. The importance of recognising the intrinsic value of the existing housing stock underpins our advice on assessing the nature of physical transformation required in housing market renewal areas. This embraces social, cultural, economic and environmental factors, and must include the impact that any intervention has on mitigation of, and adaptation to, climate change.
7. Furthermore, CABE believes that design is a continuous process throughout the life cycle of any building or neighbourhood, and does not stop once the initial construction phase is complete. We view refurbishment as playing a significant role in creating a well-designed built environment which achieves the qualities of longevity, flexibility and efficiency, that are of vital importance in tackling climate change.

SUMMARY OF CABE'S POSITION

In line with the best available evidence, CABE believes that improvements to the energy efficiency of the existing housing stock must play a key role in meeting the required carbon reduction targets across the residential sector as a whole, on the path to 2050. These measures should be twin-tracked with the provision of public infrastructure to supply low carbon energy and to recycle and distribute heat. All measures should be balanced with the need to adapt homes to the effects of future climate change. A strategy to increase the energy efficiency of existing homes to well beyond current levels is urgently required.

We believe that central government should lead a new initiative to set out standards and timescales for the refurbishment of existing homes to the lowest possible carbon standards, to guide local authorities and other decision-makers and the construction industry. This should include support and incentives for homeowners and landlords to help deliver greater energy efficiency. Energy suppliers should also be required to play a role, by introducing smart metering into all homes.

CABE also considers that there is an urgent need for government to review the current VAT regime which currently disadvantages improvements to the existing housing stock, and works in favour of new build. We recommend an approach where a reduced VAT can be accessed only by achieving enhanced energy performance standards.

CABE advocates a spatial approach to delivering greater energy efficiency that links new build projects with existing homes and communities whenever possible. Regional Spatial Strategies and more local plans such as local development frameworks could set out how to identify opportunities to share energy infrastructure, and other types of infrastructure and services, between new and existing homes, and between different types of building. This approach would also identify how contextual factors such as density and energy efficiency characteristics of the existing stock influence the cost-effectiveness and design of technical solutions. It would allow improvements to the fabric of existing homes to be linked with other agendas dealing with environmental quality and quality of life.

Where appropriate, carbon offsetting for new housing developments could be linked with investment in improvements to the energy efficiency of existing homes and neighbourhoods, and to improving and maintaining green space. However, we also believe there is scope for an offsetting programme which would allow a wider range of businesses to contribute to improving the energy performance of existing affordable housing and public and non-profit ownership.

Good design and management of buildings, spaces and places has a key role in influencing energy use across the residential sector, but also other sectors such as transport and services. It plays a key part in achieving broader environmental objectives, including minimising water use, recycling of waste and biodiversity. Using design-led processes, existing buildings and spaces can be used creatively to help deliver a high quality public and private realm that provides greater potential for reducing carbon emissions, as well as meeting wider environmental and other objectives.

A whole life approach is required to assess the costs and benefits of the future substitution of fuels through the provision of new public infrastructure. In areas where large-scale renewal is taking place, a whole life approach should be used to assess the relative environmental impacts of demolishing and rebuilding, versus refurbishing, existing housing.

We recommend that Regional Development Agencies should lead regional examples of good practice, demonstrating energy efficiency improvements to single homes, groups of homes and to neighbourhoods. Demonstration projects are needed to permit the clarification of technical detail and implementation and to identify where improvements to systems and technologies are required. Other aspects to consider include visual impact, impact on internal room dimensions, resolution of specific architectural detailing, internal environmental quality and ease of use or maintenance of new components.

SPECIFIC QUESTIONS—ANSWERS AND RECOMMENDATIONS

The significance of existing housing compared to new build and the different levels of performance each display

- CABE believes that improving the energy efficiency of existing housing is a key part of achieving the 60% carbon reduction targets in the residential sector required by 2050 to mitigate the impacts of climate change. We very much welcome the government's efforts to improve the energy performance of new homes. However, over 85% of the existing housing stock could still be standing in 2050⁸⁰ and therefore we believe that the efforts to improve new housing will have a relatively limited impact on reducing carbon emissions across the residential sector as a whole. The evidence to date suggests that the scale of improvements required for the fabric of existing homes is considerable, and a strategy to tackle them is urgently required. Furthermore, improvements to the existing stock have the potential to provide quick wins since many of the required technologies exist, are relatively low cost and can be applied immediately, and as such should be considered in relation to shorter term carbon reduction targets on the path to 2050.

⁸⁰ Palmer, J. *et al.* (2006) Reducing the environmental impact of housing: Final report. Consultancy study in support of the Royal Commission on Environmental Pollution's 26th report on the urban environment. Environmental Change Institute, University of Oxford.

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- At the scale of the individual home, what distinguishes the energy performance of the existing housing stock most from new-build housing is space heating requirements. Current space heating accounting for 53% of household carbon emissions⁸¹, and space heating in new homes is set to be negligible in the future due to increasingly stringent building regulations⁸², as long as construction quality permits compliance⁸³. Hot water is currently responsible for a further 21% of household carbon emissions. Data on energy efficiency characteristics of the existing English housing stock⁸⁴ and other studies⁸⁵ indicate there is still considerable potential to improve the fabric of existing homes and the efficiency of heating systems, and thus reduce energy use associated with space and water heating.
 - A study using the UK domestic carbon model⁸⁶ showed that, even with significant measures to increase the energy efficiency of lights and appliances, and the introduction of low and zero carbon technologies, and with onerous estimates of demolition of the existing stock, the average SAP⁸⁷ rating of the UK housing stock still needs to increase from 51 (the 2004 average) to 80 in 2050 to meet 60% carbon reduction targets. Correspondingly, a reduction in the average net space heat demand of 38% is required, compared to 1996 levels. The study suggested that the following measures to the existing stock would be required to achieve this: insulation of 100% of cavity walls and 15% of solid walls, 100% loft insulation (to a depth of 300 mm), and 100% high performance windows. However, the study may have underestimated the improvements required to existing homes, given its assumption about significant increases to rates of demolition of the existing housing stock, and the greater carbon emissions (including those resulting from the embodied energy of construction) related to the government's new housebuilding targets and associated infrastructure⁸⁸.
 - It is clear that improvements to the fabric of the existing housing stock represent one key measure within a range of measures that need to be applied to the domestic sector. The development of town- or neighbourhood-scale energy infrastructure is also crucially important, to provide a low carbon energy supply and distribute heat. For example, sophisticated municipal waste-to-energy projects currently being seen in Scandinavia could be considered. The design of new homes and the retrofitting of the existing stock should be carried out with sufficient flexibility to permit the easy substitution of a high carbon with low carbon energy supply at future dates.
 - The exact combination of measures within a locality will depend on contextual factors such as the regional characteristics of the housing stock and estimated number of new build dwellings over time. It will also depend on the density of the existing housing. Measures to the fabric may be more important in less dense areas where it is relatively difficult to introduce infrastructure. For example, London's Climate Change Action Plan⁸⁹ estimates that, for the domestic sector, improvements to the thermal efficiency of the existing stock will be responsible for 10% of the carbon savings required by 2030, compared to 5% for new build. Other measures, including changes to the energy supply, will also play a significant role. However, the exact proportions will vary from region to region.
 - There is a wide range of energy efficiency measures available, with varying degrees of cost, ease of implementation and carbon reduction potential. "Silver bullets" which are most effective in all these respects include cavity wall and loft insulation⁹⁰. "Quick wins" include draught-proofing and hot water tank insulation. Solid wall insulation has a large carbon reduction potential, but is less easy and cost-effective to implement. Implementation needs to take into account the fine grain variations in the energy efficiency characteristics of the housing stock and their potential to be retrofitted.
 - Other impacts of implementing energy efficiency measures also need to be considered, such as resolution of specific architectural detailing, visual impact, impact on internal room dimensions, internal environmental quality and ease of use or maintenance of new components. For example, appropriate condensation control measures may need to be introduced. Adaptation of homes to climate change also needs to be considered, to reduce the risk of overheating in summer, leading to the need for energy-intensive space cooling⁹¹.

⁸¹ DTi (2004) Energy consumption tables.

⁸² CLG (2006) Code for sustainable homes: a step-change in sustainable home building practice.

⁸³ EST (2004) Assessment of energy efficiency impact of Building Regulations compliance.

⁸⁴ English House Condition Survey (2005) Annual report.

⁸⁵ Energy efficiency innovation review (2005) Household sector—final report.

⁸⁶ Environmental Change Institute (2004) 40% house.

⁸⁷ SAP ratings are based on SAP(2001) rather than the more recent SAP(2005). SAP(2001) ratings range from 1 (lowest performance) to 120 (highest performance), and are based on energy costs for space and water heating, ventilation and lighting per square metre of floor area.

⁸⁸ CLG (2007) Housing green paper.

⁸⁹ Greater London Authority (February 2007) Action today to protect tomorrow: The mayor's climate change action plan (Figure v).

⁹⁰ GLA (February 2007) (Figure 27).

⁹¹ M. Orme and J. Palmer (2003) Control of overheating in future housing—design guidance for low energy strategies, Faber Maunsell.

- In considering the relative environmental impacts of demolishing and rebuilding, versus refurbishment, a consistent approach is necessary to quantify the carbon emissions associated with each. The wide range of current approaches yields varying conclusions, depending on assumptions made⁹². A whole life cycle approach which takes into account embodied energy, durability, whole building performance and operation is needed, as well as consideration of the broader resource implications.
- It is necessary to think beyond the scale of the individual dwelling, and to consider contextual and spatial factors which influence the energy performance of a neighbourhood. The spatial relationship between areas of new and existing housing and other types of building needs to be considered to optimise the potential to share energy infrastructure, and other types of infrastructure and services⁹³.
- The thinking that informs any major intervention to the built environment has to consider economic, physical and social issues, as well as environmental factors, at the regional, local authority and local neighbourhood level^{94,95}. Decisions about whether to demolish and rebuild, or refurbish the existing stock need to be made in a broader context, and to focus on neighbourhood quality rather than purely on housing stock quality or the inadequacy of particular house types. It is important to identify the links between improving the fabric of existing homes and other agendas dealing with environmental quality and quality of life. For example, impacts on the existing community need to be considered, as well as the heritage or cultural value of existing homes. We support the Sustainable Development Commission's assertion that homes cannot be seen in isolation from their communities, and that improvements to the energy efficiency of homes have to be considered alongside modernisation of the wider neighbourhood⁹⁶.
- The physical nature of the neighbourhood, including infrastructure and services, influences carbon emissions from the transport, industry and service sectors, as well as residential sectors. In this respect, it is helpful to consider how the design quality of the built environment impacts on an individual's potential to act sustainably⁹⁷. Data published by the One Planet Living initiative⁹⁸ suggest that the embodied energy and energy in use of the home accounts for only 13% of an individual's carbon emissions, with most emissions accounted for by food, shared infrastructure and personal transport. How then do emissions across all sectors change as a result of strategic decisions taken by local authorities or housing market renewal pathfinders, say, in their attempts to improve the overall fabric of neighbourhoods?
- Good urban design and management at neighbourhood scale has a key role in influencing energy use, but also use of water, recycling of waste and biodiversity. Using design-led processes, existing buildings and spaces could be used creatively to help deliver a high quality public and private realm that provides greater potential for reducing carbon emissions, as well as meeting wider environmental and other objectives. For example, a safe and attractive public realm is needed to encourage journeys on foot or by bicycle, rather than by car. As well as reducing carbon emissions, there are health benefits that derive from reduced air pollution and a more physically active community.
- A greater understanding of how to implement carbon reduction measures at local and regional scales is needed, taking into account the drivers of development and the broad range of issues which should inform any interventions. These are needed to feed back into the carbon emissions scenarios which predict the scale of improvements to the fabric of the existing stock required, and into government policies and funding programmes targeted at improving the fabric of existing homes.

The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency

- We believe that central government has a key role in leading a new initiative which sets out standards and timescales for the refurbishment of existing homes, to guide local authorities and other decision-makers and the construction industry. This should be tied to a national policy framework for reduction of carbon emissions. Recognising that there is no "one-size fits all" solution, this could set out the sustainable refurbishment principles needed to inform strategic decision-making. It could tie into existing and future funding programmes, and provide guidance on how best to direct resources, and how to implement various energy efficiency measures. It could

⁹² CABE/Arup (2007) Carbon-footprinting housing regeneration—scoping study (in draft).

⁹³ UK Green Building Council are planning to investigate the potential to share heat between dwellings and other buildings, making use of their different heat load characteristics.

⁹⁴ CABE (2005) Creating successful neighbourhoods: lessons and actions for Housing Market Renewal.

⁹⁵ CABE (2007) Actions for housing growth: creating a legacy of great places.

⁹⁶ Sustainable Development Commission (2004) "Stock take": delivering improvements in existing housing.

⁹⁷ Williams, K. and Dair, C. (2006) A Framework of sustainable behaviours that can be enabled through the design of neighbourhood-scale developments, Sustainable Development, 15 (1) published online 19 October.

⁹⁸ P. Desai and P. King (2006) One planet living: a guide to enjoying life on our planet. Food accounts for 24%, shared infrastructure (energy for construction schools, hospitals, roads, airports, etc) 20%, personal transport 18%, and shared services (energy for running schools, hospitals, financial services, etc) 12%.

also provide guidance on creating incentives to engage homeowners and landlords. It should embrace energy-efficiency, as well as other resource areas such as water, construction waste and household waste.

- Regional government and local authorities have an important role to play. But regional planning bodies currently have insufficient power and funding to make changes to the existing stock, and most of their influence is over new development. We believe that central government needs to introduce measures to remedy this situation.
- There is a need to ensure that the skills and labour required to implement change are available. For example, local authorities are currently under-resourced (both building control and planning departments) and engineering consultants are struggling to find appropriately skilled employees. The shortage of suitable professionals has recently been identified in regard to delivering sustainable communities⁹⁹.
- There is a pressing need for central government to provide guidance for decision-makers engaged in current government programmes, such as Housing Market Renewal pathfinders. For example, guidance is needed on how to weigh environmental factors against broader social and economic factors, and how to achieve the optimum solution which takes advantage of the synergies between environmental and other agendas, and which achieves improvements to the required energy performance standards to meet carbon emissions targets.
- We recommend that Regional Spatial Strategies set out how the spatial distribution of the energy characteristics of existing housing, combined with the location of proposed new development and the heat demand and heat load diversity of other types of existing development in order to identify opportunities for implementing energy efficiency and local energy generation measures. This should be linked to local development frameworks to identify possible sites for new energy infrastructure, and prioritise areas where interventions to the existing housing stock are most required to ensure that energy reduction measures meet local objectives, as well as contributing to global carbon emissions targets.
- To permit the clarification of technical detail and implementation, and improve knowledge and skills of those involved in implementing improvements, we recommend that Regional Development Agencies lead regional examples of good practice, demonstrating energy efficiency improvements to single homes, groups of homes and to neighbourhoods. There is also potential to learn from similar projects abroad¹⁰⁰.
- There is a need to harness individual residents' and landlords' interests in improving the energy performance of their homes, both by providing information and financial support for physical improvements, but also in improving awareness about how individuals' behaviour influences energy use. Equally well, there is a need for others involved in delivering improvements to housing to have a greater understanding of how any improvements work in practice, and are enhanced or compromised by residents' behaviour. This could be achieved through longitudinal studies and post-occupancy evaluation.
- Electricity suppliers and water companies should be obliged to fit smart meters in a visible place in all dwellings for free; this will help incentivise residents to save energy and water.

Energy performance certificates

- Energy performance certificates cover energy efficiency which is only one aspect of the environmental sustainability of homes. CABE believes that information about environmental performance could address sustainability holistically, rather than focussing solely on energy efficiency. As discussed earlier, the physical quality of the neighbourhood in which a home is located has a key role in influencing behaviour. Therefore we recommend that broader information about the sustainability of the neighbourhood is included, such as how far a particular home is from the nearest park; whether there is a management plan or service charge for shared public spaces; whether there are good schools nearby; or satisfactory public transport services, planned or existing.
- Ideally the condition of the home and its build quality should be included, which relate to broader sustainability objectives of longevity, flexibility and whole building performance. We regret the removal of the Home Condition Report from Home Information Packs for this reason.

⁹⁹ Academy for Sustainable Communities (2007) *Mind the skills gap: the skills we need for sustainable communities*.

¹⁰⁰ DTi/CIRIA Global watch mission (2006) *Towards zero carbon housing—lessons from northern Europe*.

The provision of information for households and prospective house buyers, including energy performance certificates

- Recent research¹⁰¹ has found that, while home owners were generally concerned about their energy usage, and believed that environmentally friendly homes would help combat climate change, 51% knew “not very much” and 19% knew “nothing at all” about sustainable homes in general. While households are likely to be aware of certain energy-saving measures and behaviours, it is unlikely that many households are fully informed about how the range of energy-performance-related features, including the fabric of different elements of their home, is influencing their energy usage.
- CABE welcomes the introduction of energy performance certificates in Home Information Packs as a means of providing information on a particular home’s energy performance at the point of sale. However, while combating lack of information is key to removing one of the important barriers to action, in the short term, it is unrealistic to expect that this will by itself bring about a step-change in behaviour without other measures to incentivise change. For example, desirable changes in behaviour include encouraging prospective sellers to increase the energy efficiency of their homes prior to putting them on the market, influencing potential homebuyers to choose a more efficient home, or encouraging homeowners to initiate improvements at other times. Notwithstanding, it will help to pave the way towards longer-term public acceptance of the need to retrofit existing homes, and empower home buyers to judge whether a home is one they would like to live in.
- For households, the main driver at present is whether costs of investment in energy efficiency features translate sufficiently into savings in fuel costs, which depends on other factors such as how long residents expect to stay in their home, and whether they have the capital to invest.
- Lack of knowledge represents a barrier to prospective house buyers being able to make informed choices about their purchase. However, improving information may not have a significant effect on choice of home in the short term, since other basic concerns such as location, affordability and size of home place considerable constraints on choice, particularly in the current housing market.
- Energy performance certificates provide information at the point of sale of a home. We recommend that information is made available to all residents to allow them to make improvements to the energy efficiency of their home while carrying out other improvements during the course of occupying the home—for example, when they are planning an extension, improvements to the fabric of buildings or the replacement of windows or heating systems.
- Where possible, improvements to the energy performance over the lifetime of a home should be supported by regulation, for example through consequential improvements specified in Part L of the Building Regulations.
- We welcome the additional information provided in CLG’s sample energy performance certificate¹⁰², which includes both current and potential energy performance, and will help to raise awareness about how the various elements of a home’s fabric, space and water heating, and hot water systems, contribute to both energy performance and fuel costs, and how the most cost-effective improvements could be instigated. While the procedural guidance for home information packs does not specify the level of detail to which this additional information is provided¹⁰³, we recommend that accredited certification schemes ensure that good standards of information are provided in these areas.
- Homeowners’ views on the trustworthiness of information provided by estate agents and by the housebuilding industry are fairly negative. For example, a CABE survey of 900 homebuyers carried out in 2004 showed that, in the case of new homes, only 3% of residents surveyed considered housebuilders as very trustworthy sources of information when choosing a new home¹⁰⁴. It is important that the way in which energy performance and other aspects of the home which relate to its performance are appropriately presented in marketing information.

Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programme including Decent Homes

- While current programmes have gone some way in improving the energy performance of the existing housing stock¹⁰⁵, we believe that the scale of improvements required in the future will need to be considerably greater, and be based on revised energy standards which are developed to allow the required carbon emission targets to be met.

¹⁰¹ Ipsos MORI & Sponge Sustainability Network (2006) Eco chic or eco geek?—the desirability of sustainable homes.

¹⁰² Sample energy performance certificate: http://www.communities.gov.uk/pub/856/ExampleofEPC_id1504856.pdf

¹⁰³ CLG (2006) The home information pack regulations 2006—procedural guidance.

¹⁰⁴ CABE (2005) What it’s like to live there: the views of residents on the design of new housing.

¹⁰⁵ Energy efficiency innovation review (2005) Household sector—final report.

- Decent Homes helped to improve the energy efficiency of the most poorly performing stock, as well as meeting other objectives around health and safety, thermal comfort and state of repair; however, the criteria for achieving the Decent Homes standard were made within a different context, before climate change became such a pressing concern and carbon reduction targets had been set.

The technologies available to reduce emissions and the Government's role in facilitating relevant further technological development

- Many of the technologies needed to improve the energy efficiency of the existing housing stock are currently available, for example, cavity wall insulation and energy-efficient space heating systems. However, in order to target parts of the housing stock for which technical feasibility of retrofitting measures is less straightforward¹⁰⁶, and to ensure that improvements to the fabric are carried out alongside other energy efficiency and technological measures, we believe that the government has to intervene in supporting research and development, and deployment of a range of technological measures. Until carbon pricing is introduced, the private sector will continue to make investment decisions which do not take into account environmental externalities, to fulfil short-term profit aims rather than achieve longer-term environmental improvements. This will tend to slow innovation and cause under-provision in the necessary technologies¹⁰⁷.
- Incentives for deployment could include fiscal incentives, capital grants for demonstrator projects, subsidies and procurement policies of local authorities and other agencies involved in delivering and maintaining housing. Measures which support specific technologies for the provision of immediate solutions, are required, given the urgency of the problem.
- In order to identify the direction for innovations that will have the greatest impact, particularly for those homes which are currently more difficult to retrofit, the direction for further technological development needs to be based on the experience gained from existing retrofitting programmes and other studies, which provide evidence about the potential scale of use of various technologies, and the resulting impact on the performance of the dwelling as a whole (going beyond individual component performance). Demonstration projects can also be used to highlight where uncertainties exist about measures currently in use, and where further development is required. Some technologies will be specific to the task of retrofitting the existing housing stock, but others could be relevant to both new build and existing homes, and to other types of building. There is also a need to ensure that the capacity to install the various technologies is present, through training to create the necessary skills.
- Clear indications of policy directions are also required to give confidence to the private sector that investment in innovation is worthwhile. For example, a government paper which sets out a path towards policies which require a step-change in improvements to existing homes, could help to influence private-sector investment towards the necessary technologies.

The costs associated with reducing carbon emissions from existing housing, who should meet these costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty

- CABE believes that the built environment must be able to help deliver welfare to disadvantaged groups, and that any intervention in the built environment should combine environmental aims with wider social and economic aims. Opportunities to retrofit energy efficiency measures into existing homes should not be considered in isolation from environmental and other improvements to neighbourhoods, and from achieving broader social, economic, and cultural objectives. There is a need to avoid a scenario in which the rich live in energy efficient homes, with the poor marginalised in the least energy-efficient stock, with expensive-to-run electric heating and no capital to invest in improvements.
- We recommend that government should consider setting up a public interest venture which allows businesses to offset their carbon emissions against improvements to the energy performance of the existing public housing stock, including registered social landlord and MoD housing. This would allow organisations to use a genuine carbon-reducing and nationally-based offsetting scheme. The resulting fund could also be used to finance improvements to the public realm and green space, both to help mitigate against and adapt to climate change. The venture could operate at a municipal or national level.
- For some smaller new developments, carbon reductions could be more cost-effectively achieved by achieving less ambitious levels of the Code for Sustainable Homes and using the cost savings to improve the energy performance of existing homes within a given locality, rather than attempting to achieve carbon neutrality in the new build. For example, where opportunities to introduce site-wide infrastructure or large-scale renewable energy do not exist, the highest levels in

¹⁰⁶ For example, traditionally constructed dwellings which have solid walls.

¹⁰⁷ Stern Review (2006) The economics of climate change, ch. 16 Accelerating technological innovation.

the Code for Sustainable Homes may be relatively expensive to achieve and subject to diminishing marginal return on investment. Depending on the techniques used to implement these levels, the cost per home of achieving Level 5 compared to Level 4 could be up to five times greater for a low rise apartment, equivalent to an additional cost of about £20,000. Costs for a detached home could be up to three and a half times greater, equivalent to an additional cost of about £15,000¹⁰⁸. The cost of achieving carbon neutrality (Level 6) may be proportionally even greater. Although energy efficiency measures vary widely in cost (from £10 to £5,000¹⁰⁹) they are considerably less expensive in comparison. If the cost savings from reaching a lower level of the code are used locally to retrofit existing homes, for the same cost, a greater carbon reduction will be achieved.

- CABE also considers that there is a need for government to urgently review the current VAT regime which currently disadvantages improvements to the existing housing stock, and works in favour of new build and is apparently out of alignment with the VAT policies of many of our EU partners. A more sophisticated approach whereby the VAT rules could be introduced so that the benefits are only realised if enhanced energy performance is actually achieved.
- In any funding programme, a whole life cycle approach, which fully accounts for the costs of carbon and other externalities, needs to be taken into account when making key decisions about refurbishment measures or indeed when making decisions about whether to retain, or rebuild stock in the first place.
- Whole life analysis of the costs and benefits of the future substitution of fuels through the provision of new public infrastructure needs to be considered.

The specific challenges which may arise in relation to housing of special architectural or historical interest

- To date, the greatest concern has been with the oldest housing stock, which tends to have the lowest energy SAP rating and the lowest prevalence of cavity walls. The English House Condition Survey¹¹⁰ identifies homes constructed prior to 1919 as the lowest performing, with performance increasing with decreasing age of house. This makes the task of retrofitting the oldest homes to adequate energy performance standards, in a visually unobtrusive way, particularly demanding. For example, in the absence of cavity walls, solid insulation applied either internally or externally may be required, which is both more costly and technically more difficult. Furthermore, there are often restrictions in local planning guidance on retrofitting traditional single-glazed windows with double-glazing. However, examples of good practice refurbishment do exist¹¹¹, as well as guidance on how to enhance the energy efficiency of dwellings without compromising their architectural and historic value¹¹².
- Assessment methods which allow the competing requirements of energy efficiency, overall building performance, durability and maintainability, with wider social and economic factors which take into account the heritage and/or architectural value of homes, are required.
- Furthermore, there is a need for government to support the development of energy efficiency technologies and products which allow measures to be implemented that are sensitive to culturally significant and historic buildings, and for local authorities to rethink planning requirements for listed homes, and those in conservation areas, to take into account the emerging energy efficiency techniques.
- The feasibility of implementing improvements to this part of the existing housing stock needs to be taken account in the strategy for achieving the required carbon reduction targets across the existing stock as a whole. This includes consideration of how the energy performance standards for homes might vary (if they vary at all) according to their architectural and historical, as well as technical, characteristics. Once again, economic models that take into account the whole life cost and benefit of the social value of culturally significant or heritage buildings may indicate that the delivery of infrastructure that permits the substitution of high with low carbon fuels is more efficient in the long-run.

¹⁰⁸ Cyril Sweett (2007) A cost review of the Code for Sustainable Homes—Report for English Partnerships and the Housing Corporation. Costs for houses were based on individual heating systems, rather than larger scale infrastructure. The costs of achieving Level 6 were not investigated.

¹⁰⁹ GLA (February 2007).

¹¹⁰ EHCS (2005) Annual report.

¹¹¹ For example, BRE Trust (2006) “Sustainable refurbishment of victorian houses” plus other case study publications referenced within this report.

¹¹² English Heritage guidance currently in preparation.

Memorandum submitted by John K Preston

The following reflects my 33 years' professional experience of dealing with historic and traditional buildings, currently as Historic Environment Manager for Cambridge City Council, and also as Education Secretary for the Institute of Historic Building Conservation (IHBC). My experience ranges from East Anglian timber-framed historic buildings, to the conservation of listed 1930s and 1960s buildings. I have also represented IHBC on the steering group for the English Heritage Interim Guidance on Part L of the Building Regulations, and on the Sounding Board for the Unification of Consents study by Halcrows. It also reflects my recent personal experience as a home buyer.

In the following, I respond to the issues as raised by the Committee, but in turn I pose four key questions for the Committee members to consider:

- How to translate good intentions into effective appropriate action?
- How, in doing so, to avoid unnecessary harm to this country's special historic environment?
- How to make best practice widespread?
- How to monitor and measure improvements to performance in the existing building stock?

1. THE SIGNIFICANCE OF EXISTING HOUSING COMPARED TO NEW BUILD AND THE DIFFERENT LEVELS OF PERFORMANCE EACH DISPLAY

1.1 Government initiatives in, and training for, the construction industry have for too long been disproportionately focused on new construction, when 50% of construction activity relates to repairs, refurbishment and maintenance of existing buildings. I therefore welcome the Government's new focus on tackling climate change impacts in existing buildings (the great majority) as well as the new. However the efforts that have been made so far to improve the performance of existing buildings, through Part L of the Building Regulations, have not been as well directed as they could have been because:

- (a) Part L does not take a "whole life cycle" approach, instead focusing only on energy performance in use while overlooking energy / resource costs of the works involved, and disposal costs / impacts (eg of upvc) afterwards;
- (b) Part L is based on modern construction methods, and overlooks the different (and often more sustainable) performance characteristics of traditional buildings (pre-1919), which make up approximately 25% of the total stock.
- (c) Part L does not take account of the embodied energy aspects of existing construction, in terms of both whole buildings and re-usable fired or quarried materials, or the fact that traditional construction in lime mortar allows such materials to be re-used in a way which would be impossible with modern cement mortar.

1.2 A more holistic approach, based on whole life cycles and taking account of the different characteristics of traditional construction, could avoid inappropriate and wasteful works.

2. THE RESPECTIVE ROLES OF RESIDENTS, HOMEOWNERS, LANDLORDS, LOCAL GOVERNMENT, CENTRAL GOVERNMENT AND THE ENERGY INDUSTRY IN PROMOTING AND DELIVERING GREATER ENERGY EFFICIENCY

2.1 *Behaviours—everyone*

2.1.1 Changing the behaviours of building occupants has the potential to be the greatest single factor for change; this is a task primarily for government education initiatives (formal and informal), building on the existing groundswell of public opinion.

- (a) Some progress is being made in relation to lighting etc, but there is potential for much more in terms of reducing energy demand through optimizing the use of heating systems etc (home information packs / building log books, if sufficiently detailed to include all relevant instructions could be extremely helpful in this context [I have direct experience of this problem in my present house, bought 5 years ago; we have had major difficulties because the previous owners passed on inadequate information about the heating and electrical systems].
- (b) To be sustainable, buildings need to be maintained. People expect to service their cars and boilers regularly; they need to be encouraged to maintain their homes on the same regular basis.

2.1.2 Government has not as yet adequately addressed the issues and opportunities associated with behaviours of building occupants (in all types of premises).

2.2 Works to buildings—residents, homeowners, landlords, local government, central government and the energy and construction industries

2.2.1 Appropriateness / effectiveness

Building “improvements” are all too often been carried out in response to sales pitches by promoters of individual products, rather than with an understanding of what would be the most cost-effective and appropriate solution for either the building or its owner.

To highlight four issues:

2.2.1(a) Embodied energy—“maintain and repair, rather than replace”

Traditional buildings, well-maintained, have extremely long lives. However we live in a culture of replacement rather than repair. Repairs and re-use, rather than replacement, would avoid wasting embodied energy. At the most basic level, promoting the use of lime mortar would allow the re-use of bricks (energy-intensive fired materials). With 3.5 billion bricks being made each year in the UK, and 2.5 billion destroyed, changing building practices to enable re-use (impossible with OPC cement mortar, possible with lime) could make a great difference to the national carbon footprint.

Locally, I was involved in the Ely Preservation Trust’s successful initiative to re-manufacture traditional gault clay peg tiles. This followed the Dean of Ely’s 1987 proposed re-roofing, in new tiles, of the ancillary cathedral buildings—which would have involved discarding thousands of sound tiles (all at least 150 years old) simply because they had no guarantee. New handmade tiles on the traditional pattern are now in production, so enabling traditional “salvage and making up” and avoiding wastage of the embodied energy in fired materials.

2.2.1(b) Replacement of timber windows

In spite of longstanding evidence of the relative benefits (in terms of effectiveness and financial payback) of a hierarchy of measures starting with improved insulation, use of heavy curtains, secondary glazing, draught exclusion, and double glazing well down the list, owners have often been persuaded to replace windows first of all. This has had serious implications, in terms of both sustainability and visual impacts:

- (i) timber windows (environmentally friendly, and often repairable without needing complete replacement) have been replaced with uPVC (not environmentally friendly, irreparable, involving major pollution issues when discarded). The adverse environmental impacts of uPVC have not as yet been adequately addressed by Government at national and local levels.

It is only very recently that my employers, a very environmentally-conscious Council, discontinued their uPVC window manufacturing facility.

- (ii) owners have been unaware that pre-1919 windows (hardwood) are intrinsically far more durable (provided that they are regularly maintained) than modern fast-grown, pressure-impregnated softwood.
- (iii) owners have been swayed by false claims that uPVC is “maintenance-free” [if that is the case, why have B&Q been selling a product called “uPVC window restorer”?].

The impacts of the “maintenance-free” myth were highlighted for me by houses in Milton Keynes, whose residents had been persuaded by a double glazing salesman to take out the original highly-efficient and durable windows (hardwood double glazed with argon), and replace them with uPVC. That was 15 years ago, the same myths continue to be peddled now.

2.2.1(c) External insulation

Insulation has always been highlighted as the most effective improvement measure in terms of achieving conservation benefits. The increasing performance standards expected following the Energy White Paper are likely to bring increasing demands for external insulation. This has very particular practical issues for historic and traditional buildings, in that modern impervious coatings prevent buildings from “breathing”—leading to build-ups of moisture internally, frost cracking of render, and decay of historic fabric. I have been working for over 30 years (my entire professional career) to persuade owners, contractors, and (sometimes) architects not to use these damaging impervious coatings on old buildings. This involves re-educating people trained in modern building practices: construction industry training, at all levels, is focused almost exclusively on new work—even though 50% of construction work is carried out to existing buildings. Now there is a real risk of mistakenly further encouraging the same damaging practices, in the name of countering climate change—unless those responsible for promoting, regulating, and implementing realize that, for at least the 25% of the existing building stock which dates from before 1919, different principles have to be understood and different approaches may need to be applied.

2.2.1(d) Micro generation

Government efforts have been concentrated more on adding micro-generation (solar, wind, heat pumps etc) than on the basics of insulation and behaviours that could make the real difference. This has been particularly unfortunate in that the focus has been on adding bits of “kit”, sometimes of limited productive value (eg micro wind turbines) by comparison with conservation measures, to buildings—and often in highly visible and obtrusive locations.

2.2.2 Impact/design quality

2.2.2(a) Windows

Look at any window in a pre-1945 building, and it will almost always be symmetrical in appearance, with well-proportioned window panes, and opening lights accommodated without unbalancing the appearance. In contrast, the typical post-war EJMA timber windows are badly-proportioned, with chunky softwood frames with double thicknesses around opening lights, and smaller panes within them, all reinforcing the asymmetric appearance. The need to accommodate double or triple glazing in timber does lead to thicker sections, but there is no functional reason whatever for new high-performance windows not to have the symmetry and good proportions of their pre-1945 predecessors. These failings of the timber window industry have been perpetuated and compounded by upvc manufacturers. upvc offers little or no possibility of matching the appearance of timber windows because of the nature of the material: it is impossible to match extruded plastic to thin timber sections.

It is particularly frustrating that UK manufacturers have still barely begun to address the aesthetics of window design, when Scandinavian manufacturers have been making well-proportioned high-performance windows for at least 20 years.

2.2.2(b) External insulation

External insulation would have a dramatic adverse impact on the appearance of pre-1919 traditional and other historic buildings. The colours and textures of brickwork, the relationships between doors, windows, walls and roof, and the detailing of arches, doorheads, eaves etc are all vital parts of the appearance of a building. All could be masked by external insulation. Such impacts need to be very carefully considered. For buildings which are parts of a terrace, or other formal compositions, the impact of cladding one part needs to be considered in terms of the whole—and if possible a unified approach needs to be made.

There is no sign that as yet the Government has as yet taken account of the potentially disastrous impacts external insulation could have on the character of listed buildings and conservation areas.

2.2.2(c) Micro generation

The visual impacts, noted in the previous paragraph, of turbines, solar panels etc have been exacerbated because the products on the market have generally been technical solutions designed without consideration of appearance or potential context. Individual units have been added to existing buildings as afterthoughts, and without regard for the potential structural (forces arising from wind turbines) and/or visual consequences. Solar panels in particular are disruptive to the appearance and texture of traditional roofs, and tend to stick out like “sore thumbs”. It is only very recently that products have become available (eg photovoltaic “slates” and flat solar panels) which offer potential for improved integration into the design and fabric of new or existing buildings.

2.3 *Regulation issues and opportunities*

As noted in 2.2.1 and 2.2.2 above, too often well-intentioned works have been ill-chosen in terms of effectiveness, and unnecessarily adverse in their impacts. The urgent need to address climate change issues means that we now have to catalyse, with Government taking the lead, improved human behaviours and building performance on a much larger scale. There are major issues in terms of both the nature of the works, and of industry capacity (manufacturing and implementing). These can only be resolved by much stronger and better-considered Government intervention, in terms of:

- (a) influencing the behaviours of owners etc (in terms of what they do and how),
- (b) minimising wasteful and harmful interventions, by making best practice widespread and encouraging appropriate solutions,
- (c) developing appropriate skills in the industry,
- (d) stimulating the market to make unit costs come down, and
- (e) encouraging the manufacturers to produce better-designed and more aesthetically pleasing products.

To achieve these, a combination of fiscal and regulatory incentives is needed.

3. ENERGY PERFORMANCE CERTIFICATES

These should recognize the different performance characteristics of pre-1919 traditional buildings, and the need for special consideration of appropriate solutions for historic and visually significant buildings and locations. Those drafting the certificates need to be trained to recognise and understand these characteristics and issues.

4. THE PROVISION OF INFORMATION FOR HOUSEHOLDS AND PROSPECTIVE HOUSE BUYERS, INCLUDING ENERGY PERFORMANCE CERTIFICATES

Better information is essential; this needs to cover behaviours (both the way householders use their buildings and the need for maintenance) and appropriate works. The problems experienced with Home Information Packs in their present limited form have been particularly disappointing, because what is really needed (for both building owners and prospective purchasers) is a Building Log Book. Log Books could provide ready-reference essential information on the construction and history of houses, on the works carried out to them, and on how best to use, maintain, and improve their performance.

How I wish such a Building Log Book had been supplied with the house my wife and I bought five years ago! We have had a nightmare time because the previous owners kept no records of electrical and other works, which have turned out to be of very dubious quality. We are now having to seriously consider removing wall finishes on an extension built only seven years ago, simply to find out where the cabling goes and where it would be safe to put brackets for new curtain poles!

5. GOVERNMENT EFFORTS TO REDUCE CARBON EMISSIONS FROM EXISTING HOUSING STOCK WHETHER IN PRIVATE OR PUBLIC OWNERSHIP AND OTHER RELATED PROGRAMMES INCLUDING DECENT HOMES

Government should promote exemplar projects for the appropriate refurbishment of traditional dwellings. Government also needs to be mindful of the extent of building works being carried out, which may meet modern constructional standards, but in ways which could prevent adding energy conservation or microgeneration measures.

The loft extension carried out to our house by the previous owners reduced the scope for insulation and involved removal of the hot water tank; the boiler (at ground floor) does not have a tank. We have been exploring the use of solar panels (our rear extension has good orientation), but installation would be particularly difficult and disruptive because of the way the extension was done. There must be many thousands of loft extensions across the country with similar difficulties.

6. THE TECHNOLOGIES AVAILABLE TO REDUCE EMISSIONS AND THE GOVERNMENT'S ROLE IN FACILITATING RELEVANT FURTHER TECHNOLOGICAL DEVELOPMENT

The key technological issues may relate to behaviours and energy use within the home, rather than building works, although Government has a key role to play in promoting improved design of energy saving and microgeneration technologies. As noted above, technologies are only part of the issue, and there needs to be a very strong focus also on appropriate construction practices and skills.

7. THE COSTS ASSOCIATED WITH REDUCING CARBON EMISSIONS FROM EXISTING HOUSING, WHO SHOULD MEET THOSE COSTS AND PARTICULARLY, IN RESPECT OF LOW-INCOME HOUSEHOLDS, INTERACTION BETWEEN CARBON EMISSION REDUCTIONS AND THE GOVERNMENT'S AMBITIONS TO REDUCE POVERTY

This is a very serious issue which needs to be tackled in ways which recognise the need for appropriate solutions. There may be scope for economies of scale.

8. THE SPECIFIC CHALLENGES WHICH MAY ARISE IN RELATION TO HOUSING OF SPECIAL ARCHITECTURAL OR HISTORICAL INTEREST

8.1 I suggest that to achieve its aims, the Committee needs to broaden the focus of this query from housing of special interest to include all pre-1919 traditional buildings, to address the issues noted in 2.2.1 and 6 above. As noted, all such buildings may need different approaches to the improvement of more modern structures, and the means have to be provided for ensuring this.

8.2 Turning to "housing of special architectural or historic interest", I suggest that the appropriate principles to follow have already been established within Part L of the Building Regulations—special consideration, within the general principle of seeking improvements where possible without damaging special interest, for a wide range of "historic buildings". In principle this regulatory approach allows expert advice (through Conservation and Building Control teams of the Local Planning Authority, working together) to be given on improvements appropriate to the particular building:—in fact, just the approach which is needed on a more widespread scale to promote effective upgrading of the stock.

8.3 However this approach is compromised in practice, for buildings which are not Statutory listed, because there is no requirement to seek permission or consult, for works to a dwelling, unless the works are not “permitted development” (subject to an Article 4 direction or otherwise outwith the General Permitted Development Order). It is further flawed because the use of outsourced Building Control, and/or FENSA window installers, can bypass the opportunity for a joined-up approach.

8.4 There is a mismatch between the lack of regulation (GPDO) over householder works, and the special consideration under Part L. This needs to be resolved by addressing the issue of Permitted Development rights for buildings in Conservation Areas and the other categories of “historic building” given special consideration under Part L. Restriction of specific Permitted Development rights on window replacement and external insulation would help ensure that appropriate solutions are adopted and energy conservation aims are achieved. While Government has hesitated for 15 years (since the English Historic Towns Forum’s “Townscape in Trouble” highlighted the issues) over restricting permitted development rights in Conservation Areas, the introduction of Part L restrictions over householders’ freedom in 2002 was received with minimal opposition. Now is the time to provide a joined-up approach, which I am sure would be accepted by the public.

9. CONCLUSIONS

9.1 What is needed is a sound basis for ensuring appropriate upgrading of the housing stock to meet climate change challenges, while avoiding either wastage of resources on misconceived works, or needless damage to the quality of our built environment.

9.2 Informed choices and best practice (including development of better technology at lower cost) need to be made widespread through a combination of increased (but well-targeted) regulation, and incentives.

9.3 Difficult choices, balancing different values and environmental “goods” may be involved. British Standard BS 7913:1998 *A guide to the principles of the conservation of historic buildings* provides an excellent starting point for such decisions—provided that it is made available far more widely than its price of £68 for 28 pages allows. (I have in the past suggested that English Heritage should seek the republication of this document in far greater volumes, with a cover price of say £5).

Memorandum submitted by Parity Projects

SUMMARY

- There are a range of interlinking elements which must be tackled alongside one another to successfully convert the existing building stock in the UK—Building Regulation and Control, designer awareness, builder competence, a maturing supply chain and informed Clients. But without good Building Regulation none of the others will change.
- The Energy Performance Certificates (EPCs) are inadequate in their current form to provide sufficient motivation to the property owners to become more energy efficient. Our experience shows that they need more specific advice on what can be done to raise the home’s rating. Property owners are then seeking assistance to support the changes.
- At Parity Projects we have developed our own software to provide property owners with recommendations that show the potential annual financial and CO₂ savings per house for given costs of implementation. The recommendations are based on the physics of the building and the lifestyle of the inhabitants. Our service therefore allows property owners to see how habit and renovation play a part in overall change.
- We have seen that the most significant savings are from draught-proofing, insulation, and behavioural change. Our demonstration project shows how a wide range of insulation and draughtproofing measures can be installed and allows us to assess instalment difficulty and in-situ performance for all. We can say with some confidence that with a little training, competent builders can accomplish a great deal at surprisingly low cost. Behavioural change can also be tackled, driven by “home-users manuals” and smart-metering.
- The Government has a major role in market stimulation, which includes training of all professions involved with building renovation. This must take place alongside the supply of more appropriate materials and technologies onto the market.
- Time is of the essence if we are to meet the >60% reduction by 2050 target. It is already said in some circles that we need to aim for 90% reductions because we have to recognise that some buildings will remain unchanged up until 2050 but that our target must still be met.
- The current Building Regulations are not as stringent for existing building as they are for new-build, and this must change as more knowledge of cost and performance emerges from early projects and demonstrations.

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- We believe that the older housing stock will cope much better with global warming due to the presence of thermal mass. In order to continue to improve the energy performance of “lighter” buildings, research is needed into retrofitting materials that act in the same way as thermal mass.

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1. INTRODUCTION

This submission of evidence for Communities and Local Government Committee has been produced by Parity Projects as the questions it raises are at the heart of why our Social Enterprise was formed. There is a desperate need to for significant and rapid change in the energy performance of the UK’s existing buildings to stem Climaste Change and the market to facilitate this change does not yet fully exist. Furthermore, the most significant sector of property owners in the UK, private owner-occupiers, are largely unaware of the possibilities available to them.

Through our own research combined with our experiences to date we are able to provide useful evidence for this latest inquiry.

1.1 *What Parity Projects can Contribute*

Parity Projects is a Social Enterprise which facilitates the sustainable renovation of existing properties to minimise energy and water consumption. We work for property owners and managers who require clarity of their options and delivery support, and for building trades/professionals who want to augment their capabilities with environmentally considerate materials, techniques and technologies.

We fully understand the capabilities of the latest energy technologies and how they fit with conventional building techniques, including insulation and draughtproofing, so that a substantial reduction in energy bills and environmental impact can be achieved with minimum disruption. Every property is unique in its location, size, number of occupants, internal functions, building fabric and exposure to weather, we therefore consider the whole property as a system and the most appropriate measures for upgrade are identified accordingly.

We learnt a lot of our lessons by producing a demonstration property by converting an existing “hard-to-treat” Victorian home and reducing its carbon footprint by over 75%. We have installed a wide range of measures in this one property so that they can be compared on cost, aggravation and in-situ performance. This property has also acted as an educational tool for the over 700 visitors we have now welcomed. Their comments and feedback have informed the content of this report.

We have had exposure to a range of property owners and understand their motivations and desires, and most importantly, their budgets for property upgrade. We appreciate that every new day and every new Client provides a learning opportunity which adds to our appreciation of the challenging task ahead to reduce the energy consumption of the existing building stock. We hope to convey some of our experiences to date and how we intend to continue learning into the future.

2. EXISTING HOUSING VERSUS NEW BUILD

This is a difficult area in which many factors must be taken into account. Little in-depth research has been carried out into the relative influence of embodied carbon for example. Nevertheless it is clear that it is easier to achieve a zero carbon home (defined as having no net carbon emissions over a year) as a new build than as a refurbishment of an existing building.

The distinction between these two building categories assumes that they are mutually exclusive. They are not. Further research along the lines of the “40% House” report from Environmental Change Institute at Oxford University is important to establish the correct strategic balance between new build, demolition and refurbishment. This research showed us how strategically important the existing stock is. It is well known that the current rate of change of housing renewal in the UK will mean that in 2050, when the UK’s 60% CO₂ reduction target is to be met to comply with the Kyoto Agreement, 80% of the buildings that will be standing then are part of the stock we have today.

In recent times all Government efforts to reduced the CO₂ emissions from domestic properties has focused on new-build, with a confident assurance that technologies emerging from this newly created competitive market place can be easily transferred to the refurbishment market. Parity Projects believes that much of the disparity in performance between new build and existing stock is best addressed through refurbishment of existing buildings to the highest possible standard with simple, practical measures, with very low-tech materials and systems, and we shall expand on this later.

3. STAKEHOLDERS ROLES IN PROMOTING AND DELIVERING GREATER ENERGY EFFICIENCY

We have contact with a wide range of stakeholders in the establishment of energy efficiency measures in existing buildings. Our comments are linked to our experiences in implementing energy efficiency measures “on the ground” in conjunction with key stakeholders. Each group of stakeholders poses its own significance for promoting and delivering changes in energy consumption.

3.1 *Owner Occupied Households*

Owner occupied homes represent 68% of the domestic property stock, and as such, motivating this stakeholder group is essential to the successful improvement of the overall stock.

We have found that the most important piece of information for the homeowner is the “pay-back” period of any measures that may need to be installed. Of course idealists would love to get to the stage where measures should be installed up to the limit of affordability, simply because it will help the fight against climate change, but this is not reality for the masses.

On average in the UK, domestic properties are changing owners every 7.5 years. These owners would usually want to see any installed measures to recoup their expended capital costs in energy savings before they sell the property. For many measures and for many property types this is extremely difficult, especially if the measures are not tackled from day one of the notional 7.5 year period.

But a key factor irrespective of any of the above is “ability to pay”. Section 5 addresses the schemes that are available to support homeowners from various walks of life, but common denominators for all owners when considering implementation are:

- Ease of approval.
- Levels of disruption during installation.
- Economic pay-back of the measure (and therefore the availability of Grants)
- Appearance.

and increasingly they are concerned about:

- Environmentally friendly materials.

High up on the list of concerns of owners is whether they are required to seek permission for some of the measures, and once they do, who do they turn to for installation? For some measures such as Solar Panels, Planning Regulations can hinder installation, but this is already well documented.

For the simpler items that will deliver the biggest impact, the building trade are simply not currently competent to deliver, but we have more on this later.

These two issues represent the exact reasons as to why we instigated our Demonstration Project and now offer support services for residents through all stages of upgrade works to help them decide the optimum route, then help them to build it.

3.2 *Landlords and Tenants*

This group is in a tricky situation. Tenants’ energy bills cost them money, but they are unable to change the fabric of their building without consent from a landlord. At present Tenants feel tied to the building that they have, and lots are seeking solutions that they can implement in future properties, but perhaps that are removable for transfer to their other properties to at a later date. Unfortunately this is very hard.

The key for access to these properties is timing of the work and incentivising the landlords. There is always a natural cycle of renovation and tapping into it at the right time is key. At Parity Projects we encourage landlords to adopt measures in order to benefit from a consequential rise of property value and a potential rise in rental value due to the lower energy bills, although these prices will be unproven. We are also not yet aware of the impact of Energy Performance Certificates (EPC) on rental prices.

The situation described above is identical for Social Landlords as well as Private Landlords and therefore accounts for 32% of the existing housing stock. In general terms, tenants are getting a larger market to choose from and therefore landlords may need to “go green” to attract higher rental rates—especially when energy prices continue to rise.

If the window of opportunity for renovation has been missed, behaviour change provides significant benefit—means that Smart Metering is the key here.

3.3 *Local Government*

There are a number of roles played by Local Authorities:

3.3.1 *Planning Authority*

We have no direct experience of barriers put up by the planner we have worked with to date.

3.3.2 *Building Control*

Perhaps more worrying than the Building trade’s lack of awareness is that Building Control officers can also be unaware of the possible measures and how they can be successfully restored. A more widespread capability amongst tradesmen must go hand-in-hand with recognition and certification from Building Control departments. Both sides tend to learn from experience as there are no requirements for updates in competence and knowledge for vast swathes of the industry, a situation which must change to instil new ideas quickly.

3.3.3 *Target Setting and Education*

From our contact with a range of Local Authorities to date, there is very little education or support for initiatives aligned with energy efficiency in the home. While some of this is the responsibility of local Energy Advice Centres, there is often no correspondence between the authority Sustainability teams, Planning teams and those responsible for Housing so that a consistent message is sent out. This in itself confuses householders and slows progress.

3.4 *Energy Supply Industry*

Supply companies are forced into action by the Energy Efficiency Commitment (EEC) scheme, soon to become the Supplier Obligation in 2008. This is necessary to ensure they do not seek to increase output by encouraging the greater use of energy!

The scheme itself is outlined elsewhere in this report. Whilst the scheme does have its critics, it must be recognised that these suppliers are linked to nearly every home in the country and have tremendous capacity for influencing change. Their role in the implementation of Smart Meters for instance is crucial.

3.5 *Building Trades*

At Parity Projects we are promoting the use of simple measures, some of which can be implemented on a DIY basis, and some that are more complicated. In our experience of engaging with Building Contractors, there is tremendous misapprehension of not only the potential benefits on offer, but of how to install the simplest of measures.

At the very least, these key trades require very basic awareness-raising, shifting to hands-on experience of insulation and draughtproofing installation such that the measures can be readily added to any other element of building work if necessary whether it is an extension or a simple redecoration.

The tricky part of this is that the bulk of this kind of work will be carried out by extremely small building companies, many of which will be working from “hand-to-mouth” and are unlikely to be able to spare time or effort in training. But they must be reached, and Parity Projects is working with as many as possible through its work to build up the knowledge base.

3.6 *Building Products and Systems Suppliers*

Suppliers have a key role in the successful implementation of sustainable buildings because without appropriate technologies, designers cannot specify them and builders cannot install them. While we believe that suppliers have a responsibility for innovation and for bringing new ideas to the market place, they will only do so if they know there are competent builders to install them and Clients willing to accept them. It is at this point that any hindering Building Regulations can be tackled if the route to market is clear.

Where there is an opportunity to make money, the supply chain will fill the gap, but the construction industry needs to make more progress towards understanding and appreciating the materials on offer. This is starting to happen with events such as Ecobuild at Earl’s Court, and the Grand Designs shows around the country for instance bringing the latest eco-products to the masses. But in our experience it is rare for builders who operate at the “single dwelling” level to attend.

We believe this problem is a key to the success of eco-renovation and the responsibility must lie with the Government to tackle it.

3.7 *Central Government*

The role of Central Government has to be pivotal and many actions have already been and will continue to be suggested. The view of the Government from the perspective of the construction industry and from the perspective of the growing band of “green” householders who are looking for direction and support, is that it is failing.

For those people wishing to tackle the practical and simple measures as adopted in our Demonstration Project, there are very few places for them to get advice. The Energy Savings Trust’s website is a tremendous help for householders and builders alike, but no specific help can be given on actual installers. Local Energy Advice Centres are very accessible, but most are simply not geared up for giving advice on anything other than renewables or the more simple energy efficiency measures such as draughtproofing around doors or changing light bulbs. Behavioural aspects of energy saving are very well tackled however.

More effort on this front is required by Government, but this is part of the reason the Parity Projects now exists.

The grant schemes which have proved essential for supporting the fledgling market for eco-renovation such as the Low Carbon Buildings Programme (LCBP) are at this time wholly inadequate. Many companies set-up to provide the services and systems to support owners of the existing building stock are now struggling to survive as the LCBP remains inconsistently applied. Often customers are put off because they are waiting for a grant, or a simply confused as to whether grants may or may not be available the future. Inconsistency is worse than non-availability—if clients know there will never be a grant, they can at least move to the next stage of their decision making.

4. ENERGY PERFORMANCE CERTIFICATES AND THE PROVISION OF INFORMATION FOR HOUSEHOLDS AND PROSPECTIVE HOUSE BUYERS

There are two main reasons for the existence of EPCs, aside from the European directive that makes them a legal requirement:

1. To give information to prospective buyers about the thermal performance of the house and how it could be improved.
2. To facilitate the collection of data on the condition of the existing stock and allow focusing of carbon reduction strategies.

The important notion here is that at ground level and at a strategic level, if it cannot be measured, it cannot be managed.

4.1 *Is The Information Appropriate?*

For (1), the timing of provision of EPCs is entirely appropriate although the information provided is not adequate (see 4.3). The time of purchasing a property is the best time to be presented with a plan of how to reduce bills and emissions. The EPC should act as market information and stimulate a premium on well-performing homes. Secondly, when it comes to implementation of recommended measures, the fact that redecoration and the associated disruption is likely in any case means that thermal refurbishment can be less intrusive.

While energy prices remain low, the property value attributed between EPC ratings is relatively small. The information on what improvements can be made to a home could be the more important driver.

For (2), again the information is appropriate. However, the level of detail is insufficient (see 4.3). It is recommended that the opportunity is taken to carry out more in-depth assessments as well as the EPC for a proportion of homes each year as a means of gathering detailed data on the existing stock.

4.2 *Is The Analysis Bespoke To The House?*

The software is too generic and loses much detail in favour of speed of assessment. It is of course important that a physical survey of the property is required to assess the physical performance. However, as well as needing to be bespoke to the property, an understanding of the lifestyle of the inhabitant/s that will use the property is crucial.

The EPC software makes no allowances for the intended occupancy of the house. Emissions are calculated per unit area which favours larger houses, even if they are to have a single occupant. A home occupied by a single occupant uses 55% more electricity and 61% more gas per capita than one with a four person nuclear family¹¹³. A more balanced assessment might give a range of scores depending on the intended occupancy. Rather than annual kg C/m², the score could be given in annual kg C/occupants.

4.3 *Is The Resultant Data Reliable And Useful?*

(1) As the time of moving in is probably the best time to get work done, this is an ideal time for purchasers to be shown the benefits of energy efficiency measures. More detail should be included in sellers' packs on what could be done to improve the home's performance and what it would cost. The methodology at Parity Projects is to list all possibilities and rank them. This then allows the owner to choose the measures which suit them best according to their budget, and gives them a plan for the duration of their tenure.

As a side-effect of this, the additional detail would provide better information to the buyer in allowing them to decide whether to buy an A rated or a G rated home, thus improving the market-led transformation towards more sustainable homes.

(2) The EPC software has a major drawback in that it does not allow direct entry of U-values. This assumes that no buildings are constructed to above-regulation performance. Therefore as a tool for collection of data on the existing stock they are inadequate. Little detailed strategic data will ever be collected.

Another barrier to the collection of useful data is that some assessments are limited by the visibility of measures by the assessor. This necessitates better recording of installed measures by builders. One possibility is a home manual that is constantly updated, analogous to a car's logbook.

¹¹³ Williams, J., (2006) "*Innovative solutions for averting a potential resource crisis—the case of one-person households in England and Wales*" Environment, Development and Sustainability.

4.4 *Are Recommendations Provided That Are Clear And Practical To Implement?*

We see the question of what recommendations to give to householders as key to the difference that EPCs can make. At this time, the recommendations given are not be suitable for the layman to use without further consultation.

Solutions:

- List measures such that builders automatically know what is required. Builders who have been trained in how to carry out thermal refurbishment works should then be able to quickly and easily quote for the work identified.
- Prioritise the recommendations to show which are the big wins and the “low-hanging fruit”. This is important, as although home-owners often know what measures would save them money, they rarely know how much each of the measures will save them and therefore they may not make optimal decisions when choosing which to implement.
- If design is required or if Planning Permission is required, this should be clearly identified.
- The opportunity to recommend behavioural measures which are particularly relevant to the property should not be missed. EPCs should be packaged with home users’ guides to the behavioural measures which would improve the performance and reduce running costs of the property.

5. EXISTING GOVERNMENT EFFORTS TO REDUCE CARBON EMISSIONS FROM EXISTING HOUSING STOCK WHETHER IN PRIVATE OR PUBLIC OWNERSHIP AND OTHER RELATED PROGRAMMES INCLUDING DECENT HOMES

Efforts are not moving fast enough. Lip service has been paid to end-user efficiency as a key goal in reducing carbon emissions; however progress has been slow.

If the preferred mechanism for delivering a > 60% cut in domestic carbon emissions is primarily through efficiency measures (as it should be), it must be done quickly otherwise the target will be missed¹¹⁴.

5.1 *Programmes and Partner Organisations*

5.1.1 Decent Homes

Although Decent Homes is laudable in its aim to improve conditions in the existing stock of social housing, it is far from effective as a means of reducing carbon emissions. This is a real missed opportunity as Decent Homes improvements are an ideal time to be upgrading the efficiency of social housing.

The requirement to have controllable heating is sensible and the software accommodates this measure and improves the score if present. However the requirement of a choice of 50mm of loft insulation OR cavity wall insulation for properties heated by gas or oil is hopelessly inadequate, and may even miss the fabric targets set by Building Regulations. Why not 270mm of loft insulation as recommended by EST?

To be an effective tool against carbon emissions, Decent Homes needs to be more specifically energy-related targets and not simply aiming to increase “comfort”. The problem with Decent Homes is that it is not specifically targeted at carbon emissions. It has a more short-term social aim of providing thermal comfort and avoidance of fuel poverty. If a longer view is taken and carbon reductions are included as a key outcome then something closer to optimal levels of insulation could be installed.

5.1.2 Warm Front

The scheme is aimed at those households that will not be able to afford to implement energy efficiency measures and is likely therefore to target the “Fuel Poor” ie those households where more than 10% of disposable income is spent on fuel.

This scheme has taken the opportunity to tackle some key areas of energy efficiency. There is however a serious funding gap at this time between the EEC and Warm Front schemes. Large numbers of homes can be found in the gap between those on benefits or otherwise eligible for Warm Front funding and those who are able to afford the upfront costs of measures like cavity wall insulation. The size of population in this area is subject of research by Parity Projects at this time. Financial measures are urgently needed in order to address this gap.

¹¹⁴ Natarajan, S, Levermore, G., 2007, Domestic futures—Which way to a low-carbon housing stock?, Energy Policy, In Press, Corrected Proof, Available online 9 August 2007, (<http://www.sciencedirect.com/science/article/B6V2W-4PCR1VD-2/2/924d9702888d519ac623169118788d7f>).

5.1.3 Energy Efficiency Commitment (EEC)

EEC is a successful programme for the implementation of efficiency measures into homes, facilitated by Private Energy Companies. Its continuation into EEC3 in 2008 is likely to build on the savings expected from EEC2. However there is concern that the easy measures such as loft and cavity wall insulation are likely to reach saturation in the short/medium term.

Going forward, EEC needs to continue to focus on the big hits, which are all efficiency measures including behavioural change, but also to look at microgeneration. Where microgeneration is included, integrated solutions should be encouraged. This should include draughtproofing, insulation and technologies like solar hot water. Disruption is minimised when such works are programmed together.

As part of a package of more cost-effective measures, microgeneration could be included as a form of market building. It has also been suggested that microgeneration, by giving householders “ownership” of their domestic energy, could encourage more efficient behaviour.

One method by which EEC measures could be applied to properties in an integrated way is to have a whole-house energy audit followed by implementation of the package of measures identified. These would include attempts to bring about behavioural change.

5.2 Legislation and Regulation

5.2.1 The “Merton” Rule

Action by Local Authorities to push the envelope of what can be demanded by planners has led to this very useful rule demanding 10% of a new development’s energy must come from renewable sources. However it does not currently have any impact on the existing stock. Although there is some doubt over whether the Rule will continue at all in its current form for new build, Parity Projects see merit in amalgamating it with last year’s Balance Trading proposal by EAGA Group. In this way, improvements to thermal performance of existing buildings in the local area could contribute to a new development’s measured carbon reductions. The idea is that by progressively increasing from a 10% requirement as with the Merton Rule, new developments could eventually become carbon neutral or even carbon negative through making reductions in emissions from the existing stock.

As this would undoubtedly be cheaper than providing renewables on site, there should be a stipulation that it counts for half (or some appropriate figure) the credit of renewable technologies, ie if the developer wanted to provide 10% of their reductions from local efficiency measures then they would need to save the equivalent of 20% of the site’s energy per year.

Doubt over the continuation of the Merton Rule comes from research following the supposed difficulty that developers are having meeting the targets. The key element of the Merton Rule that seems to be missed by most developers is that the more energy efficiency measures that are built into the fabric of a building, the smaller the actual energy generation requirement becomes. As the need for energy is reduced, so the “10%” gets smaller.

5.2.2 Building Regulations

Regulations and efficiency standards are the most effective way of dealing with misaligned incentives¹¹⁵. It maintains a level playing field as all constructors in the market must adhere to the same standards.

There is massive scope for Building regulations to improve—Parity Projects has shown that simply by implementing insulation and draughtproofing techniques, the overall carbon emissions of the property reduced by 40–50%. This will be supported by monitoring data installed in the house. These are all measures that are well within the gift of any householder or builder if they are required to do so.

The regulations which are in place, for example, section 55 of AD Part L1B 2006 state that, when more than 25% (by surface area) of a thermal element is renovated, U-values should be improved to comply with those given in a table. However, regulations such as these are next to useless if not enforced. The minimum standards are often not met by builders. The interpretation in AD Part L1B section 2 should be given teeth and BCOs/AIs encouraged in enforcing it. The Building Inspectorate need more resources for monitoring compliance.

The regulations also need rationalising as, when enforced as they stand, they can lead to small jobs costing a lot. Perhaps a pot of funding could be put aside as a source for 15 year loans to be paid back on the energy costs saved (or on sale of the property).

Consequential changes¹¹⁶ in Part L apply to extensions of a building which will have over 1000m² of useable floor area including the extension. This minimum size means it applies to few domestic properties.

¹¹⁵ Vattenfall.

¹¹⁶ Whereby a further 10% of the primary works budget must be spent upgrading the thermal performance of the rest of the building.

The limit should be lowered to perhaps 100m² or less, bringing the average three-bed semi-detached home under the reach of regulations.

We recognise that Building Regulations and Engineering Standards are founded on decades of research, trials and investigations when things have “gone wrong”. This does not explain however that when we tried to find data pertaining to the performance of existing buildings, that we could find very little. It seems that nearly all efforts to improve the parameters within which building and infrastructure designers are being asked to specify refurbishment works, they rely solely on calculation. For instance, how can insulation materials be confidently specified if their true in-situ performance is unknown?

This is an area that Parity Projects has addressed through the installation of monitoring equipment in its Demonstration Project. We have installed thermocouples either side of ten different types of insulation so that we can ascertain an in-situ (dynamic) U-value for each over a period of time. We are also installing monitoring equipment into homes of our Clients for free as they upgrade their homes so that we can build good body of performance evidence.

6. TECHNOLOGIES AVAILABLE TO REDUCE EMISSIONS AND GOVERNMENT’S ROLE IN FACILITATING RELEVANT FURTHER TECHNOLOGICAL DEVELOPMENT

We confine our comments to technologies in which we have the most experience of, and the key areas in which Parity Projects seeks to improve the energy consumption for its Clients. We will address each of the key areas in turn starting with the most important.

6.1 *Changing Lifestyles*

The biggest effect on energy use in the home will come from changing the lifestyles of inhabitants. There is little point in installing an expensive solar panel if lights are left on in unoccupied rooms, or installing high levels of insulation if windows are left open in winter. Technologies to encourage and cajole improved habits can have a massive influence.

6.1.1 Smart Meters

The evidence coming from Water Companies is that the introduction of water meters in the UK will lead to an 8% reduction in water use based on the evidence to date. Smart Metering is an extension of the pay-for-use principal, whereby digital meters pass usage data back to the supply company and also to an in-house display so that users can see how their consumption is changing, real-time.

We see the current programme of technology developments as crucial to the changing on habits. However, we would underline that Smart Meters should not simply monitor the “final” consumption. If there is to be a programme of wholesale change throughout the UK (inevitably) over a number of years, it would be a shame not to incorporate the capacity for gathering further data. Centrally gathering water, gas and electricity consumption to one point helps convey the whole picture to residents, but also collecting data from building components can be easily collected when the single visit is required for installation of a new meter.

We would be able to provide more information on how we have achieved this at Carshalton Grove if required.

Some research has shown that smart metering could go to the next step and show what the current cost of energy is on the spot market, eg boiling a kettle would cost you £X when the Grid is at full stretch.

6.1.2 Tools for Education

Householders need to understand exactly what is possible for their home. Any tools that make it easier for them to understand what measures could be appropriately and cost-effectively installed for their own home would facilitate confident DIY installation. There are a number of free online tools available but at this time none of them provide specific enough guidance.

6.2 *Energy Efficiency*

6.2.1 Gas Condensing Boilers

We understand that there is some high level work underway on measuring the exact performance of these appliances, but we have shown to virtually every one of our Clients during our appraisal process, that the immediate replacement of their existing boiler will provide large and instant benefits and pay back within four to five years, based on supplier performance data.

If the same emphasis for efficiency is placed on non-fossil fuelled appliances the market for biomass and waste oil could be exploited more fully through a drive for innovation.

For gas condensing boilers, we do not yet know what the drop-off in efficiency will look like over time. Some research into ensuring longevity of the appliances would provide a good perspective on longer term energy efficiencies.

6.2.2 Insulation

This measure is very easy for most residents to comprehend but they have two key concerns:

1. Lost floor space. Insulation applied to the internal face of an external wall inevitably adds to the depth of a wall and takes up floor space. This is mostly relevant to owners of the Solid Walled houses in the UK which comprise approximately one third of the total stock. When Building Regulations improve, even the performance of cavity walls if insulated in the normal way may remain inadequate and that internal or external wall insulation may also be required. Support for investment in such technologies is crucial. At Carshalton Grove we are using Vacuum Insulated Panels (VIPs) and Multi-Foil insulation in order to see how the thinnest materials perform.
2. Materials. Those used in common insulating products are increasingly being questioned by residents both from the viewpoint of the energy required for manufacture and for health and wellbeing reasons, as well as for their biodegradability. Greater support for the use of naturally occurring and waste products not only satisfies this very real desire, but can help to support rural industries in the UK and Europe.

The key here is that people need guidance and independent data on in-situ insulation performance.

6.2.3 Draughtproofing and Ventilation

These two measures go hand-in-hand, and good draughtproofing is mainly achieved thorough good build quality. As a house becomes more airtight, the need for controlled ventilation rises.

On the ventilation side, availability of high performance technology for retrofit is limited, with highest efficiencies available from whole-house systems. These require a host of ducts and pipe work to be successfully installed and this is not suited to the majority of homes.

A whole house approach lends itself to using ventilation requirements as another means of cooling or heating a home on all occasions when tied with high levels of airtightness. We would support any research into any retrofitted systems that could provide passive ventilation while providing warmth or cooling when necessary for minimum energy input, thereby removing the need for dedicated heating system.

6.2.4 Windows

The consensus from most of our Clients and visitors to the Demonstration Home is that PVC is detested and that the highest performing windows are desired. It is well known that at this time, the business case for installing high performance windows in replacement of single glazing purely for energy efficiency purposes does not stack up.

When new windows are required, high performance windows are now easier to obtain than ever. At Carshalton Grove for instance we managed to install hardwood timber double glazed windows for the same price as PVC. But the supplier was hard to find, and took an eternity to deliver the materials to site.

Secondary Glazing is always mathematically the best option for upgrading windows. However, due to their lack of mainstream exposure, they are not an attractive solution, can be difficult to open and their thermal performance depends entirely on the quality of installation. We would recommend that more investment is made to make the installation of secondary glazing more attractive to householders as it is effective and disruption is kept to a minimum.

6.2.5 Doors

Suppliers of high performance doors with proven whole-panel U-values are virtually non-existent in the UK, and those that do exist are not able to deliver a product for installation within a sensible time period. Given the science and effort behind the production of windows over doors (presumably due to the higher volume of units required) surely more technology and know-how can transfer?

6.2.6 Lighting

This is not an area of expertise for us, but we acknowledge the use of LEDs and CFTs in all appraisals that we carry out as their pay-back is very short. There is a lot of reticence to them from our Clients however due to "warm-up" time and the colour of the light.

Support for innovative manufacturers alongside pressure on manufacturers of incandescent bulbs (as is planned by 2011) will deliver huge benefits.

6.2.7 Overheating

It is likely that as our climate changes, that the “cooling season” in the summer will lengthen and increase in intensity. To avoid a clamour for air-conditioning to provide comfort, the ideal solution is to alter the building envelope to prevent the heat from entering the building.

There is intense debate in eco-building circles as to the relative merits of insulation and thermal mass in providing a stable internal temperature. The performance of insulation is well-known, as are the relative benefits of thermal mass. However, thermal mass is not easily retrofitted into existing buildings.

Much of the older existing stock has a masonry structure and this inherent thermal mass and will resist sudden changes in temperature. In simplistic terms, in UK summers, evening temperatures are (usually) lower than daytime, and the building will maintain a constant average and comfortable temperature by absorbing heat during the day and releasing it at night. For newer, lighter buildings, insulation can be integral within the framework of the building, and winters can be accommodated by slowing the heat transfer from within. However, external heating will have to be dealt with in the same way and a constant flow of heat will eventually pass through to the inside of the building and not be absorbed by the walls. With global warming, night hours may not be as cool as they currently are, and heat may continue to infiltrate back into the building. Therefore, heat may always seep in and air conditioning may be the only sensible options to achieve required levels of comfort.

We believe that some prompt research is required to explore materials that can be retrofitted to lightweight building to prevent future overheating. This also applies to some of the new-build stock which may be ignoring this phenomenon.

6.3 Energy Generation

There are currently no technologies available for retro-fitting that we would recommend to any of our Clients for the economic generation of electricity on site. This is an area that is ripe for technological support by Government, as direct substitution of mains electricity with economically viable renewables can be a significant win.

Our word of warning is that electricity use can be considerably reduced by changes to lifestyles and habits. Consumer electronic sales are on the rise for instance. We believe this is the area for the Government to focus its attention, whether it is the implementation of a national programme of Smart Metering, or to impose strict guidelines on appliance performance and light bulb specification.

6.3.1 Biomass

Individual Biomass stoves are available for heating individual homes and can be supplied with a back boiler to drive heating and hot water systems. Fuel can either be cured logs or pellets made from waste wood. An installation was attempted for our demonstration project. However, the Clean Air Act prevented us from doing so as there were no suitable demonstration products on the Defra-controlled approved list for use in “Smoke Free Zones”.

Our recommendation is for Defra to improve its handling of the approvals system for biomass fuelled appliances in “Smoke Free Zones”. Let’s be realistic, nearly all of the machines available from the Continent are perfectly acceptable but due to the approvals systems they are not paying the required fees for testing as they are already supplying to a healthy market. This lack of flexibility by DEFRA is slowing the speed of change in major conurbations, which itself can also provide a fantastic outlet for waste wood.

6.3.2 Retrofitting community-scale CHP

Renewables are much more efficient when the opportunity for larger-scale generation is presented. Community-scale energy generation, championed by Adrian Hewitt at Merton Council and by the recent Greenpeace campaign, make good engineering sense. Retrofitting the required delivery systems into existing streets and buildings is extremely tricky but with further research it could hold the key to economic non-dependency on fossil fuels.

6.4 Importing Technology?

What seems to be lost in this debate is that a whole new industry in building material development could be stimulated if the right conditions are in place. Wise suppliers are buying up selling rights for products currently made in Germany etc. Why aren’t they made here? With the right investment, the UK could rejuvenate its manufacturing industry and lead the market and the agenda on reducing energy consumption from property.

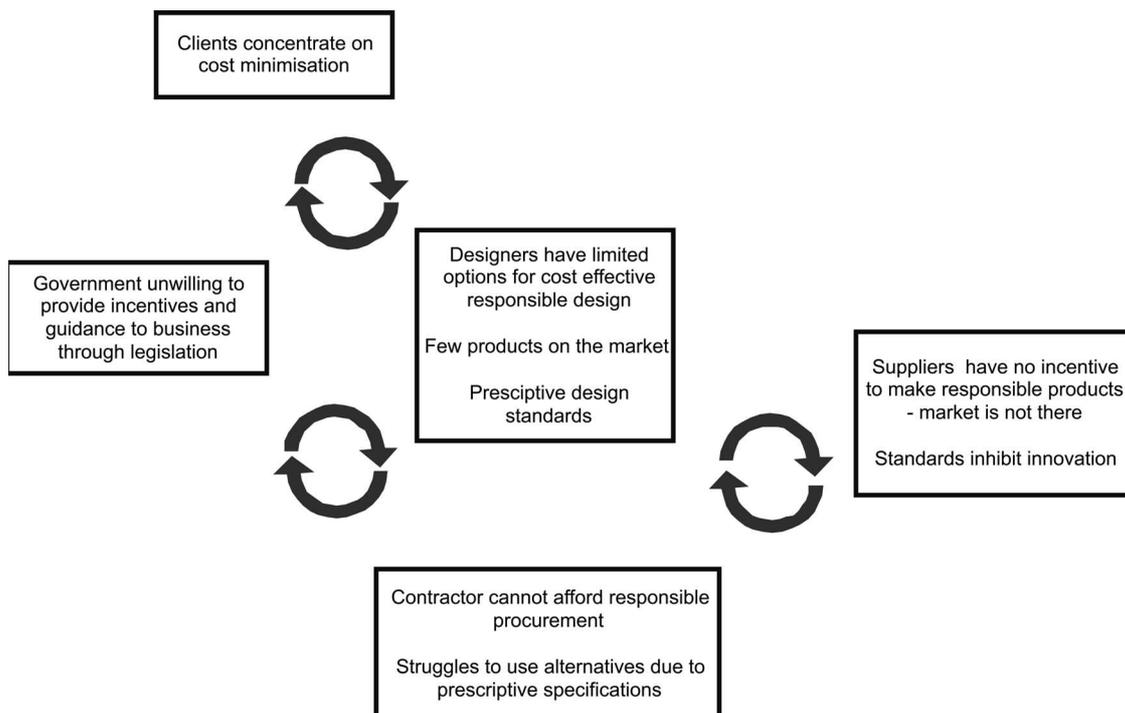
7. COSTS FOR REDUCING CARBON EMISSIONS IN EXISTING HOUSING, WHO SHOULD MEET THEM AND PARTICULARLY, IN RESPECT OF LOW-INCOME HOUSEHOLDS, INTERACTION BETWEEN CARBON EMISSION REDUCTIONS AND THE GOVERNMENT'S AMBITIONS TO REDUCE POVERTY

It is our firm belief that we need to develop the market for renovation such that it is a realistic comparator with new-build and that the Whole-Life-Cost (WLC) business case for eco-renovation is sound.

On the whole, people want to utilise resources that they can trust and have them at their fingertips, but effort in finding competent support and appropriate materials and system is hampering this effectiveness, hence driving up cost. At this point most players in the market are waiting for others to move, and we call this the “Cycles of Impedance”, depicted in the diagram below.

Figure 1

“CYCLES OF IMPEDANCE” IN THE MARKET FOR SUSTAINABLE BUILDING SOLUTIONS



It is our firm belief that there will be a period of “pain” in which the costs will be higher than acceptable by the majority of the market. With time, the market will mature, innovation will drive down prices and the cycles shown in Figure 1 are slowly broken. We are currently in this phase, and signs are that while progress is being made in the new-build sector at least in terms of the PR if not the engineering, the solutions for retrofit and renovation are still quite expensive, with little sign of market innovation.

The vision for the Parity Projects Demonstration Project was to prove that significant and measurable carbon reductions can be obtained by the simplest and most cost effective measures available. We were able to achieve a nearly 50% reduction in carbon emissions from draughtproofing and insulation alone. This is greatly encouraging, but the next step is inevitably to use some kind of renewable energy technology and not many have an economically viable pay-back period that is acceptable to our typical client base. This is further evidence that the Government must support the renewables sector.

However, if we are to speed the progress of the market for existing buildings, support needs to be provided for the providers of solutions. The aspects we identify are as follows:

- Identification of appropriate measures.
- Designing the identified measures for application to the individual property.
- Supply of materials and systems.
- Installation said measures.
- Confidence to the user that the measures have actually worked.

Different tenure types will provide different motives, as explored in Section 3.

7.1 *Able to Pay*

Wherever possible the costs of reducing emissions should be borne by householders, particularly for the many measures which are cost-effective. Building Regulations could be used to drive this. The Liberal Democrat initiative for eco-mortgages is one suggestion for providing the initial capital for improvements. Here, the mortgage made available is greater due the household's lower expected spend on energy.

7.2 *Stamp Duty-Related Measures*

The Conservative Party's Quality of Life report recently proposed that a refund on stamp duty could be used to repay a loan for thermal refurbishment works. Parity Projects supports any such measure which will bring more people into the "able-to-pay" category.

7.3 *Cross-subsidy*

For those home-owners who are unable to afford the upfront costs of efficiency measures, cross-subsidy from the able to pay sector (such as via the EEC) should be used to provide either grants or soft loans.

As attempts to internalise the costs of climate change avoidance, the EEC and future supplier obligation are well-aligned with sound economic policy. Difficulties exist due to the fact that the liberalised energy market in the UK allows customers to change supplier after just 28 days. This makes it difficult for a supplier to recoup the upfront costs by, for example, a surcharge on bills. Project Rachael, an idea from Climate Change Capital suggests a way that this could be avoided through making the method of charging for the efficiency measures location-specific rather than occupant-specific.

7.4 *Value Added Tax (VAT)*

Through the development of our demonstration project we paid the princely sum of £13,500 to the Treasury in VAT, making it the second biggest single cost. With VAT set at 5% or zero for new-build projects, the already challenging business case for renovation is strained.

The arguments for a change to allow any eco-renovation material to be zero-rated are strong. However, we appreciate that this is a tricky dilemma, as we have shown in our demonstration that many conventional building materials, if used in the right way, can provide significant drops in carbon emissions and classification argument may ensue. But it must be addressed.

Zero-rated products will be targeted by buyers, manufacturers will innovate to enter the new market, and the snowballing effect will see installers clamouring to provide new services and client seeking to save money on their fuel bills and improve their EPC score. (If the software allows them to).

7.5 *Personal Carbon Allowances*

The Government's aim to eliminate fuel poverty is not misaligned with carbon emission reductions. The Energy White Paper hints at individual carbon allowances. This will create a demand for energy-efficient refurbishment as well as increasing the incentive for more efficient behaviour. As said before, influencing behaviour is essential.

If carbon "rations" are part of the attempt to incentivise emissions reductions, the idea of a personal carbon allowance along the lines of David Fleming's TEQs would provide citizens with a free equitable quota of permits to emit carbon. The auction to industry of the remaining 60% of permits would provide a revenue stream which could be targeted at providing efficiency in low-income households.

8. THE SPECIFIC CHALLENGES FOR HOUSING OF SPECIAL ARCHITECTURAL OR HISTORICAL INTEREST

Other organisations will have a stronger background than Parity Projects for commenting in this area.

We would recommend that you contact Mr Chit Chong of Camden Council who is spearheading the eco-renovation of a Listed Building in his district.

9. GENERAL RECOMMENDATIONS

In summary, we present a number of key items which form the basis of the most influential actions that central Government can take to improve the energy performance of existing buildings:

- There have always been measures available for purchase in the UK supply chain that enable significant energy efficiency savings to be made in any home. The key to ensuring that they are achieving their potential efficiencies is in:
 - Client understanding of their potential.
 - Competence of the industry in specifying and installing correctly.
 - Building Control departments policing the installations under increasingly stringent Building Regulations.
- “Technological” improvements in insulation and draughtproofing seem to be unsupported by Government at this time. This biggest issues of concern to domestic residents are:
 - Reducing the thickness of insulation that can be added to internal face of external walls of individual rooms to retain floorspace.
 - The materials used in common insulating materials are increasingly being questioned by residents both from the viewpoint of the embodied carbon and for health and wellbeing reasons.
- The final touches to reaching the magic +60% reduction in carbon dioxide emissions involve ventilation and generation technology, all with scope for continual improvement at the early development of this markets. We would urge microgeneration to be a target for development mainly the retrofit market as Community Heating and Power systems makes much more sense when building new estates.
- The growing wave of householders that are becoming aware and then motivated to change their property must be supported either with grants or financial support even cheap loans to cover the upfront cost of the long term investments required.
- Energy Performance Certificates are inadequate for providing a clear picture for the owner of how to tackle the upgrade of their building. Also, due to the software’s inability to provide a representative picture of individual properties, the certificate may not affect the property values much as they ought thereby removing a major motivator for eco-renovation.

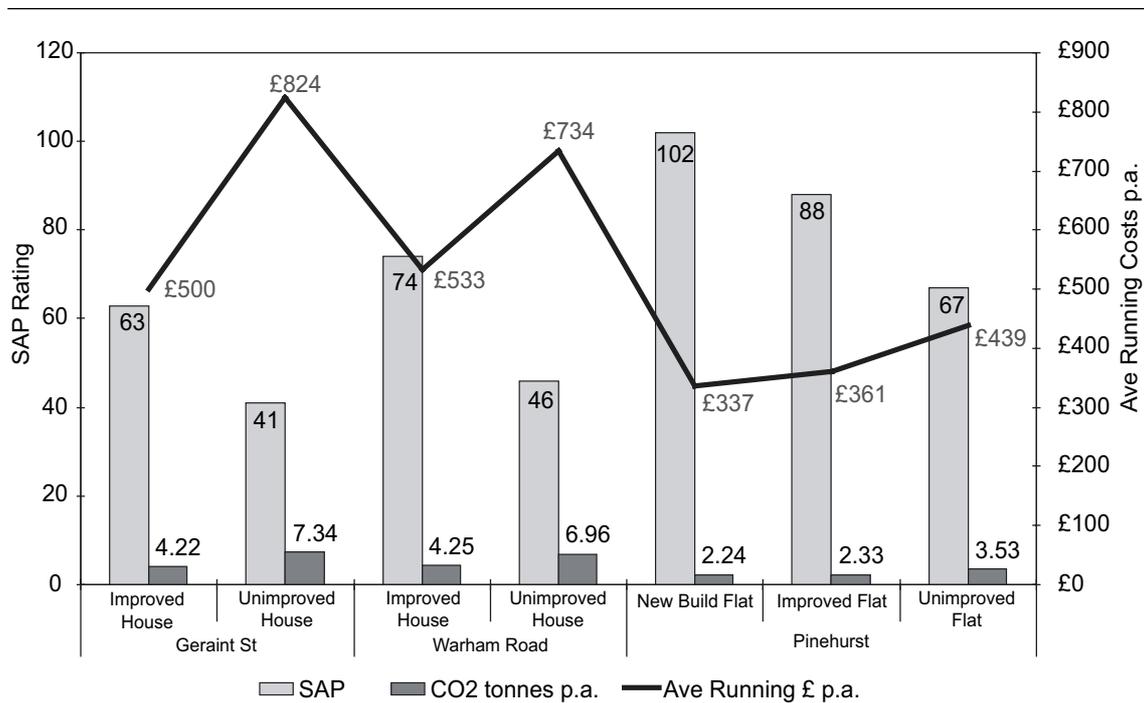
Memorandum submitted by PLUS Housing Group

This submission attempts to address in succinct form (as requested) the key questions being addressed by the Inquiry into Existing Housing Stock and Climate Change. We would be happy to provide more detail on any issue as required by the Committee.

1. *The significance of existing housing compared to new build and the different levels of performance each display*

The table below indicates the differences in three property types—mid terrace, semi-detached and new build, of applying energy performance improvements, such as double glazing and improved insulation, to each type. These performance figures are based on actual properties of comparable size within each category. For the flat category a comparison with a new build example is also given.

<i>Dwelling</i>	<i>Config</i>	<i>Status</i>	<i>SAP</i>	<i>CO₂ tonnes pa</i>	<i>Ave Running £ pa</i>
Geraint St	Mid Terrace	Improved	63	4.22	£500
	Mid Terrace	Unimproved	41	7.34	£824
Warham Road	Semi Detached	Improved	74	4.25	£533
	Semi Detached	Unimproved	46	6.96	£734
Pinehurst	Flat	New Build	102	2.24	£337
	Flat	Improved	88	2.33	£361
	Flat	Unimproved	67	3.53	£439



2. *The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency*

PLUS Housing Group has a comprehensive Affordable Warmth Strategy that aims to reduce fuel poverty across our portfolio as far as possible. This strategy is directly linked to our Asset Management Strategy and is influential in the development of our annual investment programmes. However, there are many pressures on our ability to deliver across various agendas (including the Decent Homes Standard) and we consider that there is currently little real incentive for Housing Associations to prioritise investment into energy related works.

The Government has placed great emphasis on increasing energy performance standards for new build through the introduction of the Code for Sustainable Homes and the requirement that all NAHP funded programmes should reach Code Level 3 from 2008. However, welcome as this is, in order for private developers and the energy industry to rise to this challenge effectively, the Code Level 3 should be mandatory for all developments via both Building Regulations and through planning requirements—not just for grant supported affordable housing.

3. *Energy Performance Certificates (EPC)*

PLUS Housing Group is one of the selected Housing Associations in the UK to have been awarded the maximum available grant funding to participate in CLG’s pilot project for the introduction of EPC’s across the rented sector housing stock in October 2008. We are currently preparing nearly 800 individual EPC’s across our stock.

We welcome the introduction of EPCs and are well placed to generate the certificates in-house and to use their findings to influence letting and investment decisions. Alongside our annual stock condition and energy surveys, we are confident that the EPCs will assist in the targeting of energy related investment to those properties and neighbourhoods in greatest need.

4. *The provision of information for households and prospective house buyers, including energy performance certificates*

Again, we welcome the transparency of the incoming EPC regime, allowing incoming tenants to assess the energy performance characteristics of the property that is being offered. It is our opinion that this can only help to isolate the poorer performing properties and increase the urgency for improvement works to take place. We firmly believe that a significant proportion of residents who are informed about the energy performance of their properties and their own appliances (televisions, kettles etc) will actively seek to reduce their own fuel bills wherever possible.

5. Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other rented programmes including Decent Homes

The Decent Homes Standard is a basic minimum standard that seeks to ensure that heating systems and insulation levels within a property are effective and efficient. However, it is not prescriptive in that all properties must necessarily be fully centrally heated, double glazed or exceed minimum levels of roof or cavity wall insulation. In itself, the Decent Homes Standard will does not directly tackle issues to reduce carbon emissions, increase SAP ratings or lower fuel bills. However, we do use the Decent Homes Standard as “part of the jigsaw” when determining investment programmes to ensure that we integrate work packages, based on financial, technical and social considerations together. In summary, reduction of carbon emissions can be a by-product of Decent Homes, if the Housing Association chooses to prioritise and integrate those works with specific energy related programmes.

We would recommend that Government considers replacing the Decent Homes Standard with a Green Standard for all existing housing stock which uses EPCs as a measure of effectiveness and offers incentives for higher performance. We would also recommend that housing investment is targeted towards investment in the quality of the existing housing stock (as well as producing new homes) with particular emphasis on measures to reduce carbon emissions and increase the use of renewables. The government could support this programme via grants.

6. The technologies available to reduce emissions and the Government’s role in facilitating relevant further technological development

Carbon emission reducing technologies for existing buildings appears to be far less available than for new build. We would welcome greater emphasis on research for such technologies; the vast proportion of public sector housing is existing stock rather than new build. Due to restrictive planning issues, it is simply not practical to apply new build technological solutions to existing stock in many instances.

Pilot funding should be made available for energy providers and Housing Associations to examine and monitor the introduction of new products and technologies into the existing housing stock.

7. The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low income households, interaction between carbon emission reductions and the Government’s ambitions to reduce poverty

As discussed above, there is current little incentive for Housing Associations to actively spend a considerable proportion of available investment primarily on carbon emission reducing works. Whilst we support the Government’s ambitions in this respect and aim to deliver our own fuel poverty ambitions through our asset management and affordable warmth strategies, the conflicting financial and technical demands on annual investment budgets means that such works can be classified as lower priority. We consider that adding some form of financial assistance or incentivisation for the public sector would assist greatly in ensuring such works are prioritised.

Memorandum submitted by the Royal Institute of Chartered Surveyors (RICS)

The Royal Institution of Chartered Surveyors (RICS) welcomes the opportunity to submit evidence to the Communities and Local Government Select Committee’s enquiry into Existing Housing Stock and Climate Change. This submission has been kept as short as possible, however we would welcome the opportunity to give oral evidence to expand on these ideas.

RICS believes that the emphasis on reducing carbon emissions on new build has been disproportionate, as has the emphasis on energy performance certificates on a transactional basis. In order to assist Government we are making figures compiled by RICS Building Cost Information Service available for the first time. These figures provide new data on the payback times on the improvements suggested in the Energy Performance Certificate (EPC). The EPC will have little impact on reducing emissions unless it is linked to other measures.

Who is the RICS?

By way of background, RICS is the largest organisation for professionals in property, land, construction and related environmental issues worldwide. We promote best practice, regulation and consumer protection to business and the public. With 140,000 members, RICS is the leading source of property related knowledge, providing independent, impartial advice to governments and global institutions.

RICS is uniquely well placed to offer its perspective as the leading property professional body, required by its Royal Charter to place the public interest at the core of all its activities and ahead of its members’ own interests.

How does the age of the property affect carbon emissions?

- New build houses are typically more energy efficient than older properties; carbon emissions of a typical UK pre-1914 home are in the region of eight tonnes of CO₂ per year compared to four tonnes in a home built after 1995. It is essential to ensure that the construction process is performed in a carbon friendly manner, as we risk cancelling low-carbon homes with a high-carbon building process. The perverse incentive that it is cheaper to knock down a property and rebuild rather than making improvements due to VAT obligations must be eradicated. By 2016 all new houses will be low-carbon, however we must ensure that the building process is carbon as well as the finished product.
- At the other end of the scale, there are a relatively small number of historic houses (around 10%–15%). However this is not the most energy inefficient group of dwellings. Lesser emitters that are easier to improve carbon efficiency should be targeted first.
- Properties from the 1920s to 1960s have been largely built without insulation, however these properties make up around 70%–80% of the housing market and we must therefore focus efforts on these given that most property in the UK is and will be to come existing stock from this period.
- In light of the vast amount of existing properties, the first priority must be to improve the energy efficiency of the existing housing stock, in particular targeting the estimated six million low income households that cannot afford to keep their homes adequately heated and damp-free. More research and development is needed into methods of making the existing housing stock more energy efficient.
- The potential for renovation and retrofit of existing housing to benefit from energy efficient design and operational systems is substantially higher than the size of the new construction market. If the energy usage in the millions of existing homes and offices was reduced by 10% this would far outweigh the energy savings in the limited number of new homes due to be built over the next decade. Education of consumers is vital in achieving this.

How does the tenure of the property affect carbon emissions?

- Owner occupation is by far the most common tenure in the UK and makes up around two thirds of all energy inefficient homes. Owner occupiers on below average incomes are least likely to invest in energy efficiency improvements. Smart meters and similar innovations can help owners to keep energy usage low and encourage changes.
- Social renters are at a relatively low risk of living in an energy inefficient home because of the statutory requirements in the social sector. For example, social dwellings must meet the Decent Homes Standards which includes requirements for energy efficiency and must have an average SAP rating.
- Leaseholders may live in a wide spectrum of properties but have little opportunity to make changes to their property. The freeholder-leaseholder-managing agent relationship may prevent changes from being made. More must be done to provide incentives to solve the problem of financing and consent between freeholders and leaseholders to make changes to properties.
- Private renters are at a relatively high risk of living in a very energy inefficient home and have very little opportunity to make energy performance improvements themselves. Investor landlords are particularly unlikely to make changes to their properties. There needs to be a level playing field between the timing of Energy Performance Certificates for sales and rentals in order for the consumer to have appropriate choice and knowledge.
- There must be a differentiation between investor landlord and buy-to-let type landlords (private individuals) in order to provide incentives to each category. We are also starting to see the advent of business landlord who will present their own particular challenges.
- To tackle energy inefficiency among different housing tenure we must ensure that there are targeted incentives and provision of information for each type.

*Energy Performance Certificates**How does the EPC fit in with the existing building stock?*

- In an unprecedented move in May 2007, RICS initiated Judicial Review proceedings against CLG intended to call the government to account of a lack of consultation or justification on its gold plating of a European Directive. Following CLG's agreement to carry out a new consultation and pay RICS' legal costs, the Judicial Review has been stayed pending a new 12 week consultation which is expected imminently.
- RICS is committed to the introduction of Energy Performance Certificates. However, we believe that the Energy Performance Certificates need to be de-coupled from the Home Information Pack. The sector views them as a very important tool to tackle climate change and as such believes that

they should not be attached to the buying and selling of homes which is only 6.9% per year of the total housing stock. Instead they need to be rolled out to all housing stock. Energy Performance Certificates should be applied to all residential property not just those changing hands.

- We firmly believe in a more flexible market led approach in order to keep the cost down for the consumer and reduce the number of visits to homes. Such flexibility would encourage the market into making the EPC into a useful tool rather than a necessary evil in the context of a transaction. If linked to buying and selling houses, the EPC should be allowed to be provided at any stage in the transaction before an exchange of contracts takes place.

What are the problems with the EPC?

RICS supports the Government's aim of reducing carbon emissions from homes by improving their energy efficiency but for the following reasons the current approach is not the best solution.

1. Potentially causing an additional car journey to each marketed home (for instance on top of a survey or valuation visit), purely for the purposes of producing an EPC, will cancel out the benefits of providing the EPC up front. This could be addressed by allowing the EPC to be produced at the same time as a survey and valuation.
2. The current approach will cost consumers considerably more than allowing the EPC to be provided at any stage in the transaction.
3. The requirement to produce a new HIP every time a property is marketed represents a gold plating of EU legislation which only requires a new EPC every ten years. It is contrary to government policy to gold plate EU legislation, but especially where there is no beneficial effect.
4. There is no evidence to support the Government view that prospective purchasers will make decisions to view property on the strength of a favourable EPC. We still await the results of the pilots on EPCs and feel that further research is needed urgently. We are also awaiting the MORI survey commissioned by CLG.
5. There are questions over the accuracy of EPCs. The requirement for accuracy of certificates from the SAP schemes is 5% tougher than rdSAP and in addition to this, rdSAP uses a lot of default values, and therefore the more a property deviates from the average the greater the inaccuracy. In addition to this, the EPC does not take into account factors such as the direction which the property faces and whether it is sheltered by other structures or landscape features which can make a huge difference to the performance of the property.
6. The EPC has particular problems relating to historical properties as the data used to compile the report is not appropriate for historical buildings. The EPC is likely to be inaccurate with the actual performance of buildings varying widely from the ratings on the EPC. For example historic homes with heavy structures may be very good at staying warming in winter and remaining summer. This issue is examined further in an article by Steven Boniface which is included as an appendix.
7. The payback times of the suggestions are too lengthy for the decision to implement them to be financially viable on saving alone. Further incentives are needed to redress this. Payback times of suggestions are covered in more depth below.
8. There is concern that the EPC focuses too much on insulation and heat retention which may necessitate air conditioning during warm weather.

Payback times

- For the first time, we are publishing research by the RICS Building Costs Information Service into the payback times for suggested improvements on EPCs.
- The payback time is greatly affected by the level of VAT charged on the improvement and consequently we have examined each suggested improvement for costs including VAT at 17.5%, 5% and excluding VAT.
- Only cavity wall insulation, which would cost around £680 to install and has potential savings of £145 per year, has a relatively short payback time of five years. Other improvements have a payback time ranging from 13 years, in the case of cavity wall insulation, to 208 years for a solar water heater. The full list of figures including VAT considerations is attached as an appendix to this document.
- Alternative methods of funding such improvements must be considered, such as spreading the cost over a number of different property owners, or providing greater incentives to help with the cost.

How should EPCs be used?

- Having introduced EPCs, Government must now look at the information provided within them and how it is used. Stand alone Energy Performance Certificates will not tackle climate change.

-
- Energy Performance Certificates need to be accompanied by coherent consumer advice, guidance, penalties and incentives for consumers on payback periods and energy saving.
 - Simply providing information about how a property can become more energy efficient will not by itself encourage people to take action to make those improvements.
 - The EPC will have little impact on reducing emissions unless it is linked to other measures. The Government must therefore take the lead in raising public awareness of the role that individuals can play in tackling climate change in their own homes, and in providing incentives for them to do so.
 - The figures speak for themselves. The efficiency improvements that will be outlined in the EPC can be expensive and RICS calculations suggest there is little scope for payback from reduced energy bills in a short period of time.
 - Now is the crunch time for EPCs which have suffered a loss in consumer confidence. They must be uncoupled from the transaction now to ensure consumer buy-in.
 - EPCs must be required for rented properties to provide a level playing field for sales and lettings and must have a similar lifespan to sales properties.

RICS Suggestions of ways to improve energy efficiency

RICS calls on the Government and industry to show a full commitment to the low carbon built environment by actively encouraging homeowners to make the necessary upgrades. These could be:

- Reduce VAT on energy efficient materials such as insulation and low energy light bulbs, as well as on their installation and on renovation and repair work, from 17.5%–5%.
- Using the VAT collected from the production of HIPs to provide incentives for carbon-reducing changes to properties.
- Stamp duty rebates should be offered to encourage home-owners to make their homes more energy efficient.
- Council tax rebates for high energy efficiency ratings: Braintree District Council in Essex launched a joint scheme with British gas whereby a £100 rebate is payable to those who install cavity wall insulation.
- Financial/fiscal incentives, especially for those who are the first in a particular property to invest in energy efficiency measures as they may not stay in it to recoup their investment and yet pass on the benefits to the next owner.
- Make a wider range of grants available to all home owners and provide a one-stop-shop giving access to specialised advice on grants and aid available and how to access them.
- More detailed energy bills and use of smart meters to highlight areas of high consumption and to increase understanding of how energy is used.
- Clear improvement targets for national and local authorities aimed solely at existing housing. Whenever planning permission is granted for extensions or refurbishment of existing houses, the whole building should come under the purview of the energy regulations which then need to be enforced.
- Energy companies should be involved in encouraging energy efficiency. Schemes whereby energy companies do not seek to make profits on provision of energy, but instead focus on making profits from undertaking work on customers' homes by improving energy efficiency should be encouraged. This type of scheme is particularly effective when coupled with charging the property rather than the owner over the long-term so that successive property owners share the costs of improvements.
- Regulation may be effective in encouraging specific changes, for example to phase out conventional energy inefficient lighting as has been the case in other countries. Making the switch to energy efficient lighting systems in the domestic sector would save the EU 20 million tonnes of CO₂, which equates to the annual output of 25 power stations (at 2TWh/year); and between €5–8 billion per year savings in energy costs. Regulation has proved effective in the UK in the case of requiring new boilers to be of the condensing variety.
- Focus public funding schemes on the cheapest measures with the quickest pay back time in the poorest housing stock.

Key messages

- Expertise RICS has expert members across the whole spectrum of the built environment from construction and renovation to valuation, facilities and environmental management. We therefore have the expertise to advise on and implement the best policy solutions in the public interest. RICS will publishes its own guidance for members on taking an holistic “cradle to grave” approach on sustainability issues in order to ensure best practice in all retrofit and refurbishment work.

- Clear political leadership Governments need to take brave decisions to achieve a low carbon built environment. Setting national targets is a good start. Government must also be clear on motivations for improving energy efficiency; whether this is to reduce reliance on foreign energy sources or as a genuine desire to protect the environment.
- Local solutions to a global problem We as individuals must understand how we contribute to climate change in our daily lives and take individual responsibility for changing our behaviour.
- Focus on existing buildings Action should concentrate on the energy efficiency of existing buildings rather than new buildings as the potential for carbon emission reductions is substantially higher than the size of the new construction market.
- Cheapest measures first Public funding schemes should focus on the cheapest measures with the quickest pay back time in the poorest stock, ie cavity wall and loft insulation and energy efficient lighting.
- Financial incentives Market forces are unlikely to be enough so fiscal (including VAT) and other financial incentives should be developed to encourage energy efficiency improvements.
- Affordable energy efficient alternatives Fixtures and fittings are responsible for a large proportion of energy use in buildings. For example, traditional light bulbs could be phased out in favour of more energy efficiency alternatives.
- Skills and education RICS calls on governments and other professions to ensure sustainability becomes a core principle for all those working in the built environment. Compulsory lifelong learning on sustainability for all built environment professions should be introduced.
- Energy consumption Domestic fuel bills should contain clear information about energy consumption so that consumers can compare themselves with others and monitor their own consumption. Smart metering should be introduced wherever possible.

Whilst the Committee is not considering the emissions from commercial buildings it is important to note that RICS has sounded a note of caution with the Department as there is the risk that the challenging timetable for the implementation of the EPBD will not be met.

RICS want to work with government to help tackle some of the pressing environment issues that we are currently facing. We would welcome the opportunity to give oral evidence in order to expand upon the points raised above.

ENERGY PERFORMANCE CERTIFICATE—SAMPLE PROPERTY
PRICED SCHEDULE OF WORKS 2 MAY 2007

ENERGY PERFORMANCE CERTIFICATE—FOR SAMPLE PROPERTY 100 ANY STREET, ANY TOWN, ANYWHERE AB1 CD2 (NB—TAKEN FOR A TERRACED PROPERTY, LARGE TERRACED HOUSE AS DESCRIBED IN BCIS HOUSING REPAIR COST GUIDE 2006)

1. LOWER COST MEASURES

Item	Description	Quantity	Rate	Sub-total	Based on Costs incl VAT @ 17.5%			Based on Costs incl VAT @ 17.5%			Based on Costs excl VAT		
					Total	Energy Saving (per year)	Payback (Years)	Total	Energy Saving (per year)	Payback (Years)	Total	Energy Saving (per year)	Payback (Years)
1.1	Cavity Wall Insulation to Main Walls Existing cavity has none. Add insulation into cavity walls (page 451, BCIS book). Inject cavity wall with foam or mineral fibre system	Item	£680	£680									
	Uplift to Current Costs (4th Quarter 2007 Forecast)	7.08%	£680	£48	£728	£145 ¹	5	£651	£145 ¹	4	£620	£145 ¹	4
1.2	Loft Insulation Top up to 250mm. Existing—100mm loft insulation. Improve Insulation Level (page 445, BCIS book) Lay 150mm thick glass fibre insulation over existing insulation.	Item	£705	£705									
	Uplift to Current Costs (4th Quarter 2007 Forecast)	7.08%	£705	£50	£755	£60 ¹	13	£675	£60 ¹	11	£643	£60 ¹	11
1.3	Hot Water Cylinder and Pipework Insulation. Existing—No insulation and uninsulated cylinder Add Insulation to Plumbing Installations (pages 455 and 456, BCIS book) Add insulation to cylinder size 450mm x 1,200mm.	1 No	£91	£91									
	Add insulation to pipework including lifting up floor boards and replacing as necessary.	20m	£31	£620									
	Uplift to Current Costs (4th Quarter 2007 Forecast)	7.08%	£711	£50	£761	£20 ¹	38	£680	£20 ¹	34	£648	£20 ¹	32
Total of Lower Cost Items					£2,244	£225	10	£2,005	£225	9	£1,910	£225	8

2. HIGHER COST MEASURES

Item	Description	Quantity	Rate	Sub-total	Based on Costs incl VAT @ 17.5%			Based on Costs incl VAT @ 17.5%			Based on Costs excl VAT		
					Total	Energy Saving (per year)	Payback (Years)	Total	Energy Saving (per year)	Payback (Years)	Total	Energy Saving (per year)	Payback (Years)
2.1	Condensing Boiler												
	Existing—Mains Gas Back Boiler												
	Additional Works to Plumbing Installations (derived from Cyril Sweett report A cost review of the Code for Sustainable Homes dated Feb 2007)												
	Upgrade of boiler to high efficiency (91.3%) condensing boiler	Item	£2,000	£2,000	£2,000	£52 ²	38	£1,787	£52 ²	34	£1,702	£52 ²	33
2.2	Installation of a Full Heating Controls Package												
	Existing—No controls, assume that radiators are in place (and not need replacing)												
	Additional Works to Plumbing Installations (Generally page 267, BCIS book)												
	Digital programmer	Item	£785	£785									
	Delayed start thermostat (Cyril Sweett report—refer above)	Item	£275	£275									
	Thermostatic radiator valves	6 No	£97	£582									
	Booster Pump (Assumed)	Item	£450	£450									
	Uplift to Current Costs (4th Quarter 2007 Forecast)	7.08%	£2,092	£148	£2,240	£65 ¹	34	£2,002	£65 ¹	31	£1,906	£65 ¹	29
	Total of Higher Cost Measures				£4,240	£117	36	£3,789	£117	32	£3,609	£117	31

3. FURTHER MEASURES

Item	Description	Quantity	Rate	Sub-total	Based on Costs incl VAT @ 17.5%			Based on Costs incl VAT @ 17.5%			Based on Costs excl VAT		
					Total	Energy Saving (per year)	Payback (Years)	Total	Energy Saving (per year)	Payback (Years)	Total	Energy Saving (per year)	Payback (Years)
3.1	Double Glazing												
	Existing—All single glazed throughout (all sizes have been assumed)												
	Replace single glazed external windows & doors with double glazed uPVC doors and windows (Pages 143, 147 and 148—BCIS book)												
	Windows low level												
	900mm x 1,200mm overall size	2 No	£430	£860									
	1,800mm x 1,800mm overall size	2 No	£1,270	£2,540									
	Windows high level												
	900mm x 1,200mm overall size	2 No	£485	£970									
	1,200mm x 1,200mm overall size	2 No	£620	£1,240									
	1,500mm x 1,200mm overall size	2 No	£790	£1,580									
	Doors												
	1,000mm x 1,200mm overall size	2 No	£760	£1,520									
	Uplift to Current Costs (4th Quarter 2007 Forecast)	7.08%	£8,710	£617	£9,327	£75 ²	124	£8,335	£75 ²	111	£7,938	£75 ²	106
3.2	Solar Water Heater												
	Existing—None												
	Additional Works to Plumbing Installations (Energy Savings Trust leaflet entitled “Solar Hot Water”)												
	Thermal panel (flat plate type)	Item	£5,000	£5,000	£5,000	£24 ²	208	£4,468	£24 ²	186	£4,255	£24 ²	177
	Total Cost of Further Measures				£14,327	£99	145	£12,803	£99	129	£12,193	£99	123

4. OTHER COST MEASURES (THAT ARE IMPLIED IN THE REPORT BUT NOT SPECIFICALLY INCLUDED AS A COST EFFECTIVE MEASURE)

Item	Description	Quantity	Rate	Sub-total	Based on Costs incl VAT @ 17.5%			Based on Costs incl VAT @ 17.5%			Based on Costs excl VAT		
					Total	Energy Saving (per year)	Payback (Years)	Total	Energy Saving (per year)	Payback (Years)	Total	Energy Saving (per year)	Payback (Years)
4.1	Main Ground Floor												
	Existing—Uninsulated solid concrete (assumed that there is a traditionally built suspended floor built on top of a solid ground floor slab) NB—Taken for the ground floor slab only.												
	Additional Works to Floors (Pro-rata that contained in pages 200 & 422, BCIS book)												
	Lift up and leave aside softwood skirting board and re-fix, re-decorate later	Item	£500	£500									
	Lift up existing floor boards and supply and lay 150mm thick insulation between joists	Item	£2,055	£2,055									
	Uplift to Current Costs (4th Quarter 2007 Forecast) NB—on a solid floor slab without a suspended floor, consider additional cost of adjustments to door openings (remove door, increase lintol height and re-fix doors) as well as other possible adjustments like raising heights of electrical sockets and build-in items (kitchen units) etc.	7.08%	£2,555	£181	£2,736	£45 ¹	61	£2,445	£45 ¹	54	£2,329	£45 ¹	52
	Total of Other Cost Measures				£2,736	£45	61	£2,445	£45	54	£2,329	£45	52

Notes

- All costs sourced from the BCIS Housing Repair Cost Guide 2006 except where indicated, therefore they all include VAT as indicated above. The costs have been updated to present day costs (2nd Quarter 2007) and are based on nationally average UK prices (location factor 1), they must be adjusted to suit regional differences.
- Energy Saving Costs per year have been derived from “Domestic Energy Primer—an introduction to energy efficiency in existing homes” published by the Energy Savings Trust ⁽¹⁾ and that indicated by ESD per Building Magazine article dated 7th July 2006 ⁽²⁾.
- Only those measures indicated in the sample report have been considered. There are other measures that could be included such as draughtstripping of all external and internal doors, better ventilation details, use of biomass boilers, wind turbines (provided that the average wind speed is more than 4.5m/s, Energy Savings Trust or 13 m/s, other sources), photovoltaic panels, heat recovery ventilation, increased insulation works to either the external face or internal faces of the property and ground sourced heat pumps.

Memorandum submitted by Oldham Council

- Our submission is based on how Oldham Council is promoting benefits of energy efficiency to residents.

FIRST CHOICE HOMES OLDHAM (HOUSING ALMO) DECENT HOMES WORK

- New central heating systems (currently installing Ecotec 937 condensing/combi boiler).
- Double glazing.
- Change from communal heating charge for homes on grouped heating schemes to individual metering system. This will enable individual residents to control useage/demand much more efficiently and reduce wasted energy.

CLG ENERGY PERFORMANCE CERTIFICATE PILOT PROJECT (JULY–SEPT 2007)

- Energy Performance Certificates (EPCs) are a central plank of the Government’s climate change strategy and are to be introduced on sale, rent and construction of all properties by the end of October 2008.
- This EPC pilot was sponsored by Communities and Local Government (CLG) and invited Expressions of Interest from local authorities nationwide. The purpose was to provide some valuable experience of producing, receiving and using EPCs within the social housing sector and to feedback to CLG the lessons learnt. The feedback will help CLG produce guidance to all local authorities prior to implementation October 2008 so that the scheme is rolled out smoothly and effectively.
- 100 physical EPC surveys were conducted & 1900 EPCs were produced by a cloning exercise.
- This was a good opportunity for Council and First Choice Homes Oldham (ALMO) to act more strategically in terms of having more up to date energy information which will be used to form an overview on areas such as stock condition, improvement and modernisation. This will also be used to plan programmes that address climate change issues and fuel poverty.
- Participating in the pilot enabled the Council to demonstrate leadership in tackling climate change at a local level.
- Pilot was also an opportunity to promote awareness of Climate Change issues, Green Agenda and energy efficiency issues to Council tenants. The “Thank You” packs and contents, which were distributed to residents whose homes were surveyed, enabled us to acknowledge and reward them for their co-operation as well as to communicate the energy efficiency/Climate Change messages. By using the contents of the packs, residents were able to benefit immediately from energy efficiency measures (eg light bulbs, kettle) and many were keen to know what else they could do.

PARTNERSHIP WITH GREATER MANCHESTER NORTH ENERGY EFFICIENCY ADVICE CENTRE

- Council has been able to use partnership working to deliver a range of energy efficiency measures borough-wide (eg loft insulation, cavity wall insulation, updates to heating systems).
- Example of ongoing initiative: Affordable Warmth Strategy.
- Work with GMNEEAC has included all of the housing market (social rented, private rented and homeownership sectors).
- roadshows/events have taken place or are planned, that have been used to promote awareness of Climate Change, Green Agenda, Energy efficiency issues for both Council staff and the public.

Memorandum submitted by the Society for the Protection of Ancient Buildings

I am writing on behalf of the Society for the Protection of Ancient Buildings (SPAB) in response to the call for evidence for the inquiry into existing housing stock and climate change

The SPAB, started by William Morris in 1877, is the founding father of the building conservation movement in the United Kingdom. The Society played an important role in developing historic building legislation. Perhaps more significantly its philosophy of repair has helped fundamentally shape the UK approach as practised by local authorities, English Heritage, bodies like the National Trust, and building professionals.

Today the Society is an educational, advisory and campaigning voluntary organisation. The largest of the national amenity societies it is notified of listed building applications for demolition in England and Wales. The Society has a unique record on conservation training, provides a free technical advice line, and issues advisory publications.

The Society has just under 9 000 members including those who belong to the separate Mills Section. They comprise leading historic building professionals, whose cumulative expertise is given voluntarily to the Society; as well as homeowners; and those who support the cause. The SPAB Technical Panel, made up of highly experienced architects, surveyors, engineers, builders and others, oversees the Society's technical activities.

The Society is pleased to submit the following evidence:

OLD BUILDINGS AND CLIMATE CHANGE

The SPAB believes that it is vital that each of us strives to reduce our carbon footprint but hasty measures to make our existing housing stock more energy efficient and the introduction of energy performance certificates may inadvertently harm both old buildings and seriously increase human health problems like asthma.

Older, pre-1914 buildings make up 20% of the total housing stock and those not protected by listing (many Victorian and Edwardian terraced houses, for example) will be at most risk from damage.

Older buildings frequently contain less embodied energy than new ones, commonly being constructed of locally sourced materials that are fired at lower temperatures, if at all. Moreover, whilst new buildings generally perform better than old ones on paper in terms of heat loss, poor construction standards sometimes evident on building sites today can mean that this is not always the case in reality. Notwithstanding this, there are effective ways of thermally upgrading old buildings, including, in many cases, increasing loft insulation, lagging hot water cylinders and improving boiler controls. Care must, however, must be exercised.

To upgrade the energy efficiency of an old building effectively it is essential to understand how it is constructed, including how it differs from its typical new counterpart. Whereas modern buildings generally depend on an impervious outer layer and cavities to keep out moisture, old buildings tend to rely on their permeable nature ("breathability") to allow water absorbed by the fabric to evaporate back out—the "raincoat" and "overcoat" effects respectively.

Instead of allowing old buildings constructed without cavity walls to "breathe", owners are sometimes being encouraged to seal up or over-insulate the fabric in misguided attempts to save energy. Consequently, old buildings are likely to become warmer but damper—increasing condensation, rot, mould growth and human health problems.

Old buildings are also becoming more susceptible to harmful "improvements" that lead to minimal environmental gain. This may happen, for example, when old single-glazed windows are replaced by double-glazing with a short, 30-year anticipated lifespan. Retaining and upgrading existing windows commonly makes better sense but high pressure sales tactics from some window manufacturers can result in replacement instead. Other misconstrued work includes the unnecessary replacement of floors and dry lining of walls.

A further problem is that the standard software used for EPCs and a shortage of assessors who understand past construction methods gives results that discriminate unfairly against older, more complex properties. Calculation methods also overlook the "thermal mass" benefits of many old walls that are good at absorbing and re-releasing heat gradually. Sustainability is about much more than insulation levels (U-values) and heat loss. It is important that the whole equation be considered.

Furthermore, occupants' behaviour is ignored—a highly efficient modern house can consume more energy than an older one if occupants, say, leave curtains open at night and only wear T-shirts during the winter.

Finally, the energy savings made by enhancing our buildings could be undermined by large increases in greenhouse gas emissions from other sectors, particularly aviation. Changes in the government's approach are urgently required if it is serious about helping each of us to tread more lightly on the planet.

We're very happy to provide more information on any of the above if required.

Memorandum submitted by Friends of the Earth

Friends of the Earth inspires solutions to environmental problems, which make life better for people

Friends of the Earth is:

- the UK's most influential national environmental campaigning organisation;
- the most extensive environmental network in the world, with around one million supporters across five continents, and more than 70 national organisations worldwide;
- a unique network of campaigning local groups, working in more than 200 communities throughout England, Wales and Northern Ireland; and
- dependent on individuals for over 90% of its income.

 INTRODUCTION

Friends of the Earth welcomes this opportunity to submit evidence to this inquiry.

The domestic sector contributes 27% of the UK's carbon dioxide emissions. 70% of this is from space and water heating.

There is massive potential to reduce emissions in two ways: energy efficiency and new micro-renewable energy generation technologies. These will both be necessary if the sector is to make its contribution to the necessary 80% cut in UK carbon emissions by 2050.

Friends of the Earth has long supported the introduction of mandatory energy rating of homes and welcomes the introduction of Energy Performance Certificates (EPCs) as a key tool for cutting carbon emissions from the domestic sector.

Our submission primarily addresses the role of EPCs, the most environmentally effective model of implementation of the Energy Performance of Buildings Directive and other policy instruments to maximise the impact of EPCs, incentivise and finance energy efficiency improvements. We also address the importance of microgeneration to cutting the carbon emissions of existing homes and proposes the introduction of a UK feed-in tariff as the best mechanism to support the expansion of on-site, decentralised, community and domestic renewable electricity generating capacity.

PART 1: MAXIMISING THE EFFECTIVENESS OF ENERGY PERFORMANCE CERTIFICATES

Since the beginning of 2007 Friends of the Earth has been heavily involved in public debates about the introduction of Home Information Packs (HIPs) because of our interest in Energy Performance Certificates (EPCs). Friends of the Earth supports the model of strong implementation of EPCs pursued by the Government which we believe will help to maximise the environmental effectiveness of the certificates, specifically we support the decision to go beyond the minimum requirements of Section 7 of the Energy Performance of Buildings Directive.

Friends of the Earth strongly rejects the charge made by the Better Regulation Commission and others that the Government has "gold-plated" the EPBD. They claim that:

1. The Directive allows for a EPCs have a ten year lifespan rather than a new one being required each time a home is sold.
2. EPCs could be produced at any point during the home buying process rather than being required upfront.
3. The Directive does not require them to come in until 2009.

We think this is a misreading of Article 7 of the EPBD, which requires that "The energy performance certificate for buildings shall include reference values such as current legal standards and benchmarks in order to make it possible for consumers to compare and assess the energy performance of the building. The certificate shall be accompanied by recommendations for cost-effective improvement of the energy performance." A ten year certificate would not be able to meet these objectives. The charge of gold-plating is also inconsistent with the findings of Lord Davidson's report on the implementation of EU directives which stated that: "it is sometimes beneficial for the UK economy to set or maintain regulatory standards which exceed the minimum requirements of European legislation. The EU may not always set the most appropriate level of regulation. The decision to introduce or maintain higher standards or stricter regulatory regimes than is required by EU directives could bring benefits as well as costs".¹¹⁷

Friends of the Earth strongly support Yvette Cooper's statement to the House of Commons that: "we are going beyond the minimum requirements for energy performance certificates set out in the EU directive. However, that is not gold-plating; it is green-plating, and we make no apology for that."¹¹⁸

Friends of the Earth believes that having an EPC that is up to date (the maximum lifespan should be no greater than one year) and provided whenever the property is first marketed for sale is crucial if the document is to have credibility with homeowners and if prospective homeowners are to have time to assess their needs, arrange for finance (such as a green mortgage) and organise for work to be carried out on the property before they move in.

Friends of the Earth agrees with the reasons for strong implementation set out in The Regulatory Impact Assessment for the EPBD¹¹⁹:

- the latest information on energy saving technologies can be provided, including micro-generation options as these become more available and cost-effective;
- the estimates of energy cost savings will be based on current prices;
- the information on availability of grants will be up to date;

¹¹⁷ A more detailed explanation of our reasons can be found in our evidence to the House of Lords Committee on the Merits of Statutory Instruments www.publications.parliament.uk/pa/ld200607/ldselect/ldmerit/129/129.pdf

¹¹⁸ 16 May 2007.

¹¹⁹ Regulatory Impact Assessment Energy Performance of Buildings Directive Articles 7-10, Department for Communities and Local Government, March 2007.

- any changes to the building since the last EPC was issued will be taken into account;
- lenders could use new EPCs as a basis for green mortgages; and
- overall the new EPC will have a greater level of credibility in the market.

Friends of the Earth believe a major additional advantage is that websites, email addresses and helpline numbers would also be up to date—a critical factor if homeowners are to act on the information in the EPC.

Incentivising and financing action on EPCs

The introduction of Home Information Packs has been highly controversial and the potential popularity of EPCs has been reduced by their association with HIPS. However this has meant that EPCs have much higher awareness levels among the public than they probably would have had otherwise¹²⁰. Friends of the Earth believes that the fact that EPCs are associated with the change of ownership of a property and hence that property being empty for a period means they should be used to encourage a whole house approach.

According to the EST: “Research has shown that people are most likely to undertake work on their new property within six months of moving in.”¹²¹ This points to the need to focus on policies to encourage the installation of the most disruptive and expensive energy efficiency measures (and even microgeneration) while the property is empty or quickly after purchase.

The Government’s recent consultation on the Carbon Emissions Reduction Target (CERT) states (section 2.42): “We expect that CERT, in combination with new tools such as Energy Performance Certificates to be launched in 2007, will encourage and support householders in taking a holistic view of the carbon impact of their home and to take as much potential action as possible to reduce that impact.”

We agree with the objective but do not believe that the policies currently in place are sufficient to achieve it.

The Energy Efficiency Partnership for Homes has identified that significant awareness, informational and practical barriers still exist to homeowners taking action on their EPC.¹²²

The Regulatory Impact Assessment for the EBPD predicts that the information in EPCs will drive additional people to EEC/CERT providers for energy efficiency measures, reducing the energy suppliers EEC/CERT promotional and marketing costs by £40 million per annum. Overall depending on how they are implemented EPCs are predicted to be saving between 0.7 and 0.8 million tonnes of carbon annually by 2020 (or between 22 and 26 mtc cumulatively).¹²³

Friends of the Earth has consistently argued that while EPCs will drive some additional carbon savings by themselves this is not nearly sufficient compared with the level of cuts in emissions required from the existing housing stock. EPCs can become a powerful policy if they are seen as a basic building block for other policies to incentivise action based on the information an EPC provides.

For Friends of the Earth just installing three or four cost effective measures (eg loft and cavity wall insulation and ‘thermostatic valves’) falls far short of what could be considered a “whole house” approach that Government has said it wants to see (but has done little to facilitate) and would also fall short of the potential of EPCs to act as a tool to encourage the installation of less cost effective measures such as solid wall insulation which will be necessary if carbon emissions from the domestic housing sector are to be sufficiently reduced.

Stamp Duty rebate

A 2005 study by Simon Dresner and Paul Ekins recommends a Stamp Duty rebate as potentially an effective mechanism to encourage consumers to improve the energy efficiency of their homes.¹²⁴

A Stamp Duty rebate has some limitations as Dresner and Ekins point out in their study which means it will not work for all situations and other policies are required: it only works for owner occupiers (though this is 70% of the housing stock) and works through the housing stock relatively slowly. As it’s take-up is limited to those who purchase a property, the maximum number of people who could take-up this incentive would be about 1.3 million. The EST has calculated that a Stamp Duty rebate would take 10 years to impact on half of all households.¹²⁵

Given this it is crucial that a Stamp Duty rebate is engineered to incentivise large scale energy efficiency over-hauls of properties to a significant value. A minimum (as well as presumably maximum) threshold value for qualification for the rebate might be a way of encouraging purchasers to undertake more work.

¹²⁰ The EST report that 4 out of 10 people are aware of EPCs. EST National Attitude and Behaviour Tracker, 2 August 2007.

¹²¹ Changing Climate, changing behaviour: Delivering household energy saving through fiscal incentives, EST, July 2005.

¹²² For more on these barriers see Home Energy Report Seminar, The Energy Efficiency Partnership for Homes, 15th September 2005 and Energy Performance Certificate Supply Chain Research, The Energy Efficiency Partnership for Homes, May 2006.

¹²³ Regulatory Impact Assessment Energy Performance of Buildings Directive Articles 7–10, Department for Communities and Local Government, March 2007.

¹²⁴ Whole House Fiscal Measures to Encourage Consumers to Improve the Energy Efficiency of their Homes, Simon Dresner and Paul Ekins, Policy Studies Institute.

¹²⁵ Changing Climate, changing behaviour: Delivering household energy saving through fiscal incentives, EST, July 2005.

There are many questions that would need to be resolved. The rebate could be for the total cost of the installed measures or a percentage of the total. It could be made available only if a property was brought to its maximum performance by installing all of the measures on the EPC or any EPC recommended measures could qualify.

One 2005 study estimated that a Stamp Duty rebate capped at a maximum of £800 could be taken up by 450,000 householders and would cost the Treasury £350 million.¹²⁶

Opinion polling by IPOS-MORI (released on 1 October 2007) suggests that a Stamp Duty rebate would be a highly popular policy (59% support for a Stamp Duty or Council Tax rebate) which would provide a strong response relative to the value of the rebate¹²⁷.

The granting of a Stamp Duty rebate for Zero Carbon Homes has already introduced the public to the “greening” of this tax and shown that the Treasury is prepared to use it in innovative ways.

Council Tax rebate

The idea of a Council Tax rebate as an incentive for the most cost effective energy efficiency measures has received considerable attention since it was adopted in Braintree (in that case it was a £100 rebate for cavity wall insulation installation jointly funded by the local authority and British Gas). Friends of the Earth considers it to be an excellent policy and has called on the Treasury to provide local authorities with the funding to roll it out nationwide.¹²⁸

Because it can be accessed at any time (not just when a property is being sold) a Council Tax rebate can work through the existing housing stock much more rapidly than a Stamp Duty rebate and is ideally suited to incentivising the take-up of the cheapest, most cost effective and least disruptive measures.

While there are currently over eight million homes lacking Cavity Wall Insulation and six million without adequate loft insulation. An exclusive focus on these two measures would leave out the huge number of homes without a cavity wall or loft. However, alongside other instruments tackling whole house overhauls, because of the huge numbers of properties involved, the rapid payback times and large potential carbon savings it is worth dedicating a policy to these measures.

Friends of the Earth would like to see the Treasury centrally fund a national roll out of a policy of £100 rebates for homes either installing cavity wall or loft insulation.

Green mortgages

Even with a strong fiscal incentive from Government or an energy supplier many house holders will struggle to find the capital for the upfront costs of whole-house improvements or to act on all or most of their EPC recommendations. The first call on any savings will inevitably be the numerous other costs associated with buying a property and moving home.

Mechanisms allowing householders to borrow money at low rates of interest to finance whole house energy efficiency improvements need to be established.

Green mortgages—those that actually provide an incentive or finance to improve the environmental performance of the home—are few and far between. The Energy Efficiency Partnership for Homes (EEPH) has produced a definition of a green mortgage¹²⁹ :

- It encourages consumers to buy, or to work towards, a high energy performing home.
- It offers one or more defined financial incentive(s) linked to the home’s energy use.
- It encourages the consumer to access advice and support on domestic energy use prior to making improvements.
- It has defined qualifying criteria, based either on a minimum energy standard, or a commitment to make certain improvements to the home.

EEPH suggests that these qualifying criteria could be based on information in an EPC. Only three mortgage providers have products which meet these criteria: Norwich & Peterborough Building Society, the Ecology Building Society and the Cooperative Bank.

The fact that so far the market has failed to bring forward many products which reward homeowners for installing energy efficiency measures or help finance these improvements is disappointing. With the arrival of EPCs there will be a much greater focus on the energy efficiency of properties. This may encourage many more mortgage providers to offer genuinely “green mortgages” however it could lead to an explosion of products which use the green label but do not provide any additional incentive to improve a properties energy efficiency or help to finance such improvements. This could cause considerable confusion among consumers. If the situation continues Government should consider regulatory approaches to create such products and to ensure clarity in the market.

¹²⁶ Using Stamp Duty to bring about a Step Change in Household Energy Efficiency. Eoin Lees Energy, 2005.

¹²⁷ www.ipsos-mori.com/polls/2007/greenagenda.shtml

¹²⁸ After Stern: Towards a Climate Change Budget, Friends of the Earth, November 2006.

¹²⁹ What is a Green Mortgage? The Energy Efficiency Partnership for Homes Home Purchase and Finance Group, April 2007.

VAT on refurbishment

It is time to end the anomaly where new build housing is zero rated for VAT but refurbishment attracts the full rate of 17.5%. Friends of the Earth agrees with the Sustainable Development Commission that a reduction of the VAT rate on refurbishment to high environmental standards, of which energy efficiency is one part, is needed to eliminate a perverse incentive to demolish homes in existing communities. The SDC calculates that equalising the VAT on new build and refurbishment at 11–12% would be revenue neutral¹³⁰.

However EU law currently allows a lower 5% reduced rate of VAT to be applied to refurbishment. The Government should apply this rate and actively engage in negotiations at an EU level to allow a further reduction.

This move would compliment and reinforce a Stamp Duty rebate to provide a very strong incentive for homeowners to engage in whole house energy overhauls (going well beyond just the lowest cost measures) of a property before they move in.

VAT on DIY energy saving equipment, materials and their supply and installation

The 2002 Budget introduced a reduced rate of VAT for the installation of a number of energy saving measures (including energy efficiency and microgeneration measures). The cost to the Treasury is small at around £50 million¹³¹. However this currently excludes such basics as energy efficient light-bulbs because DIY energy saving products are not covered.

Again the Government's room to manoeuvre on VAT is limited by the EU VAT Directive.

We are pleased that at the Pre-Budget Report the Government committed itself to actively engaging in negotiations at an EU level so that VAT levels can be lowered further in the future on products and materials bought for DIY as well as professional installation. This will particularly benefit poorer families who may be unable to afford to have energy efficiency measures professionally installed.

Non-transactional EPCs

Friends of the Earth believes that the Government should introduce mechanisms to extend the use of EPCs beyond the moments demanded by the EPBD (selling and renting), to enable many more households to receive information on the environmental performance of their home.

One way to do this would be to require an EPC to be produced when a homeowner is applying for planning permission (the EPC would have to be submitted alongside the application for planning permission).

Another moment that could trigger the requirement of an EPC could be those who are not moving house but remortgaging within the same property

Mandatory action on EPC measures

Friends of the Earth believes that after an initial period of incentives (three to five years), and as information and practical barriers to action are being substantially reduced or eliminated it should be compulsory for the cheapest and most cost effective energy efficiency measures identified by an EPC to be taken up by homeowners and landlords. Clearly further analysis and consultation needs to happen to establish which measures should be mandatory and where the duty of obligation should fall (should it be the seller or buyer). However given the scale of the cuts in carbon emissions that are necessary from the domestic sector, the large numbers of homes that currently lack key cost effective measures (nine million homes without filled Cavity Walls) and the considerable carbon savings that would result, and the low cost and rapid payback from these measures (usually less than three years) this is both necessary and will not be burdensome. If non-transactional EPCs are included this would mean that within a few years it should be illegal to buy/sell, rent, refurbish/extend or remortgage a property without undertaking certain cost effective measures.

The Sustainable Development Commission's report on improving the domestic housing stock proposed a system of "consequential works" when a property is extended accompanied by a reduction in the rate of VAT for refurbishment¹³².

A local authority could require certain measures flagged up in the EPC to be carried out as a condition of granting planning permission (the EPC having been submitted with the application). This would be relatively easy to administer and would not have to be limited to only the basic measures.

Such a compulsory system requiring action on home energy inspections has been in place in San Francisco for many years.¹³³

¹³⁰ Stock Take: Delivering improvements in existing housing. Sustainable Development Commission 2006.

¹³¹ The UK Tax System and the Environment, Institute for Fiscal Studies, 2006.

¹³² Stock Take: Delivering improvements in existing housing. Sustainable Development Commission 2006.

¹³³ Climate Change Starts at Home, Chris Huhne MP and Andrew Stunnell MP, The Liberal Democrats, April 2007.

The private-rented sector accounts for 10% of the housing stock and contains a very high proportion of energy inefficient properties.¹³⁴ The 2004 Budget introduced a Landlord's Energy Saving Allowance covering capital expenditure of some forms on insulation (and extended in Budget 2006 to cover solid wall and hot water insulation). Budget 2007 extended the LESA to 2015 and allowed it to be applicable per property rather than by building. The take up the LESA is reported to be extremely low as many landlords are unaware of its existence¹³⁵.

These are welcome moves but still does not deal with the essential problem of split incentives between landlord and tenant. EPCs could help enormously by allowing prospective tenants to compare between properties. However further enforcement is needed. Friends of the Earth believes that landlords should have to a minimum standard for the energy performance of a property and that no property, regardless of its SAP should be able to be let if it lacks the most basic cost effective measures such as a hot water jacket, cavity wall insulation etc. The combination of this regulation, information (via the EPC) and the LESA tax incentive could make a powerful policy package.

Practical Barriers

Even with significant financial incentives there are significant practical barriers to householders taking action on the information in their EPC which could slow the pace of change in the housing stock. Even once the desire to take action has been established a homeowner still has to find a suitable contractor and commission the work.

Promotional materials from energy suppliers looking to carry out specific measures to meet their EEC obligations can help to target specific measures such as Cavity Wall Insulation but don't help homeowners wishes to carry out the sort of bespoke whole house overhaul that the government wants to encourage and is necessary.

The Mayor of London has suggested that a Green Concierge service would target the able to pay¹³⁶. The Green Party have suggested a network of "one stop shops"¹³⁷ The EST currently is able to support 49 local Energy Efficiency Advice Centres. If the UK is serious about tackling the carbon emissions from existing homes then there will need to be a massive increase in activity in the sector. If EPCs and financial incentives are work to maximum effect then government needs to ensure homeowners should find not find there are other barriers in their way.

Friends of the Earth does not currently have a view about the best way of overcoming the "hassle factor" but our focus on financial incentives does not mean that we do not consider this to be a considerable problem which will require considerable additional financial resources from government. We have characterised this as the need for government to make it both cheaper and easier for people to cut their carbon emissions.

A mechanism often proposed for overcoming both the practical and financial barriers would be the creation of Energy Service Companies (ESCOs). These companies would make money from delivering energy services rather than from selling electricity. The ESCO would make energy efficiency modifications to the property and perhaps install microgeneration on behalf of the householder who would then pay back the cost through their (now substantially reduced) energy bill over an extended period.

PART 2: BOOSTING MICROGENERATION

The Government, in its recent consultation on the Renewables Obligation (section 3.15) states that "in the long-term microgeneration can make a significant contribution in terms of carbon savings."

According to the DCLG Review of the Sustainability of Existing Buildings: "current existing [housing] stock conditions and with currently known technologies . . . a 60% reduction [in carbon emissions] would require the application of microgeneration technologies."

It is now clear that an 80% cut in UK carbon emissions is necessary if we are to have any chance of keeping global temperatures at less than 2°C above pre-industrial levels. This implies a far greater role for microgeneration technologies that goes beyond filling in the gaps that energy efficiency measures can't fill. A study commissioned from the then DTI from the EST study commissioned by the suggested that by 2050, microgeneration could provide 30–40% of the UK's electricity needs and help to reduce household carbon emissions by 15% per annum.¹³⁸

While energy efficiency measures usually offer a more cost effective means of reducing carbon emissions initially this is no reason to neglect the contribution microgeneration can make now. Many newer homes and certain other types of hard to treat properties have limited scope for reductions in carbon emissions from energy efficiency measures alone.

¹³⁴ Stock Take: Delivering improvements in existing housing. Sustainable Development Commission, 2006.

¹³⁵ Action Today to Protect Tomorrow: The Mayor's Climate Change Action Plan, Greater London Authority, February 2007.

¹³⁶ Action Today to Protect Tomorrow: The Mayor's Climate Change Action Plan, Greater London Authority, February 2007.

¹³⁷ Hothouses: Climate Change and London's housing, Jean Lambert MEP, 2006.

¹³⁸ <http://www.berr.gov.uk/files/file27578.pdf>

It would be a mistake to delay the extensive role-out of microgen to the existing housing stock until after the possible energy efficiency measures have been exhausted.

We believe the current policy framework for supporting the development of renewable energy in the UK is insufficient to meet the new EU wide goal of 20% renewable energy by 2020. Policies to expand microgeneration capacity are especially lacking.

The main policy mechanism the Low Carbon Buildings Programme has been so poorly handled and under-funded as to actually weaken the industry it is supposed to be developing. The existing fiscal incentives for homeowners—reduced VAT on microgen technologies and exempting earnings from microgen exports from income tax—might be useful add on's to a strong programme of grants and a feed in tariff but alone they are almost entirely insignificant. They are not predicted by the Treasury to have any significant impact on carbon emissions. The LCBP is predicted by the Treasury to save just 0.01 MtC per year by 2010.¹³⁹

Two recent developments could have an impact on the market for domestic microgeneration. The first is that energy suppliers will be able to gain credit for installing microgen measures as part of their CERT obligations.¹⁴⁰ The Regulatory Impact Assessment for CERT concludes that 121,000 microgen installations could result from CERT, accounting for 8.2% of the annual carbon savings.¹⁴¹

This will boost the market for microgen but obviously comes at the cost of more energy efficiency measures being installed (the assumption in the RIA that housing associations or local government will contribute to the cost for the 51,000 predicted Priority Group household installations seems optimistic given the lower level of cost effectiveness of most renewable technologies).

The second is that agents will be able to apply for ROCs on behalf of homeowners.¹⁴²

However the Government's recent Renewables Obligation consultation (section 3.15) states that "the Obligation was designed to support large scale deployment of renewables and we do not feel that it is the best way to deliver the incentives that the microgeneration industry require."

Friends of the Earth thinks that the RO is fundamentally flawed as a mechanism for delivering an increase in domestic microgeneration and that a premium feed-in tariff system such as that currently used in Germany would be a far more effective policy.

Feed-in tariff

In many European countries legislation to introduce a renewable energy feed-in tariff has proven a highly effective policy instrument for delivering a rapid increase in the uptake of a wide range of renewable technologies including microgeneration.

Feed-in tariffs are the primary support instrument for renewable energy throughout Europe, paying a guaranteed, premium, fixed price for renewable energy, with different price levels set for different technologies. As the future price of ROCs is unknown, plans to make ROCs more easily available to domestic generators will not give them the certainty necessary to invest in microgeneration technologies. Provided they are set sufficiently high a UK feed-in tariff would offer rapid paybacks times for domestic generators.¹⁴³

Moving to a feed-in tariff system for domestic microgeneration would revolutionise the market. Friends of the Earth believes that UK feed-in tariff would provide long term security to homeowners wishing to invest in microgeneration technologies with guaranteed rates of return.

The Government's recent Energy White Paper rejects a feed-in tariff. This is a mistake. In its response to the recent Renewables Obligation consultation, Ofgem states: "There is also increasing evidence that there are more efficient and effective policy tools which can be used to encourage renewables deployment. The European Commission compared the costs and associated effectiveness of "feed-in tariffs" to support renewables implemented in Europe with corresponding quote schemes, such as the RO. The analysis showed that the RO was the most expensive and least efficient method of support."

Ofgem goes on to recommend to government examine the case for a UK feed-in tariff.

Friends of the Earth believes a feed-in tariff designed to boost on-site, domestic, community and micro renewables could operate alongside a reformed, banded Renewables Obligation. Installations with a generating capacity above a certain threshold would be covered by the RO and below by a feed-in tariff. The threshold between support mechanisms would not have to be the same for all technologies. The feasibility of such a system has been established by Dr David Toke (Senior Lecturer in Environmental Policy at the University of Birmingham) in his submission to the recent Renewables Obligation¹⁴⁴.

¹³⁹ Budget 2007, HMT.

¹⁴⁰ Carbon Emissions Reduction Target April 2008 to March 2011: Consultation Proposals, DEFRA 2007.

¹⁴¹ Carbon Emissions Reduction Target April 2008 to March 2011: Consultation Proposals, DEFRA 2007.

¹⁴² Meeting the Energy Challenge (Energy White Paper), DTI, 2007.

¹⁴³ For example a 45p kWh feed-in tariff for domestic PV installations could mean that a £9000 3kW system generating 2500 kWh annually could pay back in eight years.

¹⁴⁴ Making the Renewable Programme Fitter, World Future Council, 2007.

Memorandum submitted by the Sustainable Development Commission

The Sustainable Development Commission (SDC) welcomes the opportunity to submit evidence to the Communities and Local Government Select Committee for its new inquiry on Existing Housing Stock and Climate Change.

The SDC is the Government's independent watchdog on sustainable development. The Commission reports directly to the Prime Minister and to the First Ministers of the Devolved Administrations. The SDC is an advisory Non Departmental Public Body. The SDC's remit is to advocate sustainable development across all sectors in the UK, particularly within Government (including the Devolved Administrations), review and report progress towards sustainable development, and build consensus on the actions needed if further progress is to be achieved. Our work is guided by the five principles of sustainable development, as outlined in "Securing the Future", the UK Government's sustainable development strategy.

The SDC considers the issue of existing housing and climate change to be central to the CLG's sustainable communities agenda. The Department for Communities and Local Government has a wide range of levers relating to carbon emissions of existing stock. 99% of the housing stock is already built, with less than 1% added per year. Carbon emissions from energy use in the home make up 27% of national emissions. The Government has accepted the need to reduce carbon emissions by at least 60% by 2050, and the Stern report noted the imperative to take action this decade.

The SDC considers that the Government should be more proactive in enabling and encouraging owner occupiers and landlords to significantly reduce carbon emissions in their homes (and other buildings). While the Energy Efficiency Commitment (EEC) has achieved improvements in domestic energy efficiency, emissions from households continue to rise. It is not clear whether sufficient policies are being put in place now for the Government to deliver on its target of reducing CO₂ emissions by at least 60% by 2050.

In our submission we include a package of our most up to date evidence on the case for a major policy focus on refurbishing existing homes and our recommendations for taking this forward.

STOCK TAKE

Our analysis of the context, opportunities, barriers and existing evidence on housing refurbishment was submitted to CLG in July 2006 in our Stock Take report (see Annex A). It considers the potential to improve efficiency of existing homes with regards to carbon, water, materials and waste. The study was commissioned in 2004 by ODPM to "provide advice on the policies, incentives and deterrents and on regulations that might be made under the Sustainable and Secure Buildings Act 2004 with particular regard to existing stock (the buildings themselves in their context). This will be done in the light of current policy and practice, and existing research (eg Warm Front, Decent Homes, Building Research Establishment, ODPM, and Housing Corporation)".

Our report recommended that the Government develop a holistic policy framework to tackle resource efficiency of existing housing. Central to this was the proposal for the development of a standard for low carbon, low water use refurbishment using low impact materials and minimising waste to landfill. We proposed that this standard be developed as a Code for Sustainable Existing Homes, and implemented across the stock tenures through a package of incentives and regulation. We proposed that this Code standard could be central to: the Energy Performance Certificate, linked to incentives; a new sustainable social homes standard (successor to the Decent Homes standard); a Green Landlords Scheme; and refurbishments within the Housing Market Renewal and other regeneration programmes.

We also recommended that the Government:

- Offset any increase in CO₂ emissions or water consumption in housing growth areas and growth points by matching this with a commensurate reduction in carbon emissions or water consumption in existing homes within the same region.
- Equalise VAT on refurbishment and new build to overcome the current distortion that encourages developers and home owners to demolish and replace homes instead of refurbishing existing buildings to high environmental standards.
- Use the enabling powers of the Sustainable and Secure Buildings Act 2004 to make sustainable development the driving force behind revised Building Regulations.
- Raise public awareness on all household resource efficiency issues.

The Stock Take contract with ODPM included a period of fruitful engagement with the Department and launched the high profile CLG/Defra/HMT/DTI Review of Sustainability of Existing Buildings towards the end of 2005. We look forward to positive outcomes from this review process.

Stock Take still forms the basis of the SDC's position and advice to Government on improving the resource efficiency of existing homes. But we continue to improve our evidence base through research and stakeholder engagement. Products of our recent work are also attached to this submission.

BARRIERS

The SDC has been working with the UK Green Building Council (UKGBC) and the Building Research Establishment (BRE) along with a group of stakeholders to identify the barriers to a “home carbon reduction revolution”. The key barriers to progress may be categorised as:

- Energy efficiency improvements are seen as low priority by owner occupiers and landlords: there is low awareness of energy consumption and its contribution to climate change, there are split incentives in rented property, the construction supply chain is fragmented and unreliable, grants and subsidies on offer are not clear, and occupants are not aware of the actions they need to take.
- Policy and fiscal barriers deter action: VAT is a disincentive to action, planning policy on energy efficiency improvements in conservation areas is unclear, and the initiatives available to owner occupiers and landlords are fragmented.
- Government currently gives low priority to raising environmental standards of existing homes compared with new build.

NOTE ON NEIGHBOURHOOD RENEWAL, HOUSING REPAIR AND EQUALISING VAT

A focus on existing homes and neighbourhoods would lead to a number of benefits, including better neighbourhood conditions and a bigger supply of affordable homes. As mentioned above, there are a number of barriers to improving the environmental performance of existing stock. This note sets out the arguments that for neighbourhood renewal to happen, barriers to maintaining and improving the existing stock should be removed and incentives improved.

CASE STUDIES

We have identified the need to demonstrate the extent to which emissions reductions are possible across the varied UK housing stock from pre-1919 terraces to 1960’s tower blocks. Our case studies demonstrate that all housing types can have their emissions cut by about 60% using conventional technologies alone.

The case studies do show however that significant intervention is required with a total overhaul of the thermal performance of the entire building envelope and upgrading of all heating and electrical systems to maximise efficiency, as well as installation of microgeneration. Almost all these case studies incorporate significant refurbishment as well as energy efficiency works. All homes presented here have benefited from improved indoor environments, living conditions and drastically reduced utility bills. Many are occupied by “pioneers” in this field who have reduced emissions yet further through pro-environmental behaviour.

There is a need for more case studies to raise awareness of the potential to transform existing “leaky” homes to exemplar low carbon homes, and the materials and techniques required. The efforts of the Sustainable Energy Academy¹⁴⁵ to encourage and promote a network of up to 1000 exemplar homes around the UK are very positive in this regard.

These case studies should demonstrate to the Committee the “art of the possible”—that the UK is not limited by the types of buildings it has but by the current lack of programmes to implement the necessary changes. We would urge the committee to visit some of these case studies, for example 78 Carshalton Grove, Sutton.

COMMUNITY HEATING

In 2007 the SDC has undertaken research to establish the opportunity to improve the carbon efficiency of multiple existing homes at a neighbourhood scale. Our research has focused on the opportunities for and barriers to retrofitting low carbon community heating systems to existing homes in existing communities. It suggests that low carbon community heating systems using combined heat and power (CHP) are an important tool in reducing carbon emissions from our existing housing stock.

We have found that at least 5.5 million of the UK’s homes could benefit from community heating with CHP with the potential to reduce carbon emissions by up to 5Mt per year at a capital cost of around £30 billion. Priority homes for this technology are existing flats and older urban terraced homes. Community heating can be particularly useful in “hard to treat” homes, and those which are in conservation areas. Although community heating schemes may initially be fuelled by natural gas, such schemes would be relatively easy to convert to zero carbon fuels, such as biomass or hydrogen, in the future.

Significant intervention would be required by a number of public sector policy makers and private sector players to deliver this scale of low carbon community heating as the capital costs are very high. The SDC proposes that non-domestic public sector buildings should be used as “anchor loads” to create an initial viable community heating network at low risk to investors, which can then be extended to existing homes.

¹⁴⁵ www.sustainable-energyacademy.org.uk

INTERNATIONAL DOMESTIC CARBON REDUCTION PROGRAMMES

There is a lot of interest currently in the innovative German CO₂ Building Rehabilitation Programme, which aims to bring all pre-1984 dwellings up to the current German new-build energy standard over 20 years through a system of loans, grants and tax incentives. We include a summary of this programme and lessons that may be learnt for the UK for the Committee's information.

Energy efficiency and CO₂ emissions reductions measures in existing housing are also increasingly considered as a major way of meeting France's Factor 4 target that aims at reducing CO₂ emissions by 75% by 2050. We present a summary of the most recent programmes and evolutions on this issue, including a brief note on the current *Grenelle de l'Environnement* campaign and summit, for the Committee's information.

FORESIGHT PAPER

The SDC has been asked to submit a paper to the Government's Foresight Sustainable Energy Management in the Built Environment (SEMBE) project, reviewing the state of science on the role of demolition in improving the environmental performance of existing stock compared with renovation. Our paper will be forwarded when completed for the Committee's information.

INQUIRY QUESTIONS

(i) *The significance of existing housing compared to new build and the different levels of performance each display*

Existing homes will comprise the vast majority of homes far into the future and the majority of these are not of a high environmental or energy efficiency standard but could and should be brought up to that standard. Existing homes are almost all located within existing communities which, without constant regeneration are liable to decay into run-down areas that can lead to unsustainable social and economic problems. Decaying town centres mean residents seek homes out of town and developers respond to that demand.

Homes already built account for 99% of our total housing stock. Estimates vary of the proportion these will represent in 2050, but a conservative estimate is that 86% of the current stock will still be in use in 2050, making up two thirds of the total stock (depending on the rate of demolition of existing homes, and building of new homes). The SDC strongly favours programmes for improving the resource efficiency of existing homes, rather than seeing widespread demolition and new build as the more appropriate option. If the existing stock can be made more efficient at a more reasonable cost we can realise many environmental and social gains.

There is a wealth of data available about the performance of the English housing stock within the CLG's English House Condition Survey, as well as models of the housing stock developed by BRE and Oxford University's Environmental Change Institute. There is insufficient in-use performance monitoring of refurbished homes or new homes, which would be useful to improve the accuracy of these models. These models show that the average energy efficiency of existing homes is low, and their related carbon emissions are high. But that there is still significant potential to improve their performance.

The English House Condition Survey¹⁴⁶ (EHCS) 2005 report finds that social sector housing is more likely to have effective insulation than privately-owned housing. The average SAP rating of both owner occupied and private rented homes is 46, while local authority owned homes have an average SAP of 55, and Registered Social Landlord homes have an average SAP of 59.

The Case Studies included within this submission demonstrate the improvement in performance that may be achieved in existing homes, which we recommend are replicated across the stock.

(ii) *The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency*

In our advice to Government on existing stock in 2006 ("Stock Take"), we outlined the roles each of these players should take to promote and deliver carbon reductions across the housing stock. At present, the Government is still without an overall strategy for decarbonising the existing housing stock, whilst delivering sustainable communities—the SDC considers this to be a key priority.

Owner occupied housing remains the particular challenge for delivering carbon emissions reductions. This makes up around 70% of the housing stock. We recommend that the Government engage with home owners to co-develop an approach to policies for reducing carbon emissions from existing homes.

¹⁴⁶ <http://www.communities.gov.uk/documents/housing/pdf/321566>

Public awareness of the need to take action in their own homes is alarmingly low. A recent report¹⁴⁷ shows that:

- The public consider the local community and themselves as individuals to be minor actors—only 4% perceive they have a large influence to combat climate change, while 33% feel they have none. There is also a mismatch between the size of the problem relative to the actions the public are encouraged to take. Communications often play straight into this disconnect, focusing on the minutiae and steering away from big actions.
- A sense of collective action is fundamental, particularly in view of concerns over fairness and the potential for “free riders” to take advantage of individual sacrifices. Indeed, 54% say that they would do more if others did as well.
- 40% identify recycling as the action they believe would be most effective in reducing climate change; 34% say developing cleaner engines for cars; 11% flying on holiday less; 4% conserving water. No significant percentage of people recognises that improving the thermal performance of their home would lead to major emissions reductions.

It is vital that central and local Government communicates to the public the importance of carbon emissions that come from existing homes, and develops a holistic policy framework to encourage and enable people to take action. For example, all homes will need to undergo significant refurbishment over the next 50 years, either through a major refit or gradual improvements. The Government should make sure that it can capitalise on this opportunity to make homes carbon efficient at the same time.

The Government has recently outlined an ambitious timetable for the decarbonisation of new homes, but there is no parallel strategy for existing homes. Without this clear indication of policy direction, the respective roles of occupants, owners, private sector and government are not clear.

Central Government has a role in supporting research and innovation. For example, the SDC welcomes the Technology Strategy Board’s interest in supporting research into solid wall insulation. Although we have gathered together a series of case studies for this submission, there is a national shortage of exemplar demonstrations of low carbon refurbishments, and the SDC recommends that the Government should fund a series of high profile demonstrations, through the Housing Corporation and local authorities. Monitoring of actual in use performance of refurbished homes is vital to learn how measures work and how occupants interact with technologies installed. Social housing is a useful demonstrator, and can be used as a tool by the public sector to lead by example and develop supply chains for installers and products.

Local Government has a role in facilitating area-based carbon reduction projects such as group refurbishments and community heating projects. The public attitude evidence above suggests that there is untapped opportunity in collective action, which local authorities are well placed to encourage.

(iii) *Energy performance certificates*

The SDC welcomes the introduction of Energy Performance Certificates (EPC), which have the potential to enable significant action in reducing household carbon emissions. The EPCs currently provide householders with advice that leads to some support for improvements, however, without much clearer incentives and/or regulation to encourage action, EPCs will deliver little improvements on their own. The SDC welcomes the inclusion of recommendations on way to improve the home’s energy efficiency in the EPC.

Anecdotal evidence suggests that the data collection that under pins the EPC may need modification as it does not take into account insulation retrofitted to solid walls or floors.

The SDC recommends that the scope of EPCs be widened to cover wider sustainability considerations including water efficiency in due course.

(iv) *The provision of information for households and prospective house buyers, including energy performance certificates*

Evidence suggests that house buyers are interested in the sustainability performance of homes.¹⁴⁸ The introduction of EPCs will improved the information available to prospective house buyers.

However, the information included in the EPCs on recommended improvements only includes cost effective improvements, which will not generally reduce average household carbon emissions by 60%. This will not give households a clear message on the scale of improvement required. There is not currently

¹⁴⁷ Ipsos MORI, 2007, Tipping point or turning point? Social marketing and climate change. By Phil Downing and Joe Ballantyne. Accessed from: <http://www.ipsos-mori.com/publications/srreports/pdf/turning-point-or-tipping-point.pdf>

¹⁴⁸ WWF survey: http://www.wwf.org.uk/news/n_0000001276.asp; and Sponge, 2006, Eco Chic or Eco Geek? The Desirability of Sustainable Homes. Accessed from: <http://www.spongenet.org/library/Eco%20Chic%20Or%20Eco%20Geek%20Exec%20Summ.pdf>

sufficient support for installation of solid wall insulation, secondary or double glazing and floor insulation for owner occupied households. This lack of support may give a poor impression to the public as EPCs get rolled out more widely.

CLG ministers appear to be eager to provide more support to households to take action on improving their homes, but as yet no new policies or initiatives have emerged to support recent announcements.¹⁴⁹

(v) Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

There is huge potential in encouraging the private sector to deliver carbon reductions in existing homes, particularly energy companies and financial institutions. The current Government obligation on energy suppliers, the Energy Efficiency Commitment, has been successful in delivering high numbers of cost effective measures such as cavity wall insulation, energy efficient light bulbs and A-rated appliances (such as fridges).

This model is however unproven for delivering major interventions on the scale seen in the Case Studies above. The future stages of this policy, through the Carbon Emissions Reduction Target and potential Supplier Obligation programmes will be key to delivering carbon emissions reductions in the existing housing stock.

The Decent Homes policy has helped to improve the energy efficiency of existing homes and has levered in a significant amount of Energy Efficiency Commitment activity. But the Decent Homes policy was not designed to make significant progress in this area, and any future standard for social housing and vulnerable occupants should have a much greater focus on improving resource efficiency as well as ensuring homes can cope with a changing climate without jeopardising the health, safety and wellbeing of occupants.

(vi) The technologies available to reduce emissions and the Government's role in facilitating relevant further technological development

The range of measures that are regularly installed through the Energy Efficiency Commitment are well analysed and readily available to consumers.

However, some of the technologies that will be needed to achieve the 60% or greater cut in carbon emissions need further development. Dealing with "hard to treat" homes which are off the gas network, have solid walls, and lack under floor insulation must become a priority. The SDC is particularly interested in the Government's role in supporting innovation and implementation of solid wall insulation, microgeneration and community heating. The SDC welcomes the Technology Strategy Board's interest in supporting research into solid wall insulation.

(vii) The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty

The costs associated with "cost effective" energy efficiency measures such as those installed through the Energy Efficiency Commitment are well known. There is financial support from energy companies to home owners and landlords to install these measures as an incentive to catalyse action. Energy companies are encountering increased transaction costs in recruiting households for the programme and in installing measures.

The cost of reducing carbon emissions from an average home by at least 60% are not so well known. Practitioners¹⁵⁰ suggest the cost of installing all the necessary measures could be in the region of £25–30,000 per home. If all these measures should have been installed by 2050, it is potentially more cost effective to install multiple measures in each home at one time, to avoid repeated transaction costs of recruiting households.

The CLG interim report¹⁵¹ suggests that the focus should be on cost effective measures with a simple payback within 5 years. The SDC would argue that priority measures should not be determined by this means, but by the measures that are needed to achieve the desired goals: carbon reduction by at least 60% by 2050 and affordable warmth in healthy homes.

Fuel poverty is most prevalent in solid walled and off-gas properties. This suggests that solid wall insulation with community heating in towns or renewable technologies in rural communities have the potential to significantly reduce this problem and should be made priorities for action.

¹⁴⁹ <http://www.communities.gov.uk/news/corporate/409655>; and <http://www.communities.gov.uk/news/corporate/ministerpledgesupport>

¹⁵⁰ http://www.innovationsforthebuiltenvironment.co.uk/files/paul_ruysevelt_eb_conf_e1_27.2.07.pdf

¹⁵¹ CLG, 2006, Review of Sustainability of Existing Buildings The Energy Efficiency of Dwellings—Initial Analysis. <http://www.communities.gov.uk/documents/planningandbuilding/pdf/154500>

(viii) *The specific challenges which may arise in relation to housing of special architectural or historical interest*

Housing of special architectural or historical interest presents a key challenge. Bodies with an interest in buildings with special architectural and historical characteristics will need to be fully engaged in the process of developing policies with regard to improving resource efficiency of existing homes. English Heritage, the Government's statutory advisor on the historic environment, is beginning to proactively develop evidence and guidance on enhancing energy efficiency whilst preserving historic character.

The SDC has identified several case studies where the homes had historical features and tried to meet carbon reduction and heritage conservation goals. The shortage of clear guidance on the acceptable ways to upgrade homes that are listed or in conservation areas is likely to limit homeowners from taking action.

Measures which do not compromise the heritage aspects of a building, such as connection to a community energy system, should be prioritised for conservation areas.

The SDC wishes the Committee well with the inquiry and would be keen to give oral evidence as the inquiry proceeds.

ATTACHED: (not printed)

Annex A: SDC Report: Stock Take: Delivering improvements in existing housing.

Annex B: Notes on Neighbourhood Renewal, Housing Repair and Equalising VAT.

Annex C: Case studies of exemplar existing housing refurbishment.

Annex D: Community Heating CHP for Existing Housing.

Annex E: International domestic carbon reduction programmes.

GERMAN RESIDENTIAL HOUSING ENERGY REDUCTION PROGRAMMES

There are approximately 17.3 million residential buildings, plus around 1.5 million non-residential ones (ie office buildings, schools, hospitals, administration buildings . . .) in Germany. Thanks to the generally sound fabric structure of the buildings, as well as broader social and environmental concerns, the debate that was held over the existing housing stock in Germany did generally not consider the demolition option and focused instead on refurbishment opportunities.

Hence, existing buildings will deliberately constitute the overwhelming majority of the housing stock for several decades and they have been clearly identified and presented by the country's policy makers as a tremendous potential for CO₂ emissions reductions.

Challenging domestic programmes have been launched and extended for several years now, powerfully promoting energy-efficient refurbishments and delivering considerable CO₂ emissions cuts.

As we believe that much could be learnt from those experiences if the Government's 2050 target of a 60% reduction of carbon emissions on existing levels is to be achieved, we are presenting here the summaries of two major programmes currently running in Germany and whose implementation has been extended on the basis of their monitored successes:

The CO₂ Building Rehabilitation Programme of the Kreditanstalt für Wiederaufbau

The KfW CO₂ Building Rehabilitation Programme (*CO₂ Gebäudesanierung programme*) is an increasingly looked up programme which feeds on previous similar programmes achievements and aims to bring all pre-1984 dwellings up to the current German new build energy standard over 20 years through a system of comprehensive low-interest loans and grants for home-owners.

16/08/07 meeting with Mark Schroeder, Bartlett School of Graduate Studies, UCL

Mark Schroeder, is a PhD student at the Bartlett School of Graduate Studies, UCL, who currently researches the lessons UK housing and energy policies could draw from this successful KfW CO₂ Building Rehabilitation Programme. His research outline is briefly outlined in this note.

The Low-Energy Standard for Existing Buildings programme of the DENA

The Low-Energy Standard for Existing Buildings Programme of the German Energy Agency (Deutsche Energie-Agentur GmbH, DENA) is an ambitious demonstration programme launched in 2003 and expanded in 2005 that is refurbishing 2,230 housing units of all types throughout all Germany's Lander (regional states) up to the German Low-Energy House standard of 60 kWh/m²/a of primary energy requirement.

THE CO₂ BUILDING REHABILITATION PROGRAMME (*CO₂ Gebäudesanierung programme*) :*Policy:*

In order to tackle the challenge of climate change and to meet its CO₂ emissions reduction commitments, the German government has decided in 2006 to extend a very effective programme designed in the late 1990's: the KfW CO₂ Building Rehabilitation programme. Its goal is to improve existing residential sector energy efficiency by, over the next coming decades, upgrading up to contemporary energy efficiency standards all pre 1984 homes.

Target:

Energy conservation in the building sector has become one of the Federal Government's housing and building policy priorities of the current parliamentary term.

The extended CO₂ Building Rehabilitation¹⁵² programme is to provide a major impetus to this process. The scope and ambition of this strategic programme are thus considerable: around 1 billion euros per annum are to be allocated to this new 20-year programme concluding in 2025, the intention being that 5% of housing would be refurbished at top level standards each year.

The three major outcomes expected from the programme are:

- The extensive refurbishment of the existing stock
- The climate protection
- The creation and securing of jobs in the construction sector.

(i) Who: the programme and its audience:

Through the Kreditanstalt für Wiederaufbau (KfW)—the German government-funded development bank that was created after the Second World War to support reconstruction projects in East Germany—the Federal Ministry of Transport, Building and Urban affairs¹⁵³ provides significant financial help and incentives for households' large scale energy-saving refurbishment projects.

The programme has been set to address a maximum of households: everyone undertaking rehabilitation of owner-occupied or rental buildings is eligible to apply for a loan from the programme:

- private individuals,
- housing associations, companies, operators of residential establishments
- local authorities, municipal associations
- other bodies and institutions incorporated under public law

(ii) What: Standard levels or packages, the programme's two categories:

The programme aims at advancing extensive energy efficiency measures in residential buildings used as primary residences. It provides for two options:

"Category A": Up to new build standards, and even 30% better

The funding provided in this category encourages refurbishments that are designed to achieve the efficiency standards fixed under the Energy Saving Ordinance (Energieeinsparverordnung-EnEV, 2004) for new buildings, or even surpass them. The average target is a cut of 40kg CO₂/m²/a in the house's baseline emissions.

When the application is submitted, it must be accompanied by confirmation by an expert that the purpose of the refurbishment is to reach this level. This expert must be an authorized energy consultant, close in function to British Home Inspectors. Once the work has been carried out, the expert has to confirm that it had followed the agreed plans for the funding not to be reclaimed by KfW.

This category A concerns buildings completed before 1st January 1984 only.

¹⁵² http://www.kfw-foerderbank.de/EN_Home/Housing_Construction/KfWCO2Buil.jsp

¹⁵³ Bundesministerium für Verkehr, Bau und Stadtentwicklung (www.bmvbs.de)

“Category B”: Packages of measures

In this option, the funding is provided to various packages of technical interventions where CO₂ emissions reduction has proven the most effective over the last years. The main condition is that buildings must have been completed before 1 January 1995.

Packages 0 to 3 are assumed to automatically fulfil the requirement of a 40kg of CO₂/m²/a reduction. Its implementation does not require an expert's presence, but all its individual measures must be conducted completely on the entire building:

Package 0:

- Thermal insulation of the external wall
- Thermal insulation of the roof or the ceiling of the top floor
- Thermal insulation of the basement ceiling, of heated rooms with external walls that have contact with the ground
- Replacement of the windows

Package 1:

- Thermal insulation of the external wall
- Thermal insulation of the roof or the ceiling of the top floor
- Replacement of the heating system

Package 2:

- Thermal insulation of the roof or the ceiling of the top floor
- Replacement of the heating system
- Replacement of the windows
- Thermal insulation of the basement ceiling, of heated rooms with external walls that have contact with the ground or of walls between heated and unheated rooms

Package 3:

- Thermal insulation of the external walls
- Replacement of the heating system
- Replacement of the windows

Package 4 needs an expert intervention as it has to contain at least three measures recommended by an expert from the following list:

Package 4:

- Thermal insulation of the external walls
- Thermal insulation of the roof or the ceiling of the top floor
- Thermal insulation of the basement ceiling, of heated rooms with exterior walls that have contact with the ground or of walls between heated and unheated rooms
- Replacement of the windows
- Replacement of the heating system
- Installation of a ventilation system

With this package, deviations from the scope of work are allowed but have to be confirmed by an expert after the work has been conducted. The house owners can only contract experts and energy consultants eligible within the framework of the programme, ie who have been authorized by the state or federal law.

The loans are granted on condition that the measures are carried out by professional teams and that relevant invoices specifying the labour costs are presented to the bank.

(iii) *How: Funding opportunities, the loan and the grant variants:*

The programme mainly has two variants¹⁵⁴: the loan variant and the more recent grant variant.

The loan variant:

A subsidized low-interest rate loan up to 50,000 euros per housing unit: Based on previous experiences, loans have been proven more cost-efficient than subsidies and have been chosen as the major incentive for the programme.

If households having applied for the programme are willing to take out a loan to finance energy efficiency measures, the federal funding is provided to ensure them a long-term loan at a considerably reduced interest rate (between 0 and 2.5%) that remains fixed for the first ten years and with the option of no-repayment for the first three years¹⁵⁵. This allows homeowners to better plan for their future expenses.

Where necessary 100% of the total sustainable refurbishment investment, including ancillary costs, can be provided by the programme's financial assistance. The maximum amount that can be allocated per housing unit is 50,000 euros or 250 euro/m² floor area.

Early repayments, including in instalments, is possible at any time, and the programme's funding can be combined with other programmes and public funding schemes.

A potentially significant repayment bonus for Category A refurbishments: If the refurbishment conducted within the programme to modernize an old building brings it up to the new building energy performance standards (a reduction of 40 kg of CO₂ per m² of living space), 5% of the loan amount does not have to be repaid by the homeowners.

If the energy performance of the refurbished building is more than 30% better than that of a new building according to the EnEV standards, then this repayment bonus increases to 12.5% of the loan amount.

Application process: In this variant, private homeowners have to submit applications to their bank, which then is their intermediary with the KfW, whereas local authorities and the companies owned by them can apply for a direct loan from the KfW.

The grant variant:

From the 1st January 2007, individuals homeowners of single or two-family houses or private apartments in home ownership associations who do not want to take out a loan may apply for the grant variant.

As in the loan variant of the CO₂ Buildings Rehabilitation programme, financial support is provided to measures aimed at bringing energy efficiency of the refurbished homes up to the standard levels for new buildings under the latest Energy Saving Ordinance, to achieve energy performance that is at least 30% better than those levels, or for the implementation of packages 0, 1, 2, 3, or 4.

The amount of the grant depends on the planned category and amounts to 17.5%, 10% or 5%, and it cannot be combined with either the loan variant of the same programme or any funding of the KfW Modernizing Housing programme.

Application process: In this variant, applications have to be submitted by owners directly to the KfW.

(iv) *Evaluation:*

Extensive refurbishment:

According to an evaluation of the KfW CO₂ Reduction and CO₂ Building Rehabilitation programmes in the period 1996–2004, conducted in the framework of the AID-EE project¹⁵⁶ (Active Implementation of the European Directive on Energy Efficiency), approximately 881,000 dwellings have been refurbished within the two programmes' frameworks in the period 1996–2004¹⁵⁷. Among those, 196,000 underwent comprehensive refurbishment measures through the CO₂ Building Rehabilitation programme.

¹⁵⁴ <http://www.bmvbs.de/en/artikel-,1872.983302/The-programme-to-reduce-CO2-em.htm>

¹⁵⁵ so called "redemption-free grace years"

¹⁵⁶ <http://www.aid-ee.org>

¹⁵⁷ Korytarova K., "Evaluation of KfW soft loans for building modernisation", May 2006, AID-EE Project, <http://www.aid-ee.org/documents/000003KfWbuildingprogramme-Germany.pdf>

The CO₂ Reduction loans, of on average €100/m², were used to finance isolated measures while the CO₂ Building Rehabilitation ones, of around €248/m², were used to fund combinations of technical interventions. The average loan per dwelling was of €8,317 for CO₂ reduction programme, and €20,643 for the CO₂ Building Rehabilitation programme.

The preferential interest rates of those loans were 50% lower than the average commercial interest rates of the time.

Climate protection:

The two examined KfW incentive programmes brought in the period 1996–2004 an overall reduction of 2.9 million tons of CO₂ emissions¹⁵⁸. The equivalent gross amount of energy savings is 45PJ over the period.

Taking into account potential free riders who would have had refurbished their home even if the programmes had not supported them, the net contribution of the two programmes over the 1996–2004 period is evaluated at a 2.1 Mt reduction of CO₂ emissions for an estimated proportion of 30% free riders.

Although this is less than what was initially projected by the National Climate Protection Plan 2000 (the NCPP 2000 estimated a 5–7 Mt of CO₂ emissions³ reduction), it is close to the 2004 re-evaluated estimates calculated by Prognos IER¹⁵⁹.

Creation of jobs:

According to the Aid-EE evaluation report, the two programmes secured 96,000 jobs in the construction sector in 2003¹⁶⁰. This sector was an important one during the post-war reconstruction period and, despite the difficulties and high unemployment rates it has known for several years now, it remains a major employer in Germany.

(v) *Information and advice:*

The Federal Ministry of Transport, Buildings and Urban Affairs launched in parallel a vast information campaign called “Buildings refurbishment: Ensuring now the energy of tomorrow”.

A website (www.energie-fuer-morgen.de) has been especially created to provide details on the implementation and outcomes of the CO₂ Building rehabilitation programme. A couple of meters show in real time the actual impact of the programme by displaying the amount of loans and grants that have been allocated and the CO₂ emissions reductions that have been achieved so far.

The KfW also provides advice to the homeowners who might be interested in the programme through its Infocenter, its Berlin, Bonn and Frankfurt Advisory Centres, and at some trade fairs¹⁶¹.

(vi) *The programme’s extension to other buildings: social investment and energy efficiency improvement:*

Encouraged by the success of the CO₂ Building Rehabilitation programme, the German government has decided in January 2007 to open a similar funding opportunity for the energy efficient refurbishment of non-profit organisations, local authorities and associations of local authorities’ buildings that had been completed before January the 1st 1990.

Those structures can now apply for KfW financial help to support energy efficiency measures in schools, adjacent gymnasiums, day-care centres for children and buildings owned by non-profit organisations that are used all-year-round.

Like the former programme, assistance is allocated on condition that the implemented measures either bring these buildings up to the requirements of the Energy Saving Ordinance for new-build developments

¹⁵⁸ Kleeman M. and R. Heckler, “Klimaschutz und Beschäftigung durch das KfW-Programm zur CO₂-Minderung und das KfW-CO₂-Gebäudesanierungsprogramm. Evaluierung im Auftrag der Kreditanstalt für Wiederaufbau”, 2004, Forschungszentrum Jülich, STE

¹⁵⁹ Prognos AG, IER: Analyse der Wirksamkeit von CO₂-Minderungsmaßnahmen im Energiebereich und ihre Weiterentwicklung. Study on behalf the Federal Ministry of Economics and Labour. Basel, August 2004.

¹⁶⁰ Korytarova K., “Evaluation of KfW soft loans for building modernisation”, May 2006, AID-EE Project, <http://www.aid-ee.org/documents/000003KfWbuildingprogramme-Germany.pdf>

¹⁶¹ <http://www.kfw-foerderbank.de/EN/Home/Advice/index.jsp>

or form a package including interventions on insulation, the renewal of windows, heating or lighting systems, and the improvement or installation of ventilation and air conditioning system.

The funding share of the KfW can represent between 70 and 100% of the eligible investment costs.

MARK SCHROEDER¹⁶², RESEARCH STUDENT AT THE BARTLETT SCHOOL OF GRADUATE STUDIES, UNIVERSITY COLLEGE OF LONDON, MEETING OF 16/08/07:

(i) *The scope of the research:*

The research's structure:

After a review of the similar role played by the existing housing stock in nationwide energy consumption¹⁶³ and CO₂ emissions in Germany and in the UK, as well as of the evolution of domestic legislations that regulate the environmental impact of existing and new housing developments in both countries, Mark Schroeder's research project focuses especially on this KfW CO₂ Building Rehabilitation programme and, to a lesser extent, on the Swiss and Austrian PassivHaus concepts.

It finally aims at applying its findings to the UK building stock in order to investigate how the UK regulations and incentives framework could benefit from the German experience.

Partners, fieldworks and database:

In order to evaluate the success of this specific KfW programme on the basis of field data, he is collaborating with a German housing association, the Wankendorfer Baugenossenschaft, which owns and manages around 13 500 dwellings in the Schleswig-Holstein Land (North Germany). He also benefited from the support of ProKlima- Der Enercity Fonds, a German trust specific to the Hanover region that funds research on climate change mitigation technologies such as the PassivHaus components.

Detailed information, like the scope and cost of technical interventions as well as utility bills pre and post refurbishment, based on a large sample of around 3,200 refurbished dwellings, have been provided by the housing association. The impact of the refurbishment has been further monitored by fieldwork on 99 dwellings -half of them refurbished, the other half being nearly identical building kept in their original condition- using data loggers and purposely installed heat meters.

The data analysis is then to allow an assessment of the programme effectiveness (Has it been properly implemented?) and efficiency (Has it delivered the expected energy savings and carbon cuttings?), in both its energy policy and technical interventions aspects.

The last step of the research will be to apply those findings to the UK building stock by using a carbon emissions model like Johnson's, and sort out what necessary incentives, sanctions and interventions could be inspired by the German experience for the existing UK building stock.

(ii) *Some findings:*

The Wankendorfer Housing Association's dwellings that had benefited from the programme reduced their CO₂ emissions by an average 60%. Mark suggested to visit those dwellings to learn in detail about the KfW programme.

There is a small gap between the projected savings and the measured ones: apparently, while the buildings built before the 1970's achieve more than what the projections had predicted, the buildings built after this decade tend to achieve less than the expected result.

Housing associations compete on having a modernised stock: rehabilitated dwellings that have good energy performances are supposedly valued by the market.

Whereas in Britain 70% of the homes are actually owner-occupied, with a 7 year average turn over, this proportion gets down to 35% only in Germany. In other words, the ownership is more concentrated, with a lower rate of turn over, hence proprietors may have more incentives to refurbish their homes. In any case, the reduced-interest loans given by the KfW under the CO₂ Building Rehabilitation programme are beneficial for the potential buyer of homes having such loan attached to it as its rates are far lower than the average mortgage ones.

¹⁶² Mark Schroeder has had a mixed-training in architecture and engineering. Interested in buildings and energy efficiency, he has undertaken a PhD research in the field of sustainable refurbishment, benefiting from his German background to study the potential inspiration UK housing policies could draw from the successful KfW CO₂ Building Rehabilitation Programme. His research is based both on fieldworks and ground data monitoring and analysis. Contact: M.Schroeder@ucl.ac.uk

¹⁶³ according to him, 230 KWh/m² per year in the UK and 217 in Germany

THE “LOW-ENERGY STANDARDS FOR EXISTING BUILDINGS”/“EXISTING LOW-ENERGY HOUSES” PROGRAMME (LESEB):

i. *The LESEB programme:*

The Low-Energy House standard: In Germany, the Energy Savings Ordinance (EnEV) has created a Low-Energy House standard for buildings whose primary energy requirements do not exceed 60 kWh/m²/a¹⁶⁴. The label can be obtained by new built or refurbished properties and accounts for around 30 to 50% less than the statutory EnEV requirements for new buildings.

DENA’s LESEB programme : As part of its Zukunft Haus umbrella campaign, the German Energy Agency (Deutsche Energie-Agentur GmbH, DENA) conducted a “Low-Energy Standards for Existing Buildings” programme that aimed at producing exemplar sustainable refurbishments that abide to those Low-Energy Standards. Priority was given to:

- the reduction of energy needs,
- the improvement of efficient energy conversion,
- and the integration of microgeneration fittings.

The measures implemented include the following:

- innovative building insulation,
- avoidance of thermal bridges,
- triple glazing,
- high-efficiency heating systems,
- implementation of ventilation technology and heat recovery, and
- implementation of microgeneration.

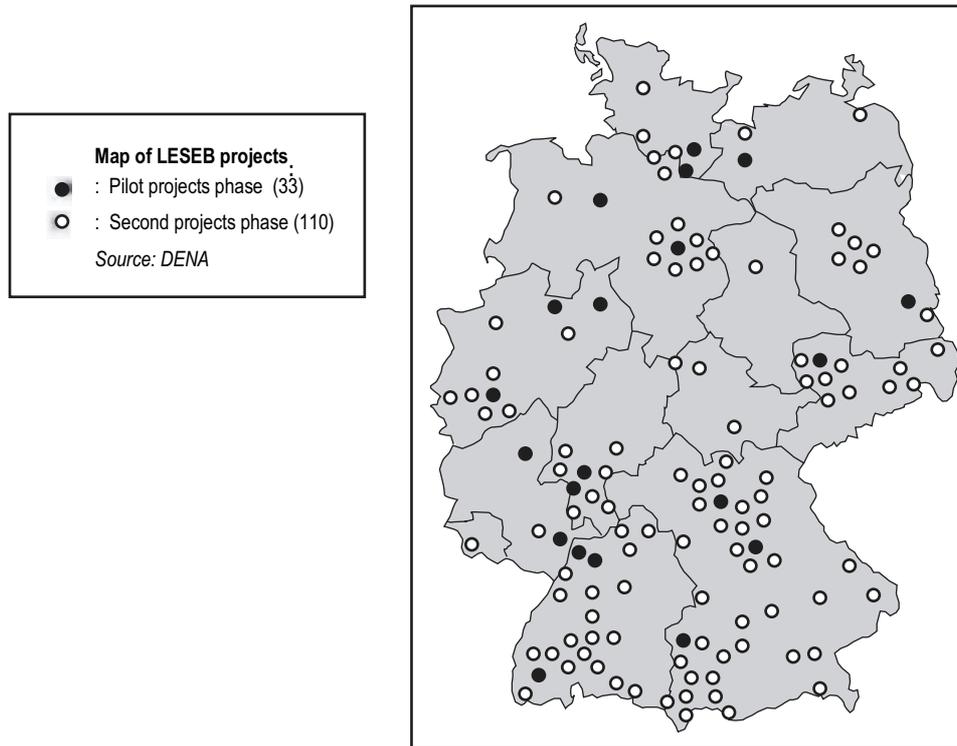
LESEB objectives and partners: The main objectives of the programme were to use monitored and replicable best-practice projects to:

- invite emulation through tested, adaptable and economically feasible refurbishment recommendations,
- encourage the emerging market of energy-saving technologies for refurbishment,
- and initiate regional competence networks in sustainable refurbishment,

At least one refurbishment is being implemented in each state (Land), some of them hosting more initiatives than others. The refurbishment projects were accompanied by extensive public education campaigns and public relations.

¹⁶⁴ <http://www.bmvbs.de/en/Building/Climate-change-and-energy-effi-,2832/Existing-Low-Energy-Houses.htm>

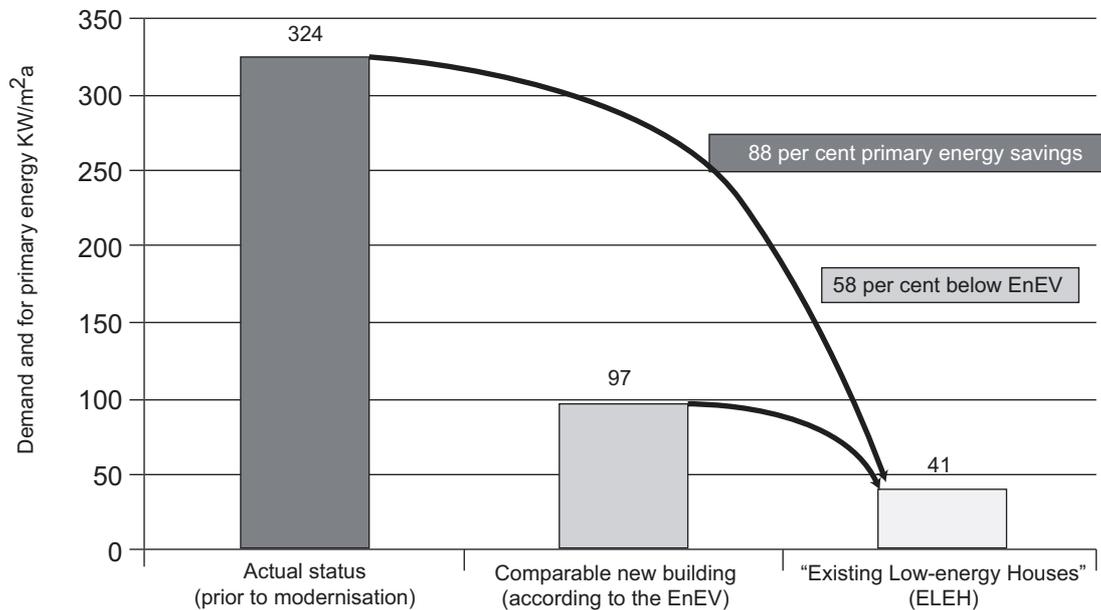
The projects are implemented by housing construction companies, coordinated by the German Energy Agency (DENA) and supported financially by the KfW on behalf of the Federal Ministry of Transport, Building and Urban Affairs (BMVBS). The chemical company BASF AG and the Federal Association of the German Gas and Water Industries BGW have also been associated to the project.



ii. *The programme's phases:*

The programme was divided into two phases, a pilot project from November 2003 to 2005, and a second extended phase that has started in early 2006 drawing from the very positive results of the first phase and still continues.

The pilot phase refurbishments : During the pilot phase, a total of 19 housing companies renovated around 880 flats in 33 buildings to the low-energy home standard. In the buildings tested, the pilot phase evaluation showed that on average, the energy consumption of the refurbished houses has been cut by around 80%: The refurbished flats have an energy requirement of 3l of fuel oil/m²/year against 20l of fuel oil/m²/year before refurbishment and 7l of fuel oil/m²/year in standard new EnEV buildings, making them on average 45% more effective than those standard new-built developments.



Source: DEMA, http://www.bmvbs.de/bild/original_989637/bld.jpg

Source: DENA, http://www.bmvbs.de/Bild/original_989637/bild.jpg

The second phase refurbishments: The second phase involve more than a hundred participants and concerns a more diverse set of buildings. In addition to multiple-family buildings, the “Low-Energy Standards for Existing Buildings” programme now includes detached and semi-detached houses as well as listed buildings in order to show that improvements can be made to all type of houses.

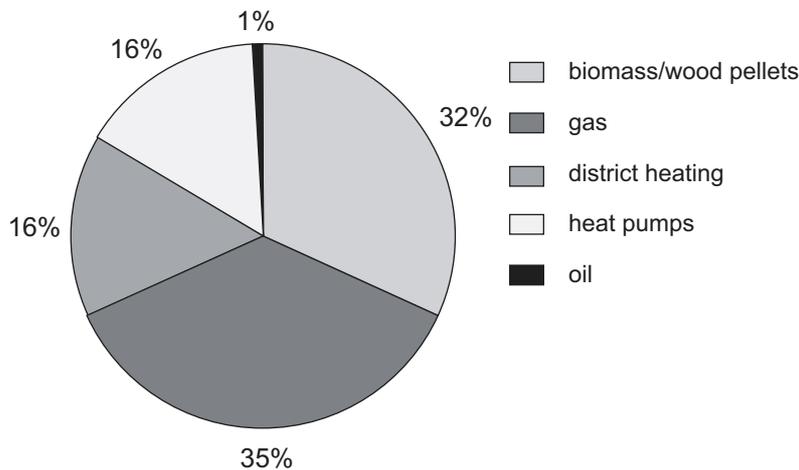
iii. Measures:

For each of the three priorities, a series of measures are implemented according to the specific requirement of each project.

Reducing the energy needs: Insulation and glazing: The buildings’ envelopes are improved to reduce heat losses. As long as it does not temper with conservation regulations, external walls are fitted with 200 mm thick insulation and roofs and basement ceilings are insulated. For the windows, a minimum of double glazing, and in most cases triple-glazing or passiv-haus windows, is used.

Improving the efficiency of energy conversion: Heating and ventilation systems: The remaining required energy is provided by efficient installation engineering. In all projects, heat is generated by condensing gas boilers, Ground Source Heat Pumps or wood pellet boilers. In addition to CHP district heating systems, small-scale CHP are also used. Heat generation is complemented by efficient ventilation, especially by controlled heat recovery ventilation fittings.

Technologies used in the 2nd project phase



In 45 per cent of buildings, solar energy systems were also used.

Source: DEMA, http://www.bmvbs.de/bild/original_989638/bld.jpg

Source: DENA, http://www.bmvbs.de/Bild/original_989638/bld.jpg

Integrating microgeneration: Renewable energy resources have been integrated in over half of the refurbished buildings. Most of them have solar thermal installation for water and, to some extent, space heating. Some buildings also use biomass, others photovoltaic or geothermal heat exchanger installations.

iii. Results:

As part of the whole “Low-Energy Standards for Existing Buildings” project, a total of 143 buildings are being refurbished to exemplary level of energy performance. This accounts for approximately 2,230 housing units, with an area of more than 138,000m² being improved.

49% of the refurbished buildings are owned by housing associations and the remaining 51% are privately owned. The projects are monitored and evaluated throughout the refurbishment works.

The LESEB programme has been included as an evidence in the wider KfW CO₂ Building Rehabilitation Programme and is expected to be extended after 2007 to include public buildings (schools, gymnasiums, etc).

SUSTAINABLE REFURBISHMENT OF THE FRENCH EXISTING HOUSING STOCK: CURRENT SCHEMES AND INITIATIVES

OVERVIEW OF FRENCH EXISTING HOUSING STOCK

(i) The French housing stock

In 2005, the French housing stock consisted of 31.3 million of dwellings, including 17.7 million individual houses and 13.6 million flats.¹⁶⁵

65% of the current housing stock were built prior to the 1975 first thermal regulation. The fabric of those dwellings is generally very energy inefficient: in 1973, the average consumption by dwelling was 372.5 kWh/m²/year whilst now the average consumption of all homes has fallen to 260 kWh/m²/year¹⁶⁶, although the number of electric appliances per household is ever increasing.

As in the UK, existing dwellings will still constitute the vast majority of the domestic housing stock in 2050. Although around 300,000 new dwellings have been constructed per year since 1990, the housing renewal rate is slightly less than 1% per year. Hence, it is estimated that dwellings built prior to the year 2000 thermal regulations could represent from 60 to 75% of the French housing stock in 2050.¹⁶⁷

¹⁶⁵ *Repartition des logements selon leur catégorie et le type de logement*, Institut National de la Statistique et des Etudes Economiques (National Institute of Statistics and Economic Studies, *INSEE*), 2005, (http://www.insee.fr/fr/ffc/chifcle_fiche.asp?ref_id=NATFPS05201&tab=id=69).

¹⁶⁶ Françoise Vaysse, “Grenelle de l’environnement : les professionnels ambitieux pour les logements existants”, *Le Moniteur*, 07/09/07.

¹⁶⁷ *Scenario énergétique tendanciel à 2030 pour la France*, Direction Générale de l’Energie et des Matières Premières (DGEMP)-OE, June 2004 (<http://www.industrie.gouv.fr/energie/prospect/pdf/scenario-2004.pdf>). *Habitat et développement durable—Bilan retrospectif et prospectif*, JP Traisnel & Co., Cahier du CLIP n°13, April 2001.

(ii) *Energy*

The energy statistics for France and the UK differ significantly because French official statistics on energy and carbon emissions group residential and service sectors together, as “Buildings”. Despite this difference, the actual energy consumption and carbon emissions’ patterns across the two sectors are actually quite similar in both the countries.

In France, as in the UK, the building (residential and non-residential) sector category accounts for the biggest amount of final energy consumption (43.6%), more than the transport (31.5%), industry (23.1%) and agriculture (1,8%) sectors.¹⁶⁸

The housing (residential buildings) sector’s energy consumption has increased by 30% from 1975, partly because of the growing number of dwellings. Housing today accounts for more than 70% of the energy consumption of the whole building sector.¹⁶⁹

(iii) *CO₂ emissions*

Similarly to the UK, the whole building sector in France, emits 23% of French domestic green-house gases emissions, second only to the transport sector. This accounts for roughly 123 million of tons of CO₂ emitted per year.

Among this, 30% are due to non-residential buildings and 70% to dwellings.

CURRENT SCHEMES DESIGNED TO FOSTER SUSTAINABLE REFURBISHMENT WORKS IN EXISTING HOMES

(i) *Tax credit: the “Tax Credit for households’ main residence equipment expenses in favour of sustainable development and energy savings”¹⁷⁰*

Since 2005 and until 2010, part of a household’s expenditure on energy saving measures can be deducted from the household’s income tax. The eligible measures include:

- the installation of improved insulation and/or heating control devices;
- the installation of microgeneration and/or more energy efficient fittings; and
- the connection of the house to a community heating network.¹⁷¹

To be eligible, the measures have to be implemented in the household’s main residence, and the residence has built at least two years previously.

The amount of tax credit linked with each measure varies from 15 to 50% of the expenses depending on the measure implemented. The overall amount of the expenses that can be claimed can not generally exceed €8,000 per capita, plus an additional €400 to €600 for each dependent person living in the home.

(ii) *ANAH’s grants*

Around 26 million dwellings are considered “main residences” and are the main target of the National Environment and Energy Agency¹⁷², and the National Housing Agency¹⁷³ refurbishment programmes.

ANAH’s funding scheme for sustainable refurbishment measures:

- ANAH offers some financial support to house owners to encourage them to undertake sustainable refurbishment works on the properties they either rent out (landlords) or live in (owner-occupied).¹⁷⁴ Whilst most refurbishment work on existing housing benefits from a reduced VAT (5.5%) rate, the grants are aimed at fostering efforts that strive for:
 - Improving the insulation of walls, roofs, basements, and windows (double-glazing or secondary glazing).
 - Installing more energy-efficient space and water heating systems (condensing boilers, solar water heating systems).
 - Installing microgeneration fittings (Ground Source Heat Pump, solar PV, woodfuelled boiler, etc).
 - Installing monitoring and controlling devices (individual meters, low-flush toilets, etc).

¹⁶⁸ *Bilan énergétique de l’année 2006 de la France, Direction Générale de l’Energie et des Matières Premières, Observatoire de l’Energie*, (<http://www.industrie.gouv.fr/energie/statisti/pdf/bilan2006.pdf>).

¹⁶⁹ *Stratégie Utilisation Rationnelle de l’Energie, Chap. II : Les Bâtiments, ADEME*, (<http://194.117.223.129/servlet/KBaseShow?sort=-1&cid=96&m=3&catid=15019>).

¹⁷⁰ *Credit d’impôt pour dépenses d’équipements de l’habitation principale en faveur des économies d’énergies et du développement durable*, Direction Générale des Impôts, Bulletin officiel des impôts n°83, 18 May 2006, (<http://alife.finances.gouv.fr/dgibo/boi2006/5FPPUB/textes/5b1706/5b1706.pdf>).

¹⁷¹ The exhaustive list of eligible measures is provided in Annex IV, article 18 bis of the French Tax Code (**Code General des Impôts**;

<http://www.legifrance.gouv.fr/WAspad/RechercheSimplePartieCode?commun=CGIMPO&code=CGIMPO00.rcv>);

see also *Bulletin Officiel des Impôts BOI 5 B-26-05*.

¹⁷² *Agence Nationale de l’Environnement et de la Maitrise de l’Energie, ADEME*, (<http://www2.ademe.fr>).

¹⁷³ *Agence Nationale de l’Habitat, ANAH*, (<http://www.anah.fr>).

¹⁷⁴ *Conditions d’attribution des subventions pour l’amélioration des logements privés*, September 2007, ANAH, (<http://www.anah.fr/reglementation/regl-frameset.htm>).

	<i>Measure installed</i>	<i>Grant provided by ANAH*</i>
Insulation	Thermally and acoustically insulated windows	€80
Heating systems	Condensing boiler	€900
	Wood-fuelled boiler	€900
	Solar water heating system	€900
Microgeneration	Air/water thermodynamic system	€900
	Ground source heat pump	€1,800
	CHP	€1,800
Connexion to the gas, electricity, or community heating networks		From 15 to 70% of the total cost (excluding VAT)

* The grant's amount is doubled when the fittings installed are used by at least two dwellings eligible for ANAH support.

— ANAH and ADEME 11/09/07 joint conference on sustainable refurbishment:

ANAH and ADEME held on Tuesday 11 September 2007 a one-day joint conference on sustainable refurbishment.

Entitled "Sustainable Refurbishment: towards energy efficiency and better performing dwellings", it showed how refurbishment of existing homes was one of today's most important opportunities to save energy whilst also improving the quality and comfort of dwellings and neighbourhoods.¹⁷⁵

Based on case studies, it focused on the different means and schemes available to foster both the implementation of sustainable refurbishment initiatives and the formation of skilled professionals in this field.

Speakers included ANAH's director, the head of the Department of Urbanism, Housing and Construction, a delegate from the German Energy Agency (DENA), as well as representatives from French research institutes, housing associations and urban regeneration firms.

(iii) *The French Buildings' Thermal and Energy Performance Improvement Schemes (OPATBs)*¹⁷⁶

As in the case in the UK building regulations, the current French Réglementation Thermique 2000 and Réglementation Thermique 2005 set standards and binding requirements for all new residential and non-residential buildings, as well as large refurbishment operations, but not for the refurbishment of the existing stock.

On 20 February 2002 however, ANAH and ADEME, along with the Planning and Environment Department and the State Secretary for Housing, had announced the creation of a new voluntary scheme aimed at reducing, at the local level, both the energy consumption and the CO₂ emissions of existing residential and services buildings: the OPATBs.

The OPATBs schemes' objectives

Whilst specifically designed to foster sustainable refurbishment initiatives, the OPATBs draw heavily on the highly successful Housing Improvement Schemes (OPAHs¹⁷⁷) that have been regularly implemented since the 1990's.

OPATBs are initiated by local authorities and encourage owners of all buildings categories (residential, non-residential, public, private, etc) to undertake sustainable refurbishment works on their property after the standard assessment of its pre-refurbishment energy efficiency. The refurbishments undertaken deal mainly with:

- The improvement of buildings' fabric and insulation.
- The upgrading of heating and ventilation systems.
- The installation of microgeneration fittings.

OPATBs benefit from funding from ANAH and ADEME, and have sometimes been eligible for grants from county and regional assemblies.

If efficiently conducted, they can sustain a niche market accessible for local builders, reduce residents' fuel bills and running charges, increase residents' comfort and local builders' skills, provide social services with a way to help preventing fuel-bills-linked debt, and contribute to the local Sustainable Community Strategies.

¹⁷⁵ <http://marches.ademe.fr/servlet/getDoc?cid=96&m=3&id=45938&p1=1&p2=1&ref=1>

¹⁷⁶ Les Opérations Programmées d'Amélioration Thermique et Énergétique des Bâtiments, (<http://www.ademe.fr/Collectivites/OPATB/Default.htm>).

¹⁷⁷ Opérations Programmées d'Amélioration de l'Habitat, (<http://www2.ademe.fr/servlet/KBaseShow?sort=-1&cid=96&m=3&catid=16908>)

The currently implemented OPATBs

16 Local Authorities have been selected as pilot sites by ADEME to implement the first OPATB schemes. They are in charge of leading, forming and informing stakeholders, including by providing, whenever possible, a one-stop-shop for all stakeholders. The selected Local Authorities range from city councils (*communes*) to metropolitan authorities (*Etablissements Publics de Cooperation Intercommunale*).

There are currently 5 OPATBs whose conventions have been signed and that are implemented.¹⁷⁸ The evaluation of the schemes implementation in 2005, showed promising results in the reduction of energy consumption and CO₂ emissions of buildings.

For instance, the SIPEHM received subsidies worth 1.4 million euros to conduct 4 million euros-worth of refurbishment works that have so far achieved 2,000 MWh/year energy savings and managed to cut targeted buildings' CO₂ emissions by 400t of CO₂/year.¹⁷⁹

A three-day-conference will be held on 14, 15 and 16 November 2007 at Celon to evaluate the progresses of the existing OPATBs so far, to foster the sharing of experiences and expertise in the implementation of those schemes and to spread awareness about the schemes among locally elected representatives and planners.¹⁸⁰

(iv) *PREBAT Démonstrateurs: a research programme to support sustainable refurbishment initiatives*

The PREBAT Research Programme¹⁸¹

Created as a part of the Climate Plan (2004)—the French strategy to tackle climate change at the domestic level—the five-year Research and Experimentation Programme on Energy in Buildings results from a joint agreement between five of the then Ministries and several national agencies and Trusts concerned with buildings and housing issues.¹⁸² It has been provided with a €15 million/year budget¹⁸³ and is set up to run from 2005 to 2009. The research programme is divided into four groups:

- Technologies.
- Socio-economy.
- Existing Housing.
- New Built.

The “Existing Housing” group

This group is responsible for proposing research directions and exemplar case studies for the different types of buildings that constitute the French existing housing stock. It currently focuses on encouraging flagship buildings projects (*Bâtiments Démonstrateurs*¹⁸⁴).

Since summer 2007, a series of calls for projects has been launched throughout the 22 regions of metropolitan France. Once the calls will have been answered and the eligible flagship projects selected, the PREBAT will participate in their implementation.

The objective is to create a significant sample of low-energy low-CO₂ refurbished dwellings of all buildings type by 2009¹⁸⁵ and use their monitored results as a basis to formulate wider test-based recommendations for public and private actors of the building and housing sectors.

The Flagship Buildings (*Bâtiments Démonstrateurs*) initiative

To be selected, the refurbishment projects ought to achieved a maximum energy consumption equivalent to the RT2005 standard for new-built development.

They would ideally aim at a space heating-related energy consumption per dwelling inferior to 50kWh/m² by 2010 and an overall energy consumption per dwelling reduced down to 80 kWh/m² by 2020.

The selected projects will benefit from PREBAT financial support throughout their implementation, from feasibility studies to monitoring and evaluation reports, in order to ensure the highest energy performance post-refurbishment.

¹⁷⁸ The SIPHEM Pays du Haut-Entre-Deux-Mers (33), the Communauté d'Agglomération of Pau-Pyrenees (64) and the Communauté de Communes des Cretes preardennaises (08), the Pays Val de Creuse Val d'Englin (36), Grenoble city (38).

¹⁷⁹ OPATB: premiers resultants probants, June 2005, ADEME, Press release, (http://www.ademe.fr/Collectivites/OPATB/documents/OPATB_CP_300605.pdf)

¹⁸⁰ Third meeting-conference on OPATBs, Celon, Argenton sur Creuse and Chaillac cities (36), (<http://www2.ademe.fr/servlet/KBaseShow?sort=-1&cid=96&m=3&catid=16909>)

¹⁸¹ <http://www.prebat.net>

¹⁸² Ministry of infrastructures, transports, spatial planning, tourism and marine trade, Ministry of ecology and sustainable development, Department for Industry, Department for research, Department for housing and urban affairs and ADEME, ANAH, ANRU, OSEO, Agence Nationale de la Recherche, PUCA, Fondation Bâtiments Energie.

¹⁸³ http://www.cstb.fr/bepos/presentations/2803_AT3_Ademe_PH.pdf

¹⁸⁴ <http://www.prebat.net>

¹⁸⁵ <http://www2.ademe.fr/servlet/getDoc?cid=96&m=3&id=43641&ref=19684&p1=B>

(v) *The Energy-Building Trust (Fondation Bâtiment Energie*¹⁸⁶)

The Energy-Building Trust

The Energy Building Trust has been created by four major actors of the French building sector—Arcelor, EDF, Gaz de France and Lafarge—with ADEME CSTB’s help, and has been recognised as an *établissement d’utilité publique*¹⁸⁷ in 2005.

It provides funding for research programmes and major refurbishment works that aim at reducing the energy consumption and CO₂ emissions in the building sector.

The EBT’s projects linked with sustainable refurbishment

The first three projects the EBT selected in April 2006 focused on the refurbishment of the existing housing stock and are currently being implemented¹⁸⁸:

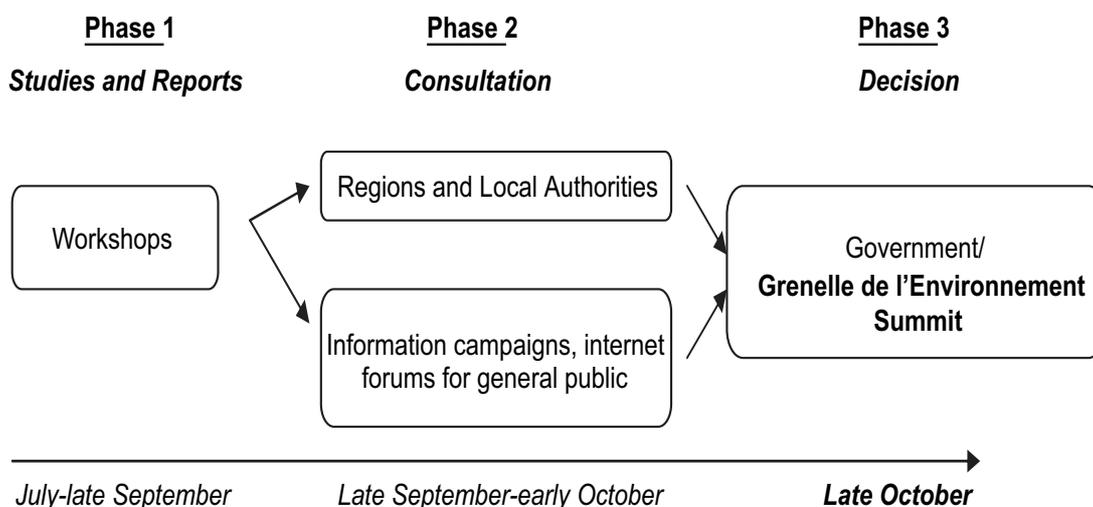
- ADELIE: the ADELIE project aims at creating a network of skilled builders that would be both experienced in refurbishing houses to high energy efficiency standards and able to convince and provide households with reliable propositions for the refurbishment of their property.
- MITECH: the MITECH research programme focuses on the improvements that can be made to the dwellings’ fabric to up-grade their energy performance.
- ODMIR 4: the ODMIR research programme aims at defining innovative ways of achieving the Factor 4 scenario in existing housing, including by the design of models of specific schedules and refurbishment packages according to households varying financial capacities.

LE GRENELLE DE L’ENVIRONNEMENT

(i) *Objectives*

On 6 July 2007, shortly after the creation of the new Ministry of Ecology and Sustainable Development and spatial Planning,¹⁸⁹ minister Jean Louis Borloo has announced the launch of a large campaign of studies, reports and consultations on sustainability issues: the Grenelle de l’Environnement.

This widely publicised campaign is voluntarily presented as a demonstration of the new government’s political endeavour in favour of sustainable development. It strives for adopting by the end of October a national action plan of 15 to 20 measures and providing those measures with sufficient financial and human support in order to tackle the main issues that would have been raised and agreed upon during the campaign’s various phases:



¹⁸⁶ <http://www.batiment-energie.org>

¹⁸⁷ By the 14th March 2005 decree.

¹⁸⁸ <http://www.batiment-energie.org/webzine/default.asp?main=5>

¹⁸⁹ This Ministry has been created by the 18th and 31st May 2007 decrees, and results from the merging of former ministries of Ecology, of Transports and of Spatial Planning. It also holds some competence that previously belonged to the ministry of Industry. It is in charge of sustainable development, environment, energy, transports, infrastructures, planning, urbanism, buildings and sea and marine trade issues, (<http://www.developpementdurable.gouv.fr/developpement-durable>).

(ii) *Process*

The whole process is currently bringing the State, the Local Authorities and delegates from the trade unions, employers and associations together to investigate and discuss the issues, and opportunities.

Six groups have been established, each focusing on specific though rather large topics:

- The Group 1 has been charged with reporting on the ways to tackle climate change and reduce energy needs.
- The Group 2 reports on biodiversity and natural resources conservation measures.
- The Group 3 reports on creating a healthier environment.
- The Group 4 reports on the ways of adopting sustainable production and consumption patterns.
- The Group 5 reports on how to built an ecological democracy.
- The Group 6 reports on ways of promoting sustainable development that would ensure high employment and competitiveness rates.

Each group is formed of 40 members and is split into three to five workshops. The groups are chaired by independent people drawn from various backgrounds and whose experience and expertise is widely acknowledged.

They have been appointed by the government to identify key barriers and potential solutions (legal, social, financial, economic, technologic, etc) to the issues dealt with by the group they chair in order to gradually shape the different options that will be submitted to consultation at the end of September.

(iii) *The Group 1's "Buildings and Urbanism" Workshop's pre-report*

Group 1

The Group 1 is chaired by Professor Jean Jouzel, an eminent climatologist who is a member of the Intergovernmental Panel on Climate Change's, and is co-chaired by the economist Professor Nicholas Stern, author of the Stern report on the economic impacts of climate change.

It has been split into three different workshops:

- Transport and travel.
- Buildings and Urbanism.
- Energy and carbon capture.

The Buildings and Urbanism Workshop's pre-report

In early September, a pre-report on the existing housing stock has been submitted to the minister Jean Louis Borloo by the members of the "Buildings and Urbanism" Workshop.¹⁹⁰ The workshop has been headed by the chairman of ANAH, Philippe Pelletier. It gathers delegates of the Scientific and Technical Centre for Buildings,¹⁹¹ ADEME, the Department of Urbanism, Housing and Architecture, and representatives from several working unions and employers of the building sector.

Workshop members agreed to advocate the need for the existing 30 million dwellings to be at the forefront of tackling French sustainability and carbon emission targets.

The recommended scenario

The Workshop participants advocated sustainable refurbishment of existing dwellings and identifies three major and urgent steps:

- The refurbishment "pathway" for the least energy efficient dwellings. According to the pre-report, those dwellings ought to be refurbished at least to the F standard of the French Energy Performance Certificate¹⁹² (DPE) by 2012. The F standard correspond to an annual energy consumption of 331 to 450 kWh/m² and annual CO₂ emissions of 56 to 80 kg of CO₂/m².
- The reduction of the average energy consumption of the whole existing stock to 150 kWh/m²/year by 2020.
- In the long run the goal is to reduce the energy consumption of all dwellings by at least 30% every 10 years. This would give an average energy consumption of the existing stock of around a 100 kWh/m² in 2030, around 70 kWh/m² in 2040 and around 50 kWh/m² in 2050.

¹⁹⁰ Françoise Vaysse, "Grenelle de l'environnement : les professionnels ambitieux pour les logements existants", *Le Moniteur*, 07/09/07.

¹⁹¹ Centre Scientifique et Technique du Bâtiment, CSTB, (<http://international.cstb.fr>).

¹⁹² Diagnostic de Performance Énergétique, DPE (http://www.logement.gouv.fr/article.php?id_article=5873). The Rating from A to G, the DPE evaluates both the dwellings average energy consumption and its CO₂ related emissions. Since 1 July 2007, house and flat renting or selling contracts must include a DPE when signed or renewed.

According to early estimates, widespread insulation works alone could generate more than €10 billion in economic activity by 2020, and ADEME has assessed that at least 100,000 new jobs are being created by the increasing demand for thermal insulation following the introduction of the 2000 and 2005 Thermal Regulations.¹⁹³

Notwithstanding the complexity of the housing sector and the financial and human implications of implementing this scenario, the pre-report made 28 specific recommendations, among which are:

- criteria for all public financial support for refurbishments to a minimum level of energy efficiency, and greenhouse gas emission reductions; grants are awarded depending on the performance level achieved;
- the creation of a very low interest rate loan available for whole-house sustainable refurbishments;
- the massive increase of public funding towards the most deprived households living in under-performing dwellings and potentially exposed to fuel poverty;
- from 2012 onwards, the strong incentive, if not compulsory, to include the installation of microgeneration in all energy efficiency upgrading works;
- the creation of a maintenance guide specific to individual houses and the improvement of the existing guide for multiple house building;
- the doubling of the Research and Experiments on Energy in Buildings Programme (PREBAT)¹⁹⁴ budget for research on existing housing and buildings;
- the potential reduction of taxes on rents when dwellings have been refurbished to a higher energy efficiency level;
- the simplification of the legal status of co-owned multiple occupancy homes (HMOs) to ease the implementation of sustainable refurbishment measures; and
- the indexation of the housing tax on the dwellings' energy performances.

The pre-report also advocates the launch of a programme targeting building professionals, with builders in the programme being specifically identified as such. The creation of expertise networks would be facilitated, and whole-house refurbishment packages would be designed in partnership with the different trade unions to provide households with skilled and trusted teams able to conduct comprehensive cutting-edge energy efficient refurbishments.

The Ministry has not publicly commented on this pre-report yet.

Memorandum submitted by Mitsubishi Electric UK

1.0 SUMMARY

The UK needs a radical overhaul of the way we heat domestic residential buildings.

26% of the U.K.'s overall CO₂ emissions come from domestic heating, lighting and appliances.

73% of household CO₂ emissions come from space heating and hot water demands.

Heat pumps sourcing energy from the ground or the air and used for water and space heating in homes are three times more efficient than 93% efficient condensing gas boilers and can reduce CO₂ emissions by up to 40%.

Heat pump technology is already well used for commercial buildings and in other countries.

Electrically powered ground source heat pumps draw on the natural energy in the earth generating up to four times more efficient heat production than that offered by a conventional gas boiler with substantial reductions in CO₂ emissions.

Electrically powered air source heat pumps are slightly less efficient than ground sourced, but are cheaper to install and maintain and offer greater flexibility for heating homes.

There will be a greater need to cool homes but the use of air conditioning equipment is not sustainable or necessary.

Heat recovery units save energy in ventilation and therefore help to reduce the amount of heating required when introducing fresh air into more thermally efficient air tight homes.

Grants for air source heat pumps should be included in the Low Carbon Buildings Programme.

The use of free cooling through heat recovery units obviates the need for air conditioners.

¹⁹³ Reglementations Thermiques 2000 and 2005, RT 2000, RT 2005, (http://www.logement.gouv.fr/IMG/pdf/rt2005_version09102006.pdf).

¹⁹⁴ Programme de Recherche et d'Experimentation sur l'energie dans le BATiment, (<http://www.prebat.net>).

2.0 NEED FOR CHANGE IN HEATING AND COOLING OF BUILDINGS

Mitsubishi Electric (Living Environmental Systems Division, UK) is one of the largest suppliers of cooling and heating equipment for buildings in the UK.

The Company has recently produced a policy paper entitled the Green Gateway Initiative which calls for a radical change to the way we heat and cool both commercial and domestic properties in the UK to improve energy efficiency and drive down CO₂ emissions.

Managing the internal temperatures of the environment in which we live has to keep pace with the new technologies that are available and the incremental savings in CO₂ that are eminently achievable. The engrained thinking of using fossil fuel boilers for central heating and hot water needs to be revisited both environmentally and economically.

In Mitsubishi Electric LES' view it is the optimisation of grid electricity and the effective use of locally generated renewable electricity that is key to the future of any sustainable domestic energy policy. Cleaner forms of electricity from either nuclear or renewables (either grid or on-site) are better employed in the residential sector by driving efficiencies at the point of use. We are focusing on driving new technology, already proven in the commercial sector, and improved further for use in the residential sector. Much of this focus centres on heat pumps using "free" energy in the air and ground for heating and cooling. This is where the most significant single source of CO₂ reduction can be delivered.

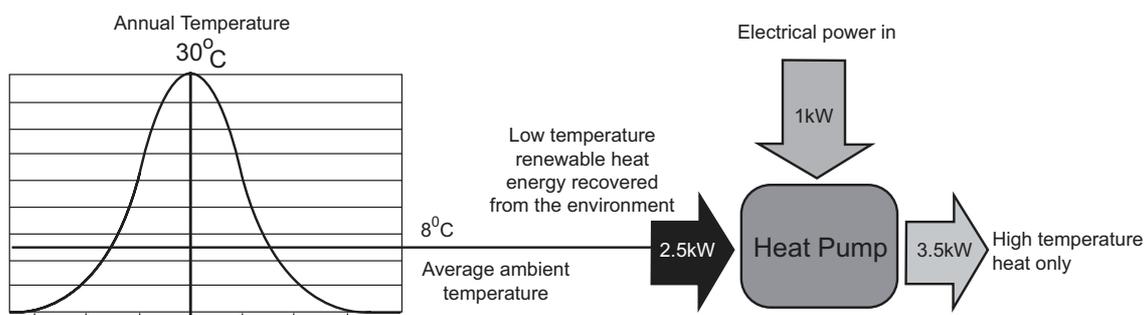
3.0 HEAT PUMP TECHNOLOGY TO REDUCE CO₂ EMISSIONS

3.1 Heat Pumps for Heating

Heat Pumps are movers of heat energy. They upgrade naturally occurring low temperature heat into useful high temperature heat, and vice versa to provide cooling. They take the heat from natural sources (air, the earth or water) to warm a building. Therefore, the amount of energy used is much less in a heat pump, significantly lowering costs and carbon emissions.

In countries such as France and Sweden, heat pumps are often used as a primary source for heating and hot water. With improvements in technology heat pumps offer unrivalled efficiencies and are proven to deliver this in a range of different environments.

The operational characteristics of a heat pump are totally different to those of an electric or gas boiler. With a conventional boiler, one kilowatt of energy "in" gives less than one kilowatt of heat to the building. With a typical electrically driven heat pump, one kilowatt of energy "in" gives a heat output in excess of 3 kilowatts—a 300% increase in energy efficiency and this will grow as technology develops. (This ratio is known as the Coefficient of Performance (COP)).



Building Regulations recognise the benefits of heat pump technology. The 2005 Government SAP (Standard Assessment Procedure) documents state the standard level of efficiency for different heating plant as follows:

- Ground-to-air heat pump (electric) 320%
- Water-to-air heat pump (electric) 300%
- Air-to-air heat pump (electric) 250%
- Gas-fired, ground or water source 120%
- Gas-fired, air source 110%
- Single point gas water heater (instantaneous at point of use) 70%

Electrically powered heat pumps sourcing energy from the ground or the air and used for water and space heating in homes are more than three times more efficient than gas boilers and can reduce CO₂ emissions by up to 40%.

A modern inverter driven air to water heat pump that could be used to replace a gas boiler can have an average annual efficiency of 300~360%. The technology is already well used for both domestic and commercial buildings and in other countries.

One of the main advantages of heat pumps is their flexibility in application, eg a heat pump using air as a heat source in under floor, radiator or fan coil heating systems.

Heat Pumps can provide air to air or air to water heating. An air to water heat pump can be used with conventional radiators at 45°C and achieve an annual COP of 3.4 If used with underfloor heating at 35°C this would increase to 3.7. The benefits of using a Heat Pump Boiler in an under floor heating system include:

- Does not waste energy by raising the flow temperature high then dropping it for entry in to the under-floor system as a gas boiler does
- Costs less to run due to lower power consumption
- Reliable, long lasting and maintenance free
- No hot air in front of glass, no heat loss through windows
- Less heat loss through ceiling and walls than traditional radiators using a gas boiler

4.0 COOLING HOMES

As climate change affects the length and heat of the summer periods, and with more efficient house insulation, there is the increased threat of over heating in summer. Without any form of cooling, UK night time bedroom temperatures will exceed 24°C for up to 164 hours per year—approximately 20 days per year. This has the potential to increase sales of air conditioning for use in homes and, indeed, data from the Energy Saving Trust indicates that sales of domestic air conditioners increased from 32,800 in 2005–06 to 72,300 in 2006–07.

The purchase of an “A” rated air conditioner, and its associated energy consumption, results in additional carbon dioxide (CO₂) emissions of around 138 kgCO₂/year. The 72,300 domestic air conditioners purchased in 2006-07 would therefore be expected to increase CO₂ emissions by at least 9,900 tonnes CO₂ per year.

Although a major supplier of air conditioners, Mitsubishi Electric (LES) does not support the growth of air conditioning in the residential market which it considers is neither necessary nor sustainable. Instead, alternative ways to cool homes, using free cooling and ventilation, are available and should be actively examined and promoted.

There will be a greater need to cool homes but the use of air conditioning equipment is not sustainable or necessary.

4.1 Free Cooling and Heat Recovery

Heat recovery plant has the ability to operate in bypass mode to provide free cooling from the ambient air during the summer period.

This table shows the ambient temperatures in London, between 8am and 6pm, over 2006:

<i>Temp Range</i>	<i>No. of hours</i>	<i>% of Total</i>
T < 8.0°C	877	21.99
8.0°C–20°C	2,314	58.029
T < 20.0°C	797	19.99

From this graph, we can see that for over 58% of the time the temperature was between 8°C and 20°C, allowing free cooling when the air conditioning set point was 21°C in cooling mode. If the set-point is higher, then free cooling is increased.

Units that recover waste energy reduce overall energy costs by extracting stale air and then recovering the heating or cooling energy to either warm or cool incoming fresh air. By utilising this energy, the system can save up to 30% on initial capital costs of heating and cooling plant, as well as giving 20–50% lower energy costs.

When the outdoor temperature is lower than the indoor temperature in the summer, fresh outdoor cool air is used to reduce the indoor air temperature. The result is that 24°C will not be exceeded between 10 pm and 6 am. Mechanical air conditioning is therefore not necessary to maintain night time comfort.

Heat recovery units use cooler outdoor air to reduce indoor temperatures without the need for extra cooling so saving energy.

5.0 HOW FURTHER IMPROVEMENTS MIGHT BE ACHIEVED

The following key data addresses the heating and cooling of a three bedroom semi-detached house built to 2006 building regulations.

The Company has produced this study to put forward an evidence-based case against the continued use of gas boilers and to build the case for solutions that are made possible through free cooling & heat recovery.

Annual heating requirements

Water heating load, assuming 160 Litres per day @ 55°C	3,066 kWh
Space heating load with standard trickle vent	5,093 kWh
Total	8,159 kWh

Heat with condensing Gas Boiler of 93% efficiency

Gas consumed	8,811 kWh
CO ₂ emitted	1,674 kg

Heat with Heat Pump with annual COP of 3.02

Electricity consumed	2,703 kWh
CO ₂ emitted	1,162 kg
Saving in CO₂ emissions using a heat pump	512kg (31%)

5.1 Further Reducing Heat Load

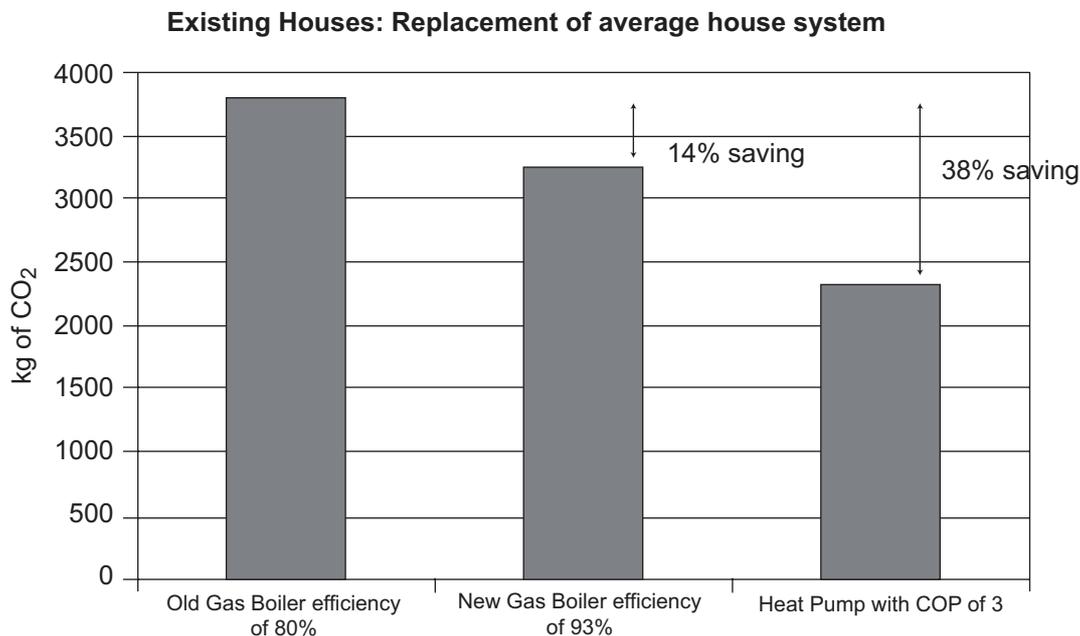
By making the house air tight (not using trickle vent systems) and ventilating with heat recovery equipment, the space heating load of the building can be reduced by 39%.

As detailed earlier, the free cooling function of these products can then prevent the need to install mechanical cooling for night time comfort, saving future potential increases in energy consumption.

5.2 Using Heat Pumps For The Refurbishment Of Existing Housing Stock

Over 1.6 million domestic gas boilers are sold in the UK every year. Modern gas boilers are efficient, but the technology has reached the summit of its possible energy efficiency

Looking at existing houses, there would be a 14% reduction in CO₂ emissions by replacing an old gas boiler (with an efficiency of 80%) with a new gas boiler (with an efficiency of 93%). The reduction is more substantial if the old gas boiler is replaced with a heat pump with a COP of resulting in a 38% reduction in CO₂ emissions, as shown in the graph below:



A COP of 3 is conservative. Based on new technology now available, a typical heat pump system with a seasonal COP of 3.4 vs a typical existing gas boiler running at 70% efficiency will have carbon savings of over 50%.

Grants for air source heat pumps should be included in the Low Carbon Buildings Programme.

5.3 2016 Building Regulations and Improved Insulation

As we move towards 2016, building insulation levels will further increase with an expected reduction in space heating load of over 50%. Ventilating a house will become more important as insulation and air tightness increases. The forecasted number of hours when a bedroom will exceed 24°C during night time will rise to 690 without any active ventilation strategy. If heat recovery ventilation is used and the free cooling mode activated, the number of night time hours above 24°C is zero.

The advantages of using a heat pump for space heating will increase as electricity generation becomes cleaner. Electricity generated from a renewable source can provide zero emission heating and provide greater than 3kW of heat for each 1kW generated.

5.4 Expected Outcome

If all new residential build used heat pumps and heat recovery units and all the domestic gas boilers replaced each year were replaced with heat pumps, by 2020 the potential annual saving in CO₂ would be 14.7 million tonnes out of a total of 155 mt accounted for by the residential sector as end users.

Replacing a gas boiler in an average house with a heat pump could lead to a reduction of CO₂ emissions of 38% on average.

The use of free cooling through heat recovery units obviates the need for air conditioners.

A full electronic copy of the Green Gateway initiative is available from www.greengatewayinitiative.co.uk

Memorandum submitted by Groundwork UK

SUMMARY

1. Groundwork's role in working with local communities on environmental issues has afforded us a unique level of experience in providing information and technical advice on improving the energy efficiency performance of the UK's existing housing stock. Programmes and social enterprises such as *The Greenhouse Initiative* and *The Green Doctor*, delivered in partnership with housing associations and the public sector, have been successful in delivering not only energy efficiency improvements and reduced carbon emissions for homeowners, but also valuable skills, training and employment experience for individuals through Intermediate Labour Market (ILM) programmes. Such schemes help those on low incomes, who are most likely to suffer disproportionately from poorer environmental outcomes, by helping to lift them out of fuel poverty.

2. We are concerned at the levels of non-decent and energy inefficient housing within the UK. We call upon the Government to roll out similar schemes to those models pioneered and executed by Groundwork, with the aim of improving the environmental performance of our existing housing stock. We also call for high environmental standards to be implemented for all new public housing, the Code for Sustainable Homes to be made mandatory, in addition to the removal of fiscal disincentives for householders and landlords to renovate and green their homes through the equalisation of VAT between new build and renovation activities.

INTRODUCTION

3. Groundwork is a federation of Trusts in England, Wales and Northern Ireland, each working with their partners to improve the quality of the local environment, the lives of local people and the success of local businesses in areas in need of investment and support. Groundwork's projects aim to deliver benefits:

- for people—creating opportunities for people to learn new skills and become more active citizens;
- for places—delivering environmental improvements that create cleaner, safer and greener neighbourhoods;
- for prosperity—helping businesses and individuals fulfil their potential.

4. Groundwork's vision is of a society made up of sustainable communities which are vibrant, healthy and safe, which respect the local and global environment and where individuals and enterprise prosper. Our trusts deliver a number of innovative initiatives in partnership with housing bodies, local authorities and developers, in order to provide information to residents and offer them practical advice on how to make their homes more energy efficient. Our unique, established position within local communities across the UK has offered us a wealth of experience in this field and makes us ideally placed to offer evidence with regard to the best means by which the resource efficiency of existing homes can be increased. It also enables us to offer evidence on the extent to which current measures have been successful and could be improved.

FACTUAL INFORMATION

The significance of existing housing compared to new build and the different levels of performance each display

5. The Government has placed much emphasis on new housing, as demonstrated in its recently published green paper entitled *Homes for the future: more affordable, more sustainable*. We welcome its intention to make all new homes carbon neutral by 2016.

6. Whilst Groundwork recognises the need for a stock of new, sustainable homes, we believe that the bigger challenge is in dealing with our existing stock, much of which is old, energy inefficient and often in need of repair. As has been widely reported, the majority of the housing stock that will be in existence in 2050 has already been built.

7. Groundwork cites the DCLG English House Condition Survey¹⁹⁵, which demonstrates that in 2005, 5,987,000 homes in England were classed as “non-decent” (equating to 27.5% of the entire English housing stock). We are also concerned by the fact that over half of the 680,000 empty homes in England have been unoccupied for 6 months or more¹⁹⁶. We recognise that 27% of total UK carbon emissions come from domestic buildings and that all English housing only had an average SAP rating of 48.1 in 2005¹⁹⁷—the Energy Saving Trust recommends that housing management organisations should target an SAP rating of at least 70. All of the above suggests that future demand for housing within the UK can only be met sustainably if a major programme of renewal is facilitated, which addresses the quality and energy efficiency of our current housing stock.

The provision of information for households and prospective house buyers, including energy performance certificates

8. Groundwork believes that the sharing of information regarding the efficiency of homes with residents and prospective buyers is a vital first step in creating awareness about the impact that our housing sector currently has on the environment. It can also play a major role in highlighting the potential financial benefits of implementing measures to improve energy efficiency measures in homes.

9. Improving the energy performance of homes—particularly in the social rented sector—is a growing area of expertise within Groundwork; indeed, we believe that our skills in this field have considerable potential for wider use following the introduction of Home Information Packs. We have found that a community-based approach, whereby Groundwork, in conjunction with Domestic Energy Assessors, provides advice on energy efficiency measures to households, with all proceeds reinvested in local charitable

¹⁹⁵ DCLG: English House Condition Survey. [WWW] http://www.communities.gov.uk/pub/408/DH2aDwellingsfailingoneachdecenthomescriterionbysector_id1165408.xls

¹⁹⁶ DCLG (2007) Our policy on empty homes [WWW] <http://www.communities.gov.uk/index.asp?id=1153425>

¹⁹⁷ DCLG (2005) English House Condition Survey 2005: Headline Report [WWW] http://www.communities.gov.uk/pub/983/EnglishHouseConditionSurveyHeadlineReport2005_id1508983.doc

activity on climate change, is a model with significant social benefits. Such an approach could also be utilised in the delivery of Energy Performance Certificate assessments. The following case study demonstrates a key programme that Groundwork has delivered with local partners:

Case Study: The Green Doctor

With funding from the Neighbourhood Renewal Fund, Groundwork Leicester & Leicestershire developed the Green Doctor project as an innovative way of tackling fuel poverty in deprived wards by offering free visits to low income households aimed at helping people improve energy efficiency and save money.

The project's wider aims included helping to create decent, more liveable homes, improving health, reducing social exclusion and promoting active citizenship. Over three years, the Green Doctors conducted energy use audits of the properties they visited using the National Home Energy Rating assessment, and provided tailored advice to householders about their home energy use and environmental measures in the home.

The project's success is the result of an integrated approach focusing on educational and behavioural aspects rather than technology alone. Householders targeted by fuel poverty projects are difficult to reach, and persistent attempts to eradicate fuel poverty have had relatively low impacts. The Green Doctors overcame this problem by investing the time to talk to people in their own homes and addressing their individual needs. This enabled them to "trouble shoot" specific problems such as a lack of understanding about how to control heating systems, or fitting low energy light bulbs for elderly residents who might not be able to do this themselves.

The Green Doctor also served as a referral point for other agencies and services available to low income households, both energy and non-energy related.

The achievements of the Green Doctor project suggest that if replicated in other cities across the UK and expanded to cover wider groups of households, it could form a valuable and effective method of reaching both national and local targets for fuel poverty and climate change. Between 2003–6 almost 800 home visits were made, with savings to householders fuel bills reaching a total of nearly £10,000 per year. This is equal to a saving of up to £60,000 over the lifetime of the project. It has been calculated that if the Green Doctor visited every home in Leicester, it could achieve an annual reduction in residential CO₂ emissions of one fifth of the city of Leicester's climate change policy target. If it were to be rolled out across the whole of the UK, there would be a 13% reduction in household CO₂ emissions.

Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

10. Groundwork acknowledges that the Government is working to improve the quality of homes through their decent home standard programme and we welcome the improvements that have been made to public and social sector housing as a result. We feel, however, that more could be done to encourage sustainable homes, particularly those under housing association and local authority ownership through an increase in support, advice and financial assistance.

11. We believe that the Code for Sustainable Homes should be made mandatory for all new build. We concur with the Government's suggestion that because all new homes already reach a high level of performance on the Energy Performance Certificate (EPC) scale, even big improvements on top of current Building Regulations do not register significantly. We agree that, as the energy element of the Code is based on percentage improvements over Building Regulations, significant improvements are clearly visible.

12. We welcomed the measures announced in the 2007 budget to support householders in becoming more energy efficient, such as the increased investment in phase one of the Low Carbon Buildings Programme for households and the measures to encourage the implementation of microgeneration equipment in homes. Groundwork urges the Government to capitalise on this by encouraging and supporting the development of community projects and social enterprises to deliver energy saving and micro-generation projects on a wider scale—utilising measures which are relatively low tech, low cost and easy to install, but which provide major benefits. We are also disappointed that recent budgets have missed the opportunity to equalise VAT between renovation and new build; this disparity currently acts as a disincentive for those who own and manage housing to make existing homes more attractive and energy efficient. Concerted effort must be made by the Government to encourage energy efficiency improvements in residential buildings across the public, social and private housing sectors.

The technologies available to reduce emissions and the Government's role in facilitating relevant further technological development

13. A number of technical solutions are implemented by Groundwork experts during a Green doctor consultation, which could potentially be utilised in all UK homes. Typical measures include:

- low energy lightbulbs (CFLs);

- draught excluders;
- radiator panels;
- hot water tank jackets;
- heat recovery fans (where respiratory illnesses such as asthma are identified);
- waste reduction and conservation measures, including composters, water savers and bird boxes.

14. In addition to the above, Groundwork Bridgend & Neath Port Talbot has developed a project to stimulate the uptake of Natural Fibre (flax) Insulation and improve energy efficiency in social housing and community developments. Natural Fibre Insulation offers the potential to achieve energy and CO₂ savings by using a sustainable and renewable natural insulation product.

15. Creating homes which minimise the impact on the environment requires education, training and knowledge throughout the construction industry about sustainable development and about new technologies which can help to minimise the impact of homes on the environment. Groundwork is pioneering the delivery of a sustainable development qualification which could provide a model for helping to improve skills and knowledge both in housing associations, local authorities and in the construction sector.

The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty

16. Through our work with housing associations and local authorities to help get empty homes back into use and to refurbish existing stock, we have found that, with the appropriate use of resources, such projects can also act as employment training programmes. These help improve health and wellbeing, increase skill levels in the community and create local employment opportunities, helping to create truly sustainable communities and economies. As such, funds allocated to setting up and maintaining of projects primarily to improve energy efficiency have been shown to provide further, positive, more wide reaching outcomes for local communities, as the case studies overleaf demonstrate:

Case study: The Greenhouse Initiative

Groundwork Creswell has created “the Greenhouse initiative”, which is supported by the Energy Saving Trust’s innovation programme, the Coalfields Regeneration Trust, the Learning and Skills Council and the European Social Fund. The project brings empty properties back into use and at the same time makes them sustainable buildings. This not only restores vacant property but also ensures that the houses use a wide range of energy saving devices and renewable energy measures, thus reducing fuel costs and cutting carbon emissions. The project is delivered by Groundwork Creswell’s trading arm—Crestra Ltd, working in partnership with housing associations in the coalfield areas of Nottinghamshire, Derbyshire and South Yorkshire. The improvements, which include insulation, solar hot water and a rain harvesting system, far exceed current building regulations. They also tackle fuel poverty by lowering heating bills.

The initiative not only ensures more sustainable homes, it also provides work for local people. The work to re-design and rebuild properties is carried out by the long term unemployed, providing them with the skills and experience to re-enter the workplace.

Case Study: Safe and Warm

Groundwork Creswell’s “Safe and Warm” programme has helped over 2,000 households in need by installing insulation and energy saving measures, and provided long term unemployed individuals with the opportunity to gain new skills in the field of construction. Work has involved loft insulation, cavity wall insulation, pipe lagging and tank jackets, draught proofing and the installation of energy saving measures such as dusk-while-dawn lights.

17. Groundwork is concerned by the extent to which the lowest income households within the UK suffer disproportionately poorer environmental outcomes. A report commissioned by the Department for the Environment, Farming and Rural Affairs (Defra) in 2004 examined the evidence for environmental inequalities and injustice in the UK¹⁹⁸. The report identified that environmental injustice is a real and substantive problem, which affects many of the most deprived communities and socially excluded groups. It maintains that both poor local environmental quality and unequal access to environmental goods affect quality of life, and that in some cases deprived communities are not only disproportionately exposed to environmental risk, but also disproportionately vulnerable to its effects.

18. Groundwork believes that fuel poverty is a byproduct of energy inefficient homes and low incomes. We recognise this a significant driver of the need for support to be given to the poorest sections of society in improving the environmental performance of their homes.

¹⁹⁸ Sustainable Development Research Network for DEFRA (2004) ‘Environment and Social Justice: Rapid Research and Evidence Review’.

19. Groundwork will shortly publish a policy document, entitled *Fair and green: Tackling environmental inequalities and delivering neighbourhood renewal*, which examines recent research and policy developments in this area and explores the next steps for Government and the contribution Groundwork can make in reducing environmental inequalities for UK communities. One of its recommendations is for an improvement in the energy efficiency of existing housing, as well as those of new buildings, with a focus on helping deprived communities and low income households first. As the aforementioned case studies show, localised Groundwork initiatives have been successful in helping residents to improve the energy performance of their homes and tackle fuel poverty, particularly in areas of renewal.

RECOMMENDATIONS FOR ACTION

Groundwork recognises the measures that the Government have announced and are undertaking to improve the energy efficiency of the UK's housing stock and to tackle fuel poverty. We do, however, take this opportunity to make the following recommendations:

20. The Government should engage with partners in the public, private and voluntary sectors to roll out similar, community based schemes and social enterprises to those operated locally by Groundwork, such as *The Green Doctor*, in order to deliver energy saving and micro-generation projects on a wider scale. Not only will this improve the environmental performance of our homes, but will also constitute an effective method of tackling fuel poverty, a means of providing skills and a route back into work for unemployed individuals in communities. It will also assist in satisfying the demand for skilled energy assessors, as facilitated by the recent partial introduction of EPCs for homeowners wishing to sell their properties. Measures to improve the energy efficiency of homes are relatively low tech, low cost and easy to install, but provide major benefits.

21. We call upon the Government to recognise that the model of community based schemes executed by Groundwork are the most effective means of offering support to householders with the lowest incomes in making their homes more energy efficient. Our research shows that individuals on low incomes and who are, as a result, more likely to suffer from fuel poverty, are also those more likely to endure the worst environmental conditions in their day-to-day lives. Action to renew and improve the energy performance of the lowest income households first will provide environmental and financial benefits for those communities and individuals who need it most.

22. We urge the Government to equalise VAT on renovation and new buildings, to provide a fair incentive for homeowners to renew and improve the environmental performance of their homes. We feel that there is much more to be done in improving the quality, energy efficiency and attractiveness of the UK's existing housing stock. Action on VAT would help the Government meet its targets for sustainable housing.

23. We ask the Government to ensure that the Code for Sustainable Homes becomes mandatory for all new house build.

24. We support the calls of the Royal Commission on Environmental Pollution (RCEP), which recommends that new demanding timetables are put in place for improving the energy efficiency of our building stock, and that existing homes should be improved to the EcoHomes Excellent standard by 2030.

Memorandum submitted by English Heritage

INTRODUCTION

English Heritage welcomes the decision of the Communities and Local Government (CLG) Committee to examine the contribution which the existing housing stock makes to UK carbon emissions. This is an opportunity to demonstrate that the stock of existing traditional buildings can be adapted sympathetically to contribute to the overall reduction of carbon emissions from England's housing stock. English Heritage is keen to use our practical knowledge and expertise of how older housing behaves to help people understand how to make adaptations which respond to climate change while maintaining the character of historic buildings.

The briefing on the inquiry and the call for evidence itself acknowledges that the UK's attempt to reduce carbon emissions will present specific challenges for the management of the nation's older housing stock and recognises the challenge of retaining historic interest. English Heritage strongly supports the principle of improved energy efficiency in buildings, but we are concerned that poorly considered alterations could do irreparable harm to England's finite resource of traditional building materials and structures, and in some cases impair rather than improve their energy efficiency. Therefore we are keen to ensure that owners, landlords, specifiers, building control officers and domestic energy assessors better understand how traditional buildings behave, and how adaptations might best be chosen to truly improve their energy performance.

 GENERAL POINTS

1. The historic environment is our most accessible cultural resource and has a powerful influence on peoples' sense of identity and civic pride. It contributes significantly to the character and sense of place of rural and urban communities and lies at the heart of sustainable growth and place-making. English Heritage is the Government's statutory adviser on all matters relating to the historic environment in England. We are a non-departmental public body established under the National Heritage Act 1983 to help protect England's historic environment and promote awareness, understanding and enjoyment of it.

2. Britain's stock of traditional housing account for approximately a quarter of all homes in the UK and forms part of the character and distinctiveness of our country. There is therefore a considerable risk from inappropriate or poorly executed adaptations to improve energy-efficiency. In addition to the approximately 370,000 listed structures in England, there are over a million unlisted buildings in England's 9,374 conservation areas. Our concerns are also relevant to all buildings constructed using traditional materials and techniques, even those that are not designated in any way. This means not only the 4.7 million homes built prior to 1919, before the use of modern impermeable materials became widespread (*English House Condition Survey, 2005*), but many later buildings, particularly those constructed between the wars (according to the *English House Condition Survey*, some 3.8 million buildings).

3. To help people understand the impact of climate change on older buildings, and how they can be adapted safely and effectively English Heritage is developing a website for home-owners, Climate Change and Your Home. Real savings can be derived from benign, relatively low-impact interventions, such as low-energy light-bulbs, condensing boilers, fitting energy switches on heating appliances, and improvements in the efficiency of electrical goods. English Heritage is also preparing extensive guidance on how best to apply Part L of the Building Regulations to traditionally constructed buildings.

4. In order to further develop guidance on best practice in improving traditional buildings we need better data. Techniques for measuring the energy performance of buildings are still in development, and must take account of the many different ways a building can be constructed and the many ways it is used by the people who live in it. For example with milder winters likely, is insulation the best approach to long-term planning for climate change? Insulation could result in homes overheating in the summer months, perhaps driving up the demand for air conditioning, and hence increasing rather than decreasing the total energy being consumed. Stopping heat loss by sealing chimneys and double-glazing all windows often leads to the occupants throwing open the windows for fresh air—losing much more heat than the leakage through the original windows ever did. Asking people to live in a hermetically sealed home, which maintains a steady internal temperature throughout the year, is probably unrealistic, and may well prove harmful to health.

5. In 2008 English Heritage will be embarking on a long-term study to develop measurement methodologies, and to use them to monitor a number of Victorian terrace buildings before and after energy-saving improvements have been made. From this we and our partners hope to develop robust new approaches to ensuring that the existing housing stock is as energy efficient as possible, and we anticipate that the information we gain will also be of use for designing efficient new homes. It is worth noting that traditional materials and structures were developed to be effective in a world where energy was extremely expensive, and that they may contain positive lessons on efficiency. For example, solid-wall construction was common, and this is now being recommended again for eco-friendly housing (*Beating the Heat, keeping UK buildings cool in a warming climate, 2005*).

6. The Committee's investigation into existing housing and climate change, is an important and timely initiative, and we welcome the opportunity to challenge some of the presumptions and establish a clearer evidence base for future policy. For example, Energy Performance Certificates are suggested as a suitable tool for comparing the energy consumption in different types of dwelling, but the methodology used by the Reduced Data Standard Assessment Procedure (RDSAP) calculator was not designed to deal with single houses, let alone houses built with thick solid walls and permeable materials. English Heritage has therefore developed guidance for Domestic Energy Assessors and home-owners, which advises that any recommendations generated by RDSAP should be applied with great caution (English Heritage guidance on Home Information Packs, specifically *Understanding SAP Ratings for Historic and Traditional Homes*, which can be downloaded from www.english-heritage.org.uk/homeinformationpacks).

7. In summary English Heritage fully supports a government-led initiative to look at the impact of the UK domestic housing sector on energy use, but recommends that it look more stringently at the underlying issues, for example:

- How can we measure the energy use of domestic buildings?
- How is energy used in domestic buildings? How does this vary in different types of building?
- What makes a house energy-efficient?
- How do we take whole-life costs into account?
- Are there lessons to be learnt from traditional building techniques and structures?
- How does the way a house is being used affect its energy efficiency? Are there ways of improving wasteful usage, without having a detrimental effect on the quality of people's lives?

- How is energy use in UK homes likely to alter in response to climate change? For example, will heating decrease but air conditioning become more common? Will the emphasis on more insulation today generate an increasing demand for more cooling?

ENGLISH HERITAGE'S RESPONSE TO SPECIFIC QUESTIONS RAISED IN THE CALL FOR EVIDENCE

The significance of existing housing compared to new build, and the different levels of performance each display

Although there have been some very significant advances made within the construction sector in improving the thermal performance of new materials, English Heritage has not yet seen any compelling evidence to suggest that traditionally constructed homes perform worse than recently built homes. Historic building materials are often more durable than their modern replacements and more cost-effective in energy terms. For example, although properly maintained softwood window frames have an almost indefinite lifespan, PVCu windows are usually guaranteed for no more than 10 to 15 years. At current energy prices, this is far less than the time needed to repay any energy savings.

Policy responses must be based on clear evidence. It is imperative to collect accurate data on the existing energy performance of various types of home together with the changes in performance delivered by appropriate improvement interventions. To this end we are currently developing a major research project to look at the overall energy efficiency of traditional homes. Building on work by others we need to evaluate, for example, how effective energy saving retrofitting can be accommodated across a wide range of construction types without compromising either the character or the long term material integrity of the building. Recent work by the Ministry of Justice for instance has suggested that their pre 1900 buildings are the most energy efficient per square metre and that such buildings should be prioritised for retention within their property portfolio (Ministry of Justice, 2007 *Age Energy Research, A study of the energy usage of buildings relative to their age*). It is essential that everyone with an interest in this area works closely to identify and share best practice. We therefore intend to discuss our proposed research in more detail with Government and construction industry leaders, to agree parameters for this and similar research, so that together we can begin to generate meaningful, comparative data.

The existing housing stock may also have a role in reducing some climate change effects. For example, period homes in urban areas often have gardens both front and back, and it is already well appreciated that these play an important role not just in making our urban areas attractive places to live (see English Heritage, 2007, *Suburbs and the historic environment*), but in enhancing bio-diversity, allowing for exercise, recreation, and even food production. Now evidence is increasingly showing that they also play an important role in helping to temper rising urban temperatures and flash flooding (see for example the ASSCUE project, Royal Horticultural Society *Front Gardens. Are we parking on our gardens?* (2005) and Royal Horticultural Society *Water in the garden. Are we draining our water supplies? How can gardeners save water?* (2007)).

There is a strong public wish to protect such homes, which offer generous internal and external space (see Greater London Authority, 2006: Housing Space Standards). Again, traditional structures may have useful lessons for new buildings.

The respective role of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency

As the government's advisor on the historic environment, English Heritage has developed a wide knowledge of how traditionally constructed buildings actually behave, and we are keen to use this knowledge to assist both government agencies and the general public.

We are currently preparing extensive advice on energy efficiency and climate change effects on the traditionally constructed housing stock and intend to work with the Local Government Association's Climate Change Commission to promote best practice. Collaboration with DCMS, CLG and DEFRA should help to identify ways of communicating these and other important messages through all our websites, communication material, advice and guidance, and conferences.

Energy Performance Certificates

We have already released draft guidance on EPCs and the related HIPs process (copies attached with this submission), and have also commissioned a qualified Domestic Energy Assessor (DEA) to survey a range of traditional dwellings using the standard techniques. Thus far seven buildings have been surveyed, and the results have confirmed our reservations.

For example, the calculation for a 19th century two-up two-down terrace house, brick with original sash windows predicted an annual energy consumption of 448kWh/m², and suggested improvements which would bring this down to 307 kWh/m². Actual bills (confirmed with the supplier) showed power usage to be 223 kWh/m²: in other words the actual energy use was much less than that predicted for the house post-improvement. We therefore recommend that owners supplement the EPC with utility bills which show the

actual energy consumed. We are discussing with CLG the possibility of a direct link from every EPC to our climate change website to ensure that easy free access to advice is made as straightforward as possible for homeowners.

Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

English Heritage is concerned that Government targets to improve the energy efficiency of all dwellings may lead to inappropriate, damaging and potentially counter-productive building work to traditionally constructed homes. We would like to see a more targeted approach to improving domestic energy efficiency which draws attention to the differences between modern and older construction materials and methods. Our main concerns are not simply historic or aesthetic, but equally a desire to ensure that the performance of traditionally constructed buildings is not compromised by an imperfect understanding of how they work.

The fundamental difference between modern and traditional construction is that modern buildings use impervious materials such as cement and plastic cladding to keep moisture out, whilst traditional buildings were built using thick permeable materials such as solid brick and stone masonry, timber and lime plasters, which can absorb excess moisture and release it slowly by evaporation. Modern building practice depends on perfect maintenance, because any leak will let water in but prevent it from escaping. The so-called “breathable” materials and structures, by contrast, are affected very little by localised damage, and are able to buffer large quantities of moisture—(timber roof beams of a typical house, for example, can absorb large quantities of water over time with minimal increase in their moisture content), keeping the internal humidity of an occupied building pleasantly stable, at no cost to the fabric. This is no accident: traditional materials and construction techniques were developed by a process of trial and error lasting several thousand years. Retro-fitting traditional buildings with modern materials usually dramatically alters the way the building is working, and all too often results in damp walls: not just giving a conduit for heat loss from the building, but also causing serious damage to the fabric.

The technologies available to reduce emissions and the Government’s role in facilitating relevant further technological development

There are many innovative developments taking place. Given the extent of the traditional housing stock, we would welcome more Government support in exploring the potential to adapt some of these existing technologies to traditional construction. We are also keen to ensure that traditional materials and methods are reassessed for use in new build. For example, solid stone masonry is currently almost unknown (most stonework is cladding), but it gives excellent thermal protection in both low and high temperatures. Although the initial costs are significant, stone-masonry buildings are very long-lived and require very little maintenance, so the whole-life costs may be very low. English Heritage is to host a conference at the end of January 2008 that will help explore some of these issues.

English Heritage is also developing guidance for home-owners on how investment in micro-renewable energy-generation technologies can achieve value for money and be implemented without damaging the appearance, significance or performance of older buildings. (English Heritage guidance note: *Micro Wind Generation and Traditional Buildings* 2007)

Real savings can be derived from benign, relatively low-impact interventions, such as low-energy light-bulbs, condensing boilers, fitting energy switches on heating appliances, and improvements in the efficiency of electrical goods. Using humidistat controls rather than thermostats on heating can not only reduce the demand for energy, but minimise the adverse effects on the building fabric of fluctuating temperatures and humidities.

The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government’s ambitions to reduce poverty.

No comment.

The specific challenges which may arise in relation to housing of special architectural or historical interest

Traditionally constructed buildings make up a substantial percentage of homes in the UK, and are likely to do so for the foreseeable future. According to the recent Housing Green Paper *Homes for the Future: More affordable, more sustainable* (CLG, 2007) the Government has calculated that by 2050 buildings now in existence will account for two-thirds of homes. Given the current rate of replacement of UK housing stock—around 1% per year—we will have to live with our existing buildings for some time yet. We cannot afford not to take proper care of our existing housing stock. It is in our interests to ensure that existing buildings are well managed and maintained, and that any recommended changes are based on a clear understanding of the overall effect they will have on the building’s longevity as well as its efficiency.

We all recognise the part that each of us must play in reducing carbon emissions. Maximising energy efficiency is a desirable objective for the environment, for the economy, and for residents. The *Code for Sustainable Homes* is a very positive step forward. However, English Heritage is concerned that a massive programme of standardised improvements may not be effective and prove to be carbon-costly. We believe that without a better understanding of how traditionally constructed buildings currently perform, combined with more reliable ways of measuring this performance, unnecessary, inappropriate and potentially damaging improvements will be specified on the assumption of inefficiency. We are particularly concerned that a drive by Government to improve traditional homes by adding wall and even roof insulation en masse could prove counter-productive, not only environmentally but also financially. As well as the high risk of damp and decay (leading to costly repair works, and causing the building to lose heat), the consumption of additional resources, including the carbon cost of manufacture and transportation of the insulation materials, must be taken into account. Building waste accounts for 24% of the total waste in the UK, with the Government's Performance and Innovation Unit report, *Resource Productivity*, noting that "energy is consumed in the production of construction materials such as bricks, cement and metals and in their distribution... Over 90% of non-energy minerals extracted in Great Britain are used to supply the construction industry with materials... yet each year some 70 million tonnes of construction and demolition materials and soil end up as waste." (Performance and Innovation Unit, 2000). How do the costs compare to the benefits to be gained by insulation? If careful, resourceful consolidation of existing fabric can achieve good thermal efficiency, to demand extra insulation on solid walls 40 cm or so thick would be a costly mistake.

Memorandum submitted by WWF—UK

INTRODUCTION

WWF welcomes the opportunity to respond to the above enquiry. WWF has extensive experience and knowledge of the housing sector, formerly through the work of our One Million Sustainable Homes (OMSH) campaign and recently through our One Planet Homes campaign, and our work to deliver exemplary "One Planet Living"¹⁹⁹ Communities across the globe with our partners BioRegional.

After extensive work to improve the performance of new build housing over the last five years, WWF has been turning its attention towards existing homes. As part of this we have commissioned a study from the Centre for Sustainable Energy and the Association for the Conservation of Energy to try and understand in more detail both the cuts in carbon emissions that are possible from the UK's existing housing stock—from "cost effective" and more expensive measures—and what kind of policy and support mechanisms would be necessary to achieve this. This report will be completed by November 2007 and we would like to submit it to this enquiry once it is published.

WWF has also commissioned a study—with RSPB and IPPR—to assess what may be required to move the UK to a low carbon economy by 2050. This will build on and reinforce WWF's major asks on the UK Climate Change Bill, namely to ensure cuts of at least 80 % in carbon emissions by 2050, and to ensure the inclusion of emissions from aviation and shipping in this process. The housing sector's contribution to this low carbon trajectory is vital and essential policy requirements relating to the housing sector will be drawn out from this report. This report will be completed by November 2007 and we would like to submit it to this enquiry once it is launched.

WWF's work on ecological footprint and One Planet Living has demonstrated that it is not only vital to tackle the direct impacts of our homes, such as energy used for heating and lighting. The home can also be the major starting point for wider environmental awareness and enabling greener lifestyle choices. For example if homes are within walking access of public transport nodes, local food markets and recycling facilities it makes it much easier for residents to choose more sustainable lifestyle options and dramatically reduce their overall ecological footprint.

The home is where people are most likely to experience direct financial benefits of environmental action, such as reduced fuel and water bills, or incentives such as reductions in council tax as per the British Gas and Braintree flagship scheme.²⁰⁰

Improved resource use in the home will also be vital if we are to address some of the key challenges of adapting to climate change, most notably improved water efficiency.

¹⁹⁹ One Planet Living[®] is a joint initiative of WWF and BioRegional based on 10 guiding principles of sustainability. The vision of One Planet Living is a world in which people everywhere can lead happy, healthy lives within their fair share of the Earth's resources.

²⁰⁰ British Gas worked first with Braintree council and has extended the scheme to 58 councils to offer council tax rebates to people who install energy efficiency measures. Each household who invests in home insulation from British Gas under this scheme will receive a rebate of up to £100 from their local authority and could see energy savings of around £200 a year through installing loft and cavity wall insulation. <http://www.britishgas.co.uk/energy-efficiency/products/home-insulation/council-tax.html>

(i) *The significance of existing housing compared to new build and the different levels of performance each display:*

There is no debate on the importance of addressing existing stock in terms of tackling the UK's carbon emissions. As stated in the introductory paragraph of the call for evidence, housing accounts for around a quarter of all carbon emissions in the UK. It also highlights that even with increased house building, "homes built after 2007 are unlikely to account for more than a third of total housing stock by 2050".²⁰¹

WWF has consistently argued that while it is vitally important that we address the performance of new build, to ensure that it does not add to the high carbon emissions levels already generated by housing, it is more important to tackle existing stock which represents around 99% of the UK's housing stock.

A typical SAP (Standard Assessment Procedure) rating for an average house in England is about 45 (using SAP 2005, where 1 is very poor and 100 is excellent). In contrast, a SAP 2005 rating on a house built to current Part L building regulations would be closer to 80 or more.²⁰² This demonstrates that new build (as long as it complies with Building Regulations) is significantly more energy efficient than most existing homes.

Furthermore, energy demand in the housing sector grew 17.5% from 1990 to 2003—higher than the 7.5% growth for the economy as a whole during the same period. According to the Environmental Change Institute, since 1970, energy use per household has changed very little but because of a 30%²⁰³ growth in household numbers (due to, for example, an increase in single person households) overall energy consumption has increased by 32%.

The main areas of energy demand are space heating, accounting for 60% of energy use, followed by hot water heating (25%) and lighting and appliances (15%). In the last thirty years gains in energy efficiency have been offset by an increase in thermal comfort levels and an increase in electricity use for lights and appliances.²⁰⁴

(ii) *The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency:*

In order to tackle emissions arising from homes, it is clear that action by all of the above parties is crucial.

Residents

WWF understands residents to mean rental tenants in this context, and have answered on that basis. Residents suffer from the consequences of energy inefficient homes, through high bills and reduced thermal comfort, and a potentially unhealthy environment. Residents have little or no incentive to invest in energy efficiency measures (particularly those relating to building fabric) when they do not own the property and may live there for a relatively short period of time.

However, arguably the most significant impact residents can have on home energy efficiency is through their actions and behaviour within the home. It may be the case that without energy efficiency awareness, residents' behaviour may reduce or undermine efficiency improvements—for example through "comfort taking" (when residents turn up the heating to live in a warmer home after efficiency installations, but pay the same energy costs as they were paying for a leaky, colder house before).

Widespread action is needed to ensure the provision of better home energy information to residents. The rollout of Energy Performance Certificates (EPCs) to the private rented sector will be a welcome start, and should be completed as soon as possible, but greater efforts are needed to ensure communication of these messages to tenants. Inclusion of EPCs in tenant's handbooks and contracts should be mandatory.

Landlords

There is clearly very little incentive for landlords to spend money on energy efficiency when they will not get the direct benefits through energy bills as tenants usually pay these. It is hoped that landlords will be more likely to act when they are required to produce an EPC, as prospective tenants may be able to negotiate reduced rental payments on the basis of predicted energy bills. However, WWF's anecdotal experience suggests that not enough people currently know about the EPCs for this to have a significant impact on the rental market. As stated above, WWF believes Government should invest in energy efficiency awareness campaigns for both landlords and tenants in order to remedy this, and also calls for mandatory inclusion of EPCs in rental packs.

²⁰¹ CLG, 2007, *New Inquiry and Call for Evidence, Existing Housing Stock and Climate Change*.

²⁰² NHER, 2007, http://www.nher.co.uk/pages/consumer_centre/energy_ratings.php

²⁰³ CLG, 2007, *Eco-towns Prospectus*.

²⁰⁴ Environmental Change Institute, 2007, <http://www.40percent.org.uk/40-percent-research/introduction/>

Homeowners

Homeowners suffer from the direct negative impacts of an inefficient home, and therefore the direct benefits of improvements, through improved thermal comfort and reduced bills. However; this alone does not seem to have prompted significant take-up of even the most cost effective measures like cavity wall insulation so far. Around 11 million cavity walls remain uninsulated even though undertaking this measure makes very good financial sense (with a payback time of one to three years) and with limited disruption during installation.

Clearly then it is important to understand why homeowners do not act. Possible reasons include a lack of understanding of which measures should be installed, and their benefits. Furthermore, the “hassle factor” related to finding an installer and living with the, often perceived, disruption of installation, and a lack of prioritisation of environmental issues in busy lives.

Again it is hoped that the EPC will help to make people more aware of the efficiency of their own home when they come to put it on the market, or when they’re buying a new property. For the first time people will have this information in a clear and concise way which is a very significant step forward. What remains to be seen is whether buyers act on the advice of the EPC, and install cost effective improvements.

Government should monitor the impacts of the EPCs on energy efficiency closely. Furthermore, those homes outside the sale/letting process will remain unaffected by the EPCs. WWF believes the Government needs to drive people to use the EPC to better understand the environmental performance of their home throughout its lifetime, not just at point of sale, to enable appropriate energy efficiency improvements and the consequent reduced fuel bills.

Again, the lifestyle and behavioural choices of homeowners are equally as important as the fabric of the home. Simple actions like turning off appliances, and making best and most efficient use of heating/cooling systems can have significant impacts on energy consumption. It is therefore vital that behavioural issues are considered, and of course that all appliances are as energy efficient as possible (WWF notes that this enquiry is not considering appliances).

Local Government

The local council is usually the first place where many people turn to ask for advice about home energy efficiency. If the local authority (LA) is not adequately informed or motivated to offer practical help this may be a wasted opportunity for positive intervention. LAs have the optimal interface with local people, and can provide help, advice and information. The LA should also offer fiscal incentives, such as reduced rates of council tax (see footnote 2). This should be supported through increased central government funding.

There has been a great deal of publicity about LAs fining “unsustainable” behaviour (such as failure to recycle, or raising parking fees), but hardly any about financially rewarding sustainable actions. More widespread council tax rebates would provide a simple opportunity to change this, and help change the perception that environmental action is somehow “painful”.

However, council tax rebates should not be seen as some form of panacea. Despite the rebates, most environmental home improvements entail some level of capital expenditure by the home-owner/tenant, and it is essential not to restrict the assistance to the “able-to-pays”. If council tax rebates are provided, this will mean that the people most able to afford improvements (and by implication, most able to afford to pay their council tax) will get the rebates. To balance this, a much more sophisticated grant system than that presently utilised is required, to ensure the equity of installation and rebate.

Central Government

Central Government has a very significant role to play in terms of setting the aspirations for addressing existing housing, and putting in place the national policy to deliver against these aspirations, and providing funding for awareness and support programmes.

WWF welcomed the commitment in the Housing Act 2004 that by 2010 the general level of energy efficiency of residential accommodation in England would be increased by at least 20% compared with the general level of such energy efficiency in 2000. We further welcomed the Government’s recent commitment that all homes should be “low carbon” within 10 years. We feel this is setting a challenging but realistic target for greater energy efficiency in this sector. However, unlike in Germany, where the Chancellor has

committed that 5% of the housing stock be improved year on year, and set in place policy measures and committed the necessary finance to enable it²⁰⁵, the UK Government has not yet outlined how it intends to achieve the goal.

WWF was deeply disappointed that during the last review of the building regulations (Part L), the Government withdrew a proposal for “consequential improvements” to be required in existing homes when people increased the carbon footprint of their home (for example by building a conservatory). This was in spite of the fact that the majority of respondents were in favour of the measure. WWF would urge Government to reinstate this proposal in the next review of Part L, and implement it in 2010. This is a vital measure to rein in future incremental growth of the carbon footprint of our existing stock, and will help close a blatant environmental loophole.

As well as regulatory measures, WWF thinks that central Government must also offer national fiscal incentives and support LAs in the delivery of local rebates. For example, the recent stamp duty land tax exemption for new zero carbon homes could be extended to existing homes when people undertake to improve on their home’s EPC within a certain time after moving in. However; it should be noted that the zero carbon definition being employed for this exemption for new homes is unnecessarily restrictive and should be aligned with more realistic targets, as set out in the Code for Sustainable Homes. WWF has responded separately to the Treasury’s informal consultation on the zero carbon stamp duty land tax relief. A copy of our response can be made available to the Committee if requested.

Other financial incentives should include the provision of long-term loans attached to a home, to be paid back over a period of say, 25 years, to enable extensive renovation work to be undertaken. This could be provided in partnership with mortgage companies.

Central Government should also invest more in greater support services for energy efficiency. Currently, Energy Efficiency Advice Centres are available but not many people know about them, and anecdotal evidence suggests that some information provided by them can be too generalised (ie not house specific). The Government needs to better understand the factors which motivate people to take environmental actions.

Government needs to build on the awareness of the issues that people already have and drive action in these areas. In doing so, government must understand that the motivation for action is different for different people: a sense of responsibility, providing a better future for their children, fostering community spirit, personal gain, monetary savings etc. Furthermore, it is essential to recognise that national policy without local action and implementation is meaningless. Although short term wins are possible in changing behaviour patterns, it is crucially important to focus attention on the way people behave in the long-term, and not just about changing actions in the short term. This type of behaviour change happens best when people take action together—thus, more support for collective action is needed, and not a constant reliance on isolated, individual behaviour change.

The Government should also invest heavily in extending the Low Carbon Buildings Programme to offer grants for appropriate community and household renewable energy technologies. Attempts by government to defend claims to be supportive of the microgeneration industry are futile without this massive uplift in investment. Furthermore, Government needs to roll out an information service relating to this Programme to bolster public awareness and confidence in the scheme.

Energy industry

The UK energy industry has several minimum regulatory measures to work within which aim to reduce the negative environmental impacts of certain parts of the industry. These include the Renewables Obligation (RO), the Carbon Emissions Reduction Target (CERT) and then from 2011-2020 the Government has committed to some form of Supplier Obligation (SO)—a cap and trade scheme coupled with a reduction in the amount of energy supplied to households, in an effort to reduce energy demand and carbon emissions.

The aim of the SO is to encourage; a new relationship between energy suppliers and customers; the decoupling of profits and units of energy supplied; and the development of new energy services companies, so that the present energy supply market is transformed.

Energy companies should take a lead by exploring and committing to a number of new proposals to help them in the transition to a low-carbon economy. These could include; increasing investment in large and smaller-scale renewables, trialling new and innovative energy and carbon saving measures in households, such as attractive loans, installing solar thermal and smarter metering, and seriously considering the carbon benefits of introducing a new increasing block tariff type of structure in the bills to households.

²⁰⁵ According to the Environmental Audit Committee “The German Government has said it intends to quadruple the annual budget for encouraging energy efficiency from €360 million (£240 million) a year to €1.5 billion (£1 billion) a year. Interestingly, it has also switched from financing loans to funding direct subsidies because it believes that direct fiscal incentives are more likely to have an impact. The German approach to fiscal incentives contrasts sharply with the lacklustre way in which ODP, DEFRA and the Treasury have responded to the question of fiscal incentives, which not only speaks volumes about the real level of importance and commitment afforded to this issue, but also paints a very depressing picture of complacency and apathy which we believe is all too evident in these departments.”—March, 2006, <http://www.publications.parliament.uk/pa/cm200506/cmselect/cmenvaud/779/77907.htm>

WWF has recently published a report—*Waste Not, Want Not, Water and Energy Tariffs for Sustainability*—outlining new pricing structures for household energy and water that will help to address the increasing environmental impact of rising demand. WWF has included this report²⁰⁶ as part of our response to this enquiry.

(iii) *EPCs and the provision of information to households/buyers:*

See above.

(iv) *Government efforts so far through public/private sector, including Decent Homes:*

WWF congratulates the Government for leading the way on energy efficiency through the public sector. In the new build sector the Government has led the way by committing to the Code for Sustainable Homes level 3, and for existing public housing stock, many homes that were previously in dire states of repair have been ameliorated by the Decent Homes programme.

However, from a thermal efficiency perspective, the Decent Homes programme does not go beyond the very minimum acceptable standards for thermal comfort, and the Government has not made enough resources available to fund greater improvements. Arguably it would have been preferable for this refurbishment programme, which has been extensive, to invest in greater efficiency from the start rather than having to retrofit those houses again to bring them up to better SAP standards.

WWF believes that over the medium-term, Government should require that all publicly-owned existing housing stock be assessed against the *EcoHomes for Existing Buildings standards*, developed by BRE and the Housing Corporation, with targets set for improvements, and Central Government financial support for councils and housing associations to enable this. This will not only provide significant environmental savings, it will also help to lower residents' water and energy bills and protect them against future price increases.

WWF suggests that the Government should use existing public sector stock to demonstrate how improvements should be made, providing best practice exemplar schemes to complement the “eco-towns” which will demonstrate best practice in new build.

Government efforts to tackle the private sector have amounted to very little so far. The Government has made very few interventions and indeed, as stated they actively backed away from imposing further requirements for energy efficiency in existing homes through Part L. WWF believes this was a significant missed opportunity to make massive cuts in carbon emissions.

We therefore strongly recommend that the Government commits to a “Germany-style” programme to address the energy efficiency of our existing homes with fiscal incentives in place to enable it.

(v) *The technologies available to reduce emissions:*

There are a number of challenges in the existing stock which require innovative solutions. Perhaps first amongst these is insulation for solid walls. WWF understands from the current BERR consultation, *Draft Strategy for Sustainable Construction*, that work is being carried out to research options for solid wall insulation, and we look forward to the results.

WWF also welcomed the recent easing of planning restrictions for both community and individual building renewables. However, it is essential that residents undertake efficiency measures first to ensure optimum use of renewable energy, and it must be ensured that appropriate renewables are being installed. It would be counter-productive for there to be a backlash against badly sold and installed renewable technologies because they fail to meet expectations of energy supply.

New and innovative technical solutions are needed like a switch which turns off all non-essential plugs (for example at night or during holidays, to prevent appliances wasting electricity and make it easier for residents) should also be examined and perhaps incorporated into future revisions of Building Regulations.

(vi) *The costs associate with reducing carbon emissions from existing housing:*

WWF believes it is a false economy to take a short-term view of cost when it comes to energy efficiency. Many measures such as energy efficient light bulbs and insulation will require upfront capital costs, however the pay back time for these measures is very short and the carbon savings are significant. Using the right technologies and measures means that saving carbon and cutting bills can go hand in hand.

We're carrying out research, as outlined above in the introduction, on the costs associated with slashing the carbon emissions from the UK's existing stock. This report will be completed by November 2007 and we would like to submit it to this enquiry.

²⁰⁶ http://www.wwf.org.uk/filelibrary/pdf/energy_water_summary_final.pdf,
http://www.wwf.org.uk/filelibrary/pdf/water_tariffs_report01.pdf,
http://www.wwf.org.uk/filelibrary/pdf/energy_tariffs_report.pdf

(vii) *Specific challenges which may arise in relation to housing of special architectural or historical interest:*

WWF has no expertise in this area.

CLIMATE CHANGE ADAPTATION: WATER EFFICIENCY

WWF maintains that however successful we are in reducing carbon emissions, the UK needs a comprehensive strategy for adapting to the effects of climate change, some of which we have already experienced. Among the most significant predicted impacts of climate change in the UK will be reductions in precipitation in certain regions, and this will place increased pressure on our already stretched domestic water supplies. Significant progress has been made in considering improved water efficiency in new housing. The challenge now lies in reducing water use in the existing housing stock.

The UK lags significantly behind other European countries in addressing water efficiency. In the UK, each person uses on average 150–180 litres per day. However, as a result of determined action, countries such as Germany have been able to reduce this to 125. We must follow their example.

In 2006, WWF was part of a coalition of organisations (between them representing over 6 million people) who published the *Blueprint for Water*.²⁰⁷ The *Blueprint* set out a clear plan to achieve sustainable water management in England and Wales. Among these were steps to address water efficiency in existing housing.

WWF believes the Government should publish plans to install a water meter in every home. The WWF report,²⁰⁸ included as part of this response, has made a strong case for the installation of water meters. More than 90 studies of international experience and UK trials have unambiguously demonstrated that introducing metering and increasing block tariffs would lead to a sustained reduction in demand of at least 10%, with reductions of up to 30% in peak (summer) demand, when water availability is at its lowest. Meters can be accompanied by tariffs that protect vulnerable customers and penalise wasteful use.

WWF recommends that DCLG should introduce mandatory high water-efficient standards for fixtures and fittings to be installed in existing homes. The Government must also give strong guidance to OFWAT to approve water company investment in fitting water-efficient devices and appliances into existing homes. WWF understands that consumers must be empowered and incentivised to use water more efficiently by a combination of standards set by the Government and corresponding services and products provided by businesses and the water industry.

Memorandum submitted by Lower Carbon Futures, Environmental Change Institute, Oxford University

Section headings shown in *italics* are taken from the call for evidence, with our responses below each heading.

The significance of existing housing compared to new build and the different levels of performance each display

Each new home built represents an additional burden on the environment, so it makes sense to keep that burden as small as possible through tough environmental standards (and better compliance with those standards) for new-build housing. However, by far the greatest share of the environmental burden comes from existing homes because of the size, age and inefficiency of the UK housing stock. A graphic representation of these connected problems was developed by the Environmental Change Institute at Oxford University in a consultancy report for the Royal Commission on Environmental Pollution's 26th report, *the Urban Environment* (fig 1). This depicts a scenario for a 75% reduction in CO₂ emissions in 2050 over a 1996 baseline, taking into account the impacts from the changing stock of homes over that time: existing homes and how far they might be refurbished; standards for new homes; allowance for demolition of older homes and replacement with new ones; integration of low- and zero-carbon technologies (LZC) into the built environment of housing.

The large blue rectangle (labelled "existing stock 2005") represents the CO₂ emissions from the housing stock as it was in 2005—a stock of 25 million homes with an average consumption of some 22 MWh per year (delivered energy for all domestic energy demands: space heating, water heating, cooking, lighting and appliances). Demand reduction measures can cut energy use by roughly 50%, with building-integrated renewables and low-carbon supply technologies, such as combined heat and power (CHP), reducing the carbon intensity of the remaining demand (see, for example, (Boardman, Darby *et al.* 2005)). Thus, in terms of CO₂ emissions, significant reductions can be achieved through a combination of reduced demand and low- and zero-carbon technologies (represented by the purple rectangle labelled "refurbished stock 2005"). The remaining two rectangles ("new for old 2050" and "additional new 2050") represent the average CO₂ emissions from all homes built after 2005, with a zero-carbon standard assumed to be in force (and complied with) by 2020. It is clear from this computer modelling work that the existing stock represents the largest impact and also the largest scope for improvement.

²⁰⁷ www.blueprintforwater.org.uk

²⁰⁸ *Waste Not, Want Not—Sustainable Water Tariffs*—http://www.wwf.org.uk/filelibrary/pdf/water_tariffs_report01.pdf

Carbon emissions from refurbished and new-build homes, Scenario C

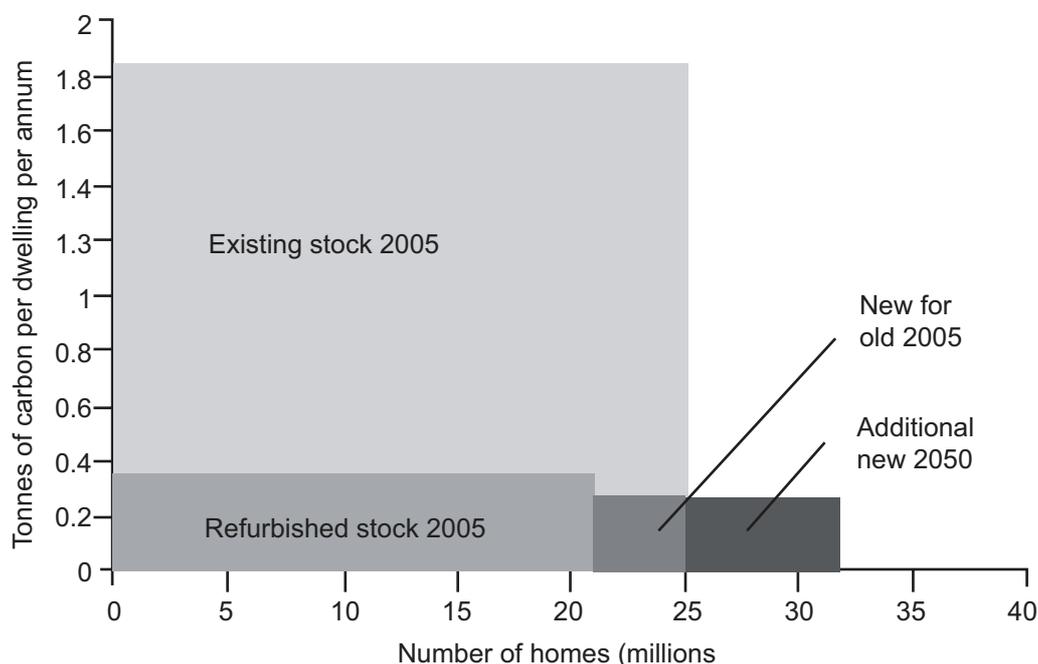


Fig 1. Modelled CO₂ emissions from a scenario showing 75% reductions across the entire UK housing stock by 2050 (1990 baseline) Source: (Royal Commission on Environmental Pollution 2007)

The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency

Whilst all elements of society have a role to play, it is the responsibility of central government to provide a coherent strategy that is commensurate with the scale of the problem. There is an urgent need for a clear framework that combines housing and energy policies. This strategy may well incorporate:

- devolved carbon reduction targets for local government, covering the whole housing stock;
- obligations on the energy suppliers to reduce the carbon emitted per customer;
- the introduction of appropriate financial incentives, such as feed-in tariffs, stamp duty rebates;
- regulations on the minimum standards for new products, such as light bulbs and white goods. This would be in conjunction with the EU.

Work towards a reduction target for 2050 needs to start now for two main reasons: firstly, the sheer size of the stock means that any noticeable improvement will take several years, possibly decades; secondly, opportunities for low-carbon refurbishment need to be taken whenever other renovation works are being undertaken as a means of keeping the cost and disruption to a minimum. Such opportunities may only arise once in several years or decades.

In order to fit the scale of the policy initiative to the scale of the problem, a key question is that of intervention point and timescale. When should incentives, regulation and information be brought to bear? With 1.5–2 million property transactions per year in the UK, the point of sale or rental is clearly a strong candidate for interventions if the aim is to transform the entire housing stock (some 26 million homes in 2007) within a few decades. However, the “headline” figure for the number of property transactions needs to be analysed further, as the average figure covers a broad range. Owner-occupiers represent nearly 70% of households in England and half of these will live in their homes for longer than 11.8 years ((Department for Communities and Local Government 2006)). This 35% of the housing stock would only be affected very slowly by policies aimed at property transactions and it may be that the introduction of such policies would act as an extra disincentive to this significant minority of “stayers” from putting their homes on the market. Regulation of major refurbishment (e.g. loft conversions and extensions) could require improvements to the existing building as a condition of Planning permission (a proposal of this kind was included in the draft revision to Building Regulations part L, but dropped from the final Approved Document for 2006). Some opportunities for action occur only rarely and innovative solutions are required to tackle the energy inefficiency of the homes of the “stayers”—those who do not wish to move and do not wish to take on major refurbishment work.

The role of the public sector will be key, not only in its role as regulator but also in its role as property owner, estate manager and client for building work (both new-build and refurbishment). If the public-sector requires low carbon standards for its existing housing stock, this will provide industry with experience of new technologies, high standards of construction and reduce the threat of fuel poverty for the occupants. The public sector working to perfect future standards will foster innovation and training, and hence reduce the risk of failures. The government as client needs to ensure that lessons learned from the process are widely disseminated. By creating a market for innovative refurbishment projects, the public sector will attract innovators from the private sector and send a signal to the construction industry supply chain that new products and techniques are set to take a significant share of the market. The public sector as client can demand standards in refurbishment which are currently only the preserve of a few enthusiasts. This in turn can lead to reductions in unit costs and a “mainstreaming” of advanced refurbishment options, which is then more readily available (and cheaper) to owner-occupiers and private landlords.

The provision of information for households and prospective house buyers, including energy performance certificates

Energy performance certificates (EPCs) have the potential to be a powerful tool but they will only achieve this potential if strong complementary action is built around them—a true case for market transformation. Ingredients for a transformation of housing refurbishment:

- wide use of the Energy Performance Certificate in public awareness and education campaigns, e.g. the energy rating should be prominent in property advertisements on websites, in print media, in estate agents’ windows and on the web;
- demonstration projects with post-completion monitoring to gauge the results;
- research to establish reasonable standards for (different types of) refurbishment of existing housing;
- long-term signal to property owners that minimum standards are coming, e.g. homes achieving band G of the Energy Performance Certificate will not be saleable or rentable from a certain date (say, 2012), and that subsequent revisions will make the standard tighter;
- strong reinforcement of the Housing, Health and Safety Rating System to ensure that action is taken on the worst housing;
- commitment of money to improve public sector stock (using existing structures through Housing Corporation, Registered Social Landlords);
- complementary energy tariff structures: for example, feed-in tariffs for building-integrated renewables and increasing block tariffs for energy supply (i.e. price increases in blocks as total consumption increases).

An additional form of information to households will come from the improved metering, monitoring and billing procedures being trialled by DEFRA’s Energy Demand Reduction project. This should include carbon information, to alert people to the amount of pollution their actions are causing.

Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

The existing decent homes programme is based on a poor minimum trigger standard (e.g. 50 mm loft insulation) and is motivated by a desire to make incremental improvements in that section of the housing stock which is both thermally inefficient and occupied by the vulnerable.

A second, tougher decent homes standard is required for all public sector housing, to stimulate public sector investment and to combat the growing problem of fuel poverty. The target for improvement should be set at about a SAP 80 level and include the installation of low and zero carbon technologies, as well as insulation measures in hard-to-treat homes. Such investment goes beyond conventional definitions of cost-effectiveness but application of these narrow, cost-based criteria cannot deliver deep enough cuts in CO₂ emissions, nor do they give long-lasting insurance against fuel poverty to low-income households. The climate change mitigation agenda complements other agendas, for instance on equity and energy security.

The technologies available to reduce emissions and the Government’s role in facilitating relevant further technological development

Technology is important but so is quality of installation, servicing and repair. The biggest emissions reductions come from high-quality installation of existing technology (e.g. insulation). The historic focus on low-cost, low-disruption measures (e.g. loft insulation) needs to shift towards a whole home audit and refurbishment process. The energy issues need to be addressed along with other desires of the householder (e.g. new kitchens, bathrooms). The home improvement market in the UK is large, with some £23 billion

spent annually on repair, maintenance and improvement of the existing stock ((Department of Trade and Industry 2006)). This scale of investment in property is being made without a systematic attempt to integrate low-carbon options at the time when they make most sense, ie when other work is being carried out.

The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty

The Government in England and Wales has a legal obligation under the Warm Homes and Energy Conservation Act 2000 to ensure that “as far as is reasonably practicable, persons do not live in fuel poverty” by 2016. Similar legislation exists in the devolved administrations.

Experience from pioneering low-carbon refurbishment projects suggests that costs can be as high as £20,000–£60,000 per home (at current prices), depending on the home, the choice of technologies used and on the target emissions reduction. However, cost and disruption can be substantially reduced if the work is scheduled at the same time as other improvements (e.g. re-plastering work, fitting new kitchens or bathrooms), and the marginal costs of a low-carbon refurbishment over a conventional refurbishment are likely to be in the range £2,000–£10,000 (again, depending on the home and on the target emissions reduction). Given that approximately 50% can be achieved through demand reduction measures, a key question is how much extra investment is required in LZC to achieve tougher targets. Expensive renewable energy technologies, such as solar photovoltaics (PV), will tend to skew the cost-benefit analysis considerably at current prices.

If the market for low-carbon refurbishment were more mature, then these costs would be highly likely to come down as products and services move from niche markets into the mainstream. Indeed, the potential for unit cost reductions is considerable, given the low level of take-up at the current time. In order to realise this mainstreaming and unit cost reduction, a concerted strategy will be required. Initiatives to date have been unambitious and piecemeal, built around the notion of cost-effectiveness and the promotion of individual measures (eg, loft insulation, cavity wall insulation, upgraded heating controls). Instead, a process of whole-home audit and refurbishment is needed, with the aim of achieving deep CO₂ emissions reductions. Embedding this process within the existing market for home refurbishment (ie getting the low-carbon work done at times when work is being done for other reasons) will help reduce costs and disruption to the householder.

The argument for major investment in the energy performance of the housing stock can be viewed in the context of the Stern Review ((Stern 2006)) on the economics of climate change, which argued that significant financial investment now would avoid even higher costs in the future.

The cost of upgrading social housing will need to be borne by the public purse. If this is done in a spirit of innovation and collaboration with private sector partners, then it has the potential to stimulate new economic activity in the construction sector as well as drive down future costs by establishing supply chains for refurbishment products. For private housing (owner-occupiers and private landlords), a set of policies is needed to set standards for low-carbon refurbishment and ease the cost burden. The proposed tax rebate on Stamp Duty for zero-carbon new homes could be extended to cover refurbishment. Increased sales of energy-efficient and low-carbon technology will boost VAT receipts at the same time, so one policy objective could be revenue neutrality for the Treasury.

Generally speaking, measures to reduce energy demand (insulation, measures to improve airtightness) achieve the most and are most effective both in terms of cost and carbon emissions reduction.

Tariff structures for energy are currently retrogressive, resulting in higher costs per unit for low consumers (often those on low incomes) because fixed standing charges are a higher percentage of total cost when consumption is low. Also, pre-payment methods (mostly taken up by low-income groups) typically involve high unit costs, while more affluent households tend to be the ones to benefit from discounts from suppliers for other payment options (e.g. monthly direct debit). A recent report by Centre for Sustainable Energy for WWF models the likely CO₂ emissions reduction that could be achieved by implementing increasing block tariffs (IBTs), including a literature survey of the price elasticity of demand for energy ((Thumim, White et al 2007)).

The specific challenges which may arise in relation to housing of special architectural or historical interest

Heritage conservation needs to be balanced against climate change mitigation—more interventions should be possible in heritage/conservation buildings than are currently allowed. Re-creation of original features (e.g. cornicing on top of internal wall insulation) should be seen as desirable, not rejected because of the intransigent position of conservation bodies, which argues that no original features should ever be lost.

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Memorandum submitted by the Energy Saving Trust

This is the response by the Energy Saving Trust to the inquiry by the Communities and Local Government Committee launched on 25 July 2007, on the existing housing stock and climate change. The response should not be read as representing the views of any individual member of the Trust.

SUMMARY

The Energy Saving Trust welcomes the CLG Committee inquiry into existing homes and climate change. Homes account for 27% of national carbon emissions, and it is therefore essential that they are addressed.

Whilst there are a number of Government and other initiatives targeted at reducing emissions from the housing stock, the Energy Saving Trust believes there is a need for a long-term Government strategy, setting out the pathway to reducing emissions by 60% (or more) by 2050. Only then will the full range of necessary policy interventions become clear.

In the meantime, the Energy Saving Trust believes there is a need for the following changes:

- Government funding for the roll-out of a Sustainable Energy Network, a one-stop shop for householders and sub-regional strategic co-ordination service on sustainable energy.
- A support programme for the home moving supply chain and for consumers, to convert Energy Performance Certificates (EPCs) to action.
- The installation of smart metering in new homes and during major refurbishments, and a full-scale roll-out of smart meters completed within the next 10 years.
- The development of a “post-Decent Homes” standard, for social housing providers to prepare for and incorporate in their longer-term investment plans.
- A range of legislative and support instruments to fill the gaps that schemes such as the obligation on energy suppliers to meet energy saving targets (CERT) cannot comprehensively cover.
- Well-evaluated, large-scale demonstration projects to pave the way for the next generation of refurbishment technologies beyond the currently cost-effective measures.

Attached is the Energy Saving Trust’s report: “Scoping Study: Improving the Energy Performance of Existing Homes,” that we believe provides more detail on these issues.

BACKGROUND TO THE ENERGY SAVING TRUST

The Energy Saving Trust was established in after the Rio Earth Summit in 1992, to address energy efficiency in housing. Since that time, the Trust has expanded its activities to address all mass-market sustainable energy solutions, covering domestic energy efficiency, microgeneration, and cleaner transport. The Trust therefore has expertise both in consumer attitudes and behaviour, and in technologies and market transformation. We believe that both behaviour change and technology development are essential, if we are to achieve a significant reduction in carbon emissions from our housing stock.

THE SIGNIFICANCE OF EXISTING HOUSING COMPARED TO NEW BUILD AND THE DIFFERENT LEVELS OF PERFORMANCE EACH DISPLAY

The existing housing stock accounts for 27% of climate damaging carbon dioxide emissions. We expect the vast majority of these homes still to be standing in 2050, because the rate of demolition and/or replacement of housing is very low, at less than 0.01% per year. Addressing the currently existing housing stock is therefore essential if Government is to meet its long-term national carbon reduction goal of 60% by 2050.

The average emissions from a home in the UK are 1.6tC (tonnes of carbon), of which 1.3tC is from heating and lighting (i.e. not appliance use). This compares with 0.86tC from a newbuild home, of which 0.56tC is from heating and lighting. A householder in a typical existing home is responsible for almost twice the carbon emissions of someone living in a new home.

While refurbishment methods and technologies will not be identical to those in newbuild, there is a large potential for emissions reductions in the existing stock. Measures that are currently cost-effective (ie: fuel bill savings recoup the cost of investment within three years) could alone save 9MtC, or over 20% of emissions from the housing stock. Further measures are also available, and combined with the basic measures the emissions reduction potential exceeds 60%.

Changes Needed

In view of the above, i.e: a) the sheer volume of existing homes, b) their relatively high individual carbon emissions, and c) the availability of measures to reduce these emissions, it is clear that a programme is needed from now to 2050 for the improvement of the existing stock. It is also clear that Government needs to develop a long-term strategic framework for emissions reductions in existing housing, as it has done to some extent for newbuild. Without this, and a clear goal (such as an emissions reduction target for housing) to aim for, it will not be clear what further resources and what further policies are needed in this area.

THE RESPECTIVE ROLES OF RESIDENTS, HOMEOWNERS, LANDLORDS, LOCAL GOVERNMENT, CENTRAL GOVERNMENT, AND THE ENERGY INDUSTRY

The majority of housing is owner-occupied, with the rest in the social sector and privately rented. The person responsible for improving the property is different in each of these sectors, i.e: it is respectively the owner-occupier, the social housing provider, and the landlord. The aim with all activities and policies is to secure action by these three players.

The Energy Efficiency Innovation Review (2006) showed the three main barriers to action by owner-occupiers as: (a) hassle factor, (b) lack of trust, and (c) price perception gap. While energy companies are playing an ever increasing role in promoting and offering incentives for the uptake of energy efficiency measures, we do not believe these three barriers have been fully addressed since the completion of the Review.

We support the Government in its approach to energy regulation, whereby energy companies are set carbon reduction targets (“CERT”), and thereby incentivised pro-actively to promote energy saving measures to householders. We believe this is the single largest initiative for improving the energy performance of the existing housing stock. However, energy companies are generally not trusted by householders, especially when they come in the name of energy saving, and this compounds the barriers of hassle and price perception, because the customer will feel they need to double-check and shop around just in case. As a result, energy companies will find it increasingly difficult and therefore expensive to find receptive householders, unless there is a wider, impartial consumer support network in place.

Changes Needed

The Energy Saving Trust is looking to roll out a “Sustainable Energy Network” on a national basis. This is essentially a one-stop shop for householders on domestic energy efficiency, microgeneration, and cleaner road transport, coupled with a strategic co-ordination service to bring about more coherence and direction to the activities of the various stakeholders in the area.

The SEN will continue to provide reactive impartial and expert advice on domestic energy efficiency that is currently provided by the Energy Efficiency Advice Centres. But, in terms of the three barriers set out above, it would also assist the householder with finding an installer who would do a thorough job and “leave the place as he found it” (hassle); advise the householder on the best course of action without any ulterior motive (trust); and provide the householder with information on technologies and indicative installation costs (price perception).

The roll-out of SEN is dependent a significant increase in Government funding.

ENERGY PERFORMANCE CERTIFICATES

The Energy Saving Trust is very pleased to see the introduction of Energy Performance Certificates (EPCs) upon the marketing of a home. EPCs begin to address lack of awareness on the part of both vendors and buyers, in terms of the true quality and performance of the home, and the potential for improvement. We look forward to the roll-out of EPCs from 3–4 bedroom homes to all homes as soon as is practicable.

Changes Needed

EPCs are a pivotal tool for delivering action on the part of homeowners as part of the home purchase process. However, we do not believe the EPC is enough on its own. The reality of moving home is that a certificate in the Home Information Pack is likely to be a low priority in relation to the many other things the customer has to do and look out for. And the EPC may well have been forgotten by the time the householder feels in a position to take action.

For this reason, the Energy Saving Trust would like to see:

- A support programme for estate agents, raising awareness, explaining, and highlighting the potential business opportunities associated with the EPC.
- A more general awareness raising campaign on EPCs and their relevance to climate change.
- The provision of EPC data to an impartial, non-commercial agency such as the Energy Saving Trust, that can use this for the purposes of targeting and follow-up after the home moving process is complete.

The European Directive on the Energy Performance of Buildings also requires the introduction of EPCs for rented accommodation, both in private and social housing. We look forward to more intensive and timely policy development in these areas.

THE PROVISION OF INFORMATION FOR HOUSEHOLDS AND PROSPECTIVE HOUSE BUYERS

Information is essential for householders to be aware of their energy consumption, and therefore to be in a position to take action. But information alone is not enough; it needs to be provided by a trusted party, and it needs to be accompanied by support to action. This has already been explained above in relation to EPCs.

A further area is smart metering (automated meter management + interval metering + consumer interface). Smart metering provides significant opportunities to improve domestic energy efficiency by catalysing long term sustainable behavioural change and increasing the rate of installation of measures by making energy consumption visible. Smart metering also provides a visible link between energy saving awareness, information and advice and the action required to reduce consumption through instant feedback to the consumer.

International experience demonstrates that smart metering delivers energy saving. The Energy Saving Trust believes the implementation of smart metering and improved consumer feedback can achieve energy savings in the order of 5% which would provide a significant contribution to the Government's domestic carbon reduction targets.

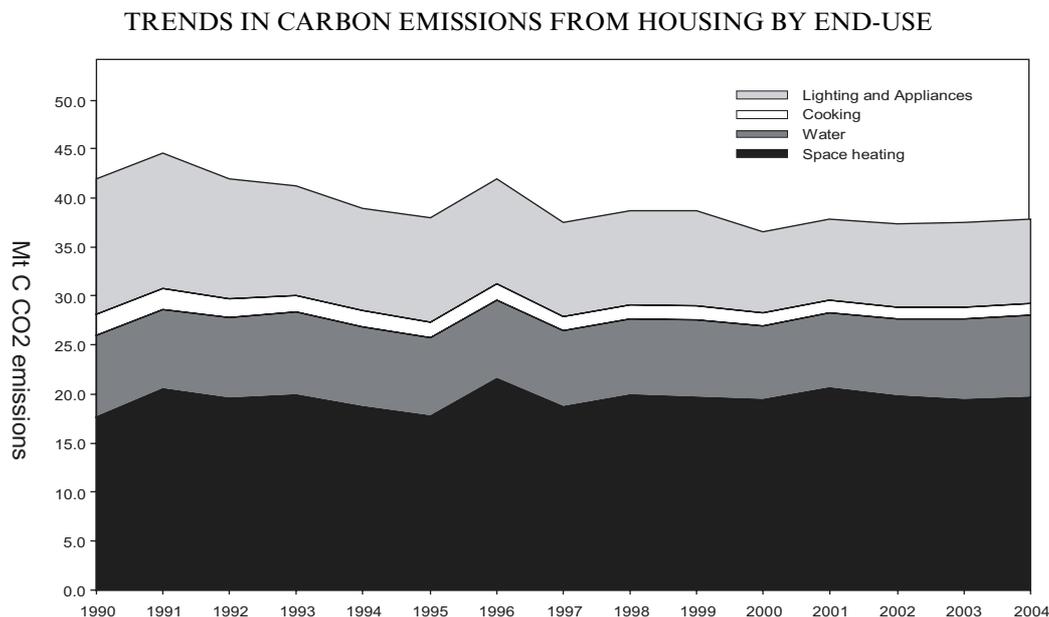
Changes Needed

The Energy Saving Trust strongly supports the installation of smart metering in new dwellings and during major refurbishments, as well as a programme for full-scale roll-out completed within the next ten years. Real-time energy displays should be installed as part of this programme.

GOVERNMENT EFFORTS TO REDUCE CARBON EMISSIONS FROM EXISTING HOUSING STOCK (PRIVATE OR PUBLIC OWNERSHIP)

The Government is introducing some valuable policies on energy efficiency in the existing stock, notably CERT (formerly EEC) for energy suppliers, EPCs for home movers, and Decent Homes for social housing. However, existing policies have not over recent years reduced absolute carbon emissions, as shown below:

Figure 1



Changes Needed

The Energy Saving Trust supports the expansion of the Energy Efficiency Commitment scheme to a higher carbon saving target under CERT. We are concerned, however, that any energy supplier scheme will continue to miss households that are “too difficult,”—whether they simply do not trust the energy supplier, or cannot accommodate the most cost-effective energy efficiency measures, or are for geographical reasons difficult to market to. We believe that pro-active Government housing policies are needed to fill such gaps. Examples include a requirements for tough energy efficiency improvements in all major renovation works; and a long-term legislative plan for ensuring that all EPC recommendations are implemented before a house is sold.

The Decent Homes target is for all social housing to meet the Decent Homes standard by 2010. Indications are that in reality this will be closer to 2014. However, it is important to ensure that the social housing sector continues to improve the energy efficiency of their housing stock. Social housing providers generally develop longer term investment plans for ongoing upgrade of their stock. As such, Government should be looking to develop longer-term rolling targets for energy efficiency improvements in the sector.

Similarly, there is a need for Government to look at the next generation of “advanced refurbishment” measures, beyond the staple cost-effective measures currently being promoted, and prepare for their support and roll-out. CERT promises to be one instrument for this in the long-term, but more is needed to pave the way for this. The Energy Saving Trust is supporting a number of advanced refurbishment schemes, to assess the issues inherent in improving homes beyond the staple measures. We would be keen to feed these results into the housing debate, and potentially the development of a larger Government funded pilot scheme, ready for wider roll-out in due course.

THE TECHNOLOGIES AVAILABLE TO REDUCE EMISSIONS AND THE GOVERNMENT’S ROLE IN FACILITATING RELEVANT FURTHER TECHNOLOGICAL DEVELOPMENT

As stated above, mass-market, proven, cost-effective technologies already exist that can reduce emissions across the housing stock by over 20%. These technologies include insulation measures (cavity wall insulation, loft insulation, hot water tank insulation), heating measures (controls and thermostatic radiator valves, high-efficiency condensing boilers), and efficient lighting measures. The Energy Saving Trust believes these measures need now to be installed as quickly as possible, through schemes such as CERT.

What seems to be missing is a long-term plan for developing mass markets in the next generation of technologies, including concerted action systematically to develop and evaluate their performance and acceptability. These technologies include external and internal wall insulation and various microgeneration (mass-market renewable energy) technologies.

Changes Needed

The Energy Saving Trust would like to see a long-term strategy for carbon reductions in housing, including “next steps” for when all the staple measures are in place. This strategy would need to address the question: What do we want our housing stock to look like by 2050? How are we willing to change its appearance? What are we not willing to do, even in the fight against climate change? What are the alternatives, and how can these be developed? These questions are essential to address if we are to have a clear view of where we are heading.

As set out previously, the Energy Saving Trust is supporting a number of advanced refurbishment schemes, and is keen to feed these results into the housing debate for eventual wider roll-out.

The performance of individual technologies needs furthermore to be robustly and regularly assessed, through field trials and monitoring. The assessment must come with a form of accreditation. This allows consumers, but also local authorities, agencies, and others, to try the right technologies on the basis of scientifically gained evidence. The Energy Saving Trust is supporting a number of individual monitoring projects. However, there is a need for Government funding for a far larger, comprehensive monitoring programme for the next generation of technologies.

THE COSTS ASSOCIATED WITH REDUCING CARBON EMISSIONS FROM EXISTING HOUSING, WHO SHOULD MEET THESE, AND THE INTERACTION BETWEEN CARBON AND FUEL POVERTY TARGETS

The immediate priority in terms of mass-market action is to ensure the installation of the basic, cost-effective measures. These measures will typically (averaged over all housing in the UK) save £250–£300 per year, every year, on the back of fuel bills, recouping the cost of investment within three years. For those that can afford the upfront investment, therefore, it seems fair that they should bear the capital cost.

However, there are still many barriers to overcome in relation to the “able to pay” market, notably the aforementioned lack of awareness, hassle factor, trust issues, and price perception gap. It takes resources to overcome these barriers and help householders make the investment that is in their own interest. We support the Government in its approach to energy regulation, whereby energy companies are set carbon reduction targets (“CERT”), and thereby incentivised pro-actively to promote energy saving measures to householders. But we would also stress the importance of the Energy Saving Trust’s own background / underpinning activities, such as the Energy Saving consumer awareness campaign, and the provision of impartial consumer advice through the Energy Advice Network. These provide the context for grant schemes and other promotions from players such as energy companies.

For the less well-off, we support the Government’s funding of the Warm Front scheme (and its equivalents in the Devolved Administrations), which offers grant assistance for insulation and heating measures for low-income households. And we support the ringfencing of a “priority group” within CERT, requiring energy companies to direct a proportion of their activities at low-income households.

The interaction of climate change and fuel poverty targets is generally consistent. —We need to protect the most vulnerable households and ensure they are able to heat their homes, before introducing possible sanctions against energy use. The Government’s target to eradicate fuel poverty by 2016 as far as is practicable is therefore welcome.

Changes Needed

On the issue of fuel poverty, there are a number of “hard-to-treat” homes that cannot accommodate the staple, cost-effective measures. Low-income householders in these homes therefore need something more, if the Government is to meet its fuel poverty target. This is an ongoing issue. The Energy Saving Trust would like the Government to fund a number of focused, well-evaluated refurbishment projects to see how more innovative technologies can be installed and how they are subsequently used in the homes of the fuel poor. We will be happy to contribute with evidence from our own advanced refurbishment projects, although these are not in the fuel poor sector.

THE SPECIFIC CHALLENGES WHICH MAY ARISE IN RELATION TO HOUSING OF SPECIAL ARCHITECTURAL OR HISTORICAL INTEREST

The Energy Saving Trust accepts that there are some buildings of architectural or historical interest that need special attention when it comes to energy efficiency improvements. There are in general more solutions to the issues relating to such buildings than many would think, and for this reason the Trust has produced a guide to the renovation of heritage buildings (attached).

Changes Needed

There is clearly much scepticism and caution in planning spheres in relation to any changes at all to our most valued buildings. The Energy Saving Trust believes that planners should be given very clear guidance as to their responsibilities on climate change, within the forthcoming Planning Policy Statement (PPS) on Climate Change. But planners also need ongoing support in their understanding of energy issues from a range of perspectives—the design of low-carbon newbuild; advanced refurbishment of existing homes; refurbishment of heritage buildings; to name a few. We believe such support warrants additional resources from Government.

ATTACHMENTS²⁰⁹:

1. Scoping Study: Improving the Energy Performance of Existing Homes.
2. Energy Efficiency Innovation Review 2006.
3. Guide to Renovation of Heritage Buildings.

Memorandum submitted by Micropower

SUMMARY

The Micropower Council believes that it is paramount to shift policy focus onto the existing housing stock. While we welcome the proposals and aspirational targets of the Code for Sustainable Homes, it is only for new homes and is not mandatory. In March 2007, the then Chancellor of the Exchequer, Gordon Brown made the following statement in a speech to the Green Alliance:

“In the last Pre-Budget Report, I announced that within ten years all new homes would have to be zero carbon, and I provided a stamp duty exemption as an incentive to get there. But new homes are only a small percentage of the total. So today I want to extend our ambition to all homes. Over the next decade my aim is that every home for which it is practically possible will become low carbon.”

Yet, no new policies to encourage a reduction in carbon emissions from existing homes have emerged from Government in the period since the budget speech.

More must be done to highlight to home-owners and other households, the economic and environmental benefits that can easily be achieved through simple changes. Energy efficiency measures, such as loft or cavity wall insulation are normally the first and most cost-effective step that householders can take in reducing emissions.

Planning issues are a significant obstacle for the installation of solar and wind technologies on existing housing. We are concerned at the delay by Government in granting permitted development status for microgeneration installations, following consultation earlier this year. Continued delay may damage the microgeneration sector.

The potential for small scale generation of renewable heat and electricity must not be overlooked. Microgeneration offers a significant contribution to tackling climate change by helping to reduce household emissions and by changing attitudes towards energy usage.

The microgeneration industry needs from Government, a coherent and comprehensive fiscal strategy to cover the retro-fit market. We also need the Government to work together to resolve the barriers that still exist. DCLG’s continued failure to engage with the rest of the microgeneration industry, resolve planning issues or set hard legal carbon targets have been particularly disappointing.

1. *Who we are*

The Micropower Council is a cross-industry body whose membership comprises electricity and gas companies, manufacturers, trade associations, professional institutions, not-for-profit companies, non-government organisations, charities and private individuals, all of whom have a strong interest and expertise in the development of the micropower sector. A list of our members is available at:

<http://www.micropower.co.uk/council/members.html>

We provide the Micropower industry’s main focal point for Government, regulators, Parliament, opinion formers and the general public on regulation and public policy issues affecting the production by consumers of their own sustainable heat and power.

The terms micropower and microgeneration are used interchangeably and both encompass micro-renewable heat, micro-chp, and micro-electricity technologies.

²⁰⁹ Not printed.

2. The importance of existing housing stock

There are around 25 million households in the UK²¹⁰ according to figures available from DCLG and from the national assemblies for Scotland and Wales. 152 million tonnes of carbon (MtC) were produced by the UK in 2004. Emissions from domestic building stock were responsible for 41.7 MtC in 2004—27% of total UK carbon emissions.

In 2006, the Department for Communities and Local Government undertook a review of the sustainability of existing buildings within the UK²¹¹. The review concluded that:

“The analysis so far shows that a substantial reduction in carbon emissions can be made by introducing cost effective technology, that can make substantial savings for consumers on their fuel bills.

However, there are still barriers to take up including information and upfront costs which many of our developing policies are designed to address. In the longer term, we need to look at new, emerging technologies and a wider range of measures in order to meet the 2050 timetable.”

Around two-thirds of the homes standing in 2050 are likely to have been built before 2005. New build represents only approximately 1% of the total stock each year. Building Regulations have raised energy efficiency standards of new homes significantly in recent years. However, most of the existing stock, and a significant proportion of those that will still exist in 2050, were constructed to much lower, energy efficiency standards than new build today. Existing stock will therefore continue to account for the great majority of carbon emissions from dwellings, both in terms of their lower energy efficiency and their numbers.

A large-scale reduction in the carbon emissions from existing homes is achievable and cost-effective. These reductions could translate into a significant contribution to reducing UK emissions as a whole.

REDUCING EMISSIONS FROM EXISTING HOUSEHOLDS

Consumers should in the first instance seek to make their homes as energy efficient as possible. We support the view that improving energy efficiency in existing homes is the most cost effective way of reducing emissions from the household sector. However, zero carbon homes will not be achieved through energy efficiency savings alone.

The UK also has the largest gas boiler sales per annum in the EU at around 1.6 million units each year. As heating and hot water systems are responsible for 73% of emissions from the home, the replacement of traditional boilers with microgeneration technologies is an option which could have a big impact on emissions reduction.

Micropower technologies will become more cost effective as they become commercialised and prices come down. In addition increases in energy prices make self production of energy increasingly attractive.

MICROGENERATION IS PART OF THE SOLUTION

We believe that microgeneration can, given the right policy framework, play an important role in reducing emissions from existing housing stock for two principal reasons:

- (a) From the direct impact of the technology itself, through substantial improvements in energy efficiency or by producing energy from renewable, non-CO₂ or low carbon producing sources. In large volumes the potential is significant.
- (b) By engaging consumers and making them more interested in their own personal use of energy, and of its consequences.

All micropower technologies reduce or eliminate fossil fuels by utilising more than 90% of the fuel productively or powered by renewable sources. Our centralised power facilities are currently operating with a primary fuel efficiency in the region of 40%. Up to another 10 percent of this is wasted in transmission and distribution. 1 million tonnes of annual carbon savings would be achieved by any of the following outcomes; 1 million biomass heating, 6 million gas-fired micro combined heat and power units, 7m micro-wind, photovoltaic or solar thermal²¹².

Micropower acts as a catalyst for cultural change. Consumers with micropower technologies show noticeable changes in their energy use, as well as sending a clear visual signal to neighbours of how a property can contribute in generating low or zero carbon energy.

²¹⁰ <http://www.communities.gov.uk/publications/housing/Surveyenglishhousing>
<http://www.scotland.gov.uk/Topics/Statistics/Browse/Housing-Regeneration/TrendNewBuild>
<http://new.wales.gov.uk/desh/publications/housing/betterhomes/strategie?lang=en>

²¹¹ Review of Sustainability of Existing Buildings, Department for Communities and Local Government—November 2006 available at <http://www.communities.gov.uk/documents/planningandbuilding/pdf/154500>

²¹² Micropower Council—Response to the Government’s energy review “*Our energy challenge: securing clean, affordable energy for the long-term*” April 2006 available at <http://www.micropower.co.uk/publications/publications.html>

A study for the Sustainable Consumption Roundtable, "*Seeing the light*", into the effect of microgeneration on attitudes and behaviours in homes and schools found that "microgeneration provides a tangible hook to engage householders emotionally with the issue of energy use . . . householders described the sheer pleasure of creation and of self-sufficiency: saying "it's like growing your own vegetables".²¹³

Microgeneration has allowed members of the public to take positive action to combat climate change and reduce the carbon footprints of their homes. This has been achieved despite limited financial incentives, planning barriers and lack of clear leadership from Government.

NUMBER OF INSTALLATIONS

The Energy Saving Trust study estimated that in 2004 there were around 82,000 microgeneration installations in the UK (see appendix A). Discussion with our members and industry experts suggests that the number of installations has now reached over 100,000, although this cannot be verified as there is no ongoing collection of data for non-grant supported installations across industry.²¹⁴

Significant problems with the bureaucracy surrounding the Low Carbon Buildings Programme (LCBP) has meant the Scheme has not been as successful as it could have been and the difficulty and confusion of the process may have even discouraged would be installations. A major problem was the monthly capping of the grant money. The industry was left in a position whereby the allocation for each month ran out by lunchtime on the first of each month. The number of actual grant supported installations has remained relatively low at just over 11,000 between 2003 and 2007.

Based on the estimated number of installations for each technology identified in the EST's 2004 study and on the average carbon savings per year for the different types of installation, we estimate that the reduction in emissions achieved by microgeneration technologies in the UK is in excess of 37,000 tonnes per year.

MICROGENERATION PRODUCTS FOR EXISTING HOMES

Due to the wide range of products and technologies available, it is possible to generate renewable heat or electricity with a microgeneration installation at almost any existing property.

The cost and most appropriate type of installation will vary, depending on individual circumstances. For example, when choosing to install a Ground Source Heat Pump it is important to consider some of the following issues:

- Space is needed outside the house for the ground loop and the ground will need to be suitable for digging a trench or borehole.
- What fuel is being replaced? If it's electricity, oil, LPG or coal the payback will be more favourable than gas. Heat pumps are a good option where gas is unavailable.
- The type of heat distribution system. Ground source heat pumps can be combined with radiators but these will normally be larger than with standard boiler systems. Under floor heating is better as it works at a lower temperature.

It is essential that the right microgeneration solution is used in the right circumstances. The Micropower Council and its members have strongly advocated for microgeneration companies to act responsibly and not sell products for unsuitable installation. That is why all installations should be carried out by trained professionals after a site survey and evaluation. For example, it is important to ensure that solar panels are not installed facing north, making them in-effective, or micro wind turbines being installed in sheltered and non-windy locations.

ADVICE FOR CONSUMERS

Advice on the most appropriate technology can be obtained through organisations such as the Micropower Council, the Energy Saving Trust and other trade associations. Major energy suppliers such as NPower, E.ON, EDF Energy, British Gas and Scottish and Southern Energy all offer advice to their consumers. Manufacturers, many of whom offer a range of products and different technologies, are also well placed to advise customers.

Each of the main microgeneration technologies is summarised in Appendix B.

²¹³ Sustainable Consumption Roundtable October 2005 report, "*Seeing the light: the impact of microgeneration on the way we use energy*" available at www.sd-commission.org.uk/publications/downloads/micro-generationreport.pdf

²¹⁴ Source: "Our energy challenge: Microgeneration Strategy: Power from the people" Department of Trade and Industry, March 2006. <http://www.berr.gov.uk/files/file27575.pdf>

WHAT NEEDS TO BE DONE TO ENCOURAGE GREATER TAKE-UP

The regulatory and policy environment for micropower technologies in 2006 was generally favourable and improving. The very existence of a government sponsored strategy for the sector, accompanied by an Act of Parliament (Climate Change and Sustainable Energy Act 2006) has provided a great deal of optimism. However this progress has slowed considerably in 2007. One major concern is with the lack of co-ordination amongst the different Whitehall Departments which have failed to provide a coherent and integrated Financial Strategy for microgeneration. Another is the lack of positive engagement of Communities and Local Government Ministers and Officials. Confusion and disbelief has arisen because while Yvette Cooper stated clearly in the House of Commons that all Local Authorities should introduce a Merton Rule, her officials have been waiting to get rid of it to free up the schedule. There are a number of other factors that have contributed to restricting the development of the industry to date.

CONSUMERS

Consumer awareness of microgeneration technologies has historically been quite low. However, consumers are increasingly recognising the importance of green issues and appear willing to embrace microgeneration technologies, under the right circumstances.

A recent survey of consumers²¹⁵ found that just over half of all participating homeowners (51%) said they would be interested in generating their own power. Saving money was the driving factor for those interested in microgeneration. As costs and payback time fall microgeneration should become more and more attractive to this group of consumers. Of those not interested, the biggest stumbling block was not knowing enough about microgeneration.

The industry must do more to promote awareness. A market research project will begin later this year which is co-funded by the Micropower Council, other trade bodies and regional development agencies. We expect this research to provide analysis of consumer attitudes and to provide valuable input to the industry as it develops its marketing strategies in the future.

FISCAL INCENTIVES

The approach by Government to financial incentives has historically been ad-hoc and sporadic. A single long-term and detailed Microgeneration Financial Strategy is needed to pull all financial policies together and which is able to provide adequate support to technologies at different stages of maturity.

One example of Government support which would help stimulate the deployment of microgeneration is the forward commitment to buy. Forward commitments to purchase products that are not currently commercially available, against a defined performance specification, provide the market with the certainty necessary to justify intensive product development effort and “underwrite” significant financial risk. By focusing on microgeneration technologies which deliver CO₂ benefits and improve energy security, such mechanisms can align with and help to deliver wider Government objectives.

TARGETS FOR MICROGENERATION

The microgeneration sector would benefit greatly from the setting of quantifiable and achievable targets for the take up of microgeneration in the UK. This would provide private sector investors with the necessary confidence to invest in the industry’s manufacturing and installation capability so that substantial cost reductions can be achieved. The question as to why the microgeneration industry is the only energy related solution which does not have its own targets remains a mystery and feeds doubts over the Government’s commitment to making all homes zero and low carbon.

The Energy Saving Trust study “*Potential for microgeneration*”²¹⁶ highlighted the sector’s potential, suggesting that by 2050, microgeneration could provide 30–40% of the UK’s electricity needs reaching 8m homes and helping to reduce household carbon emissions by 15% per annum. However this will only happen if further steps are taken to encourage uptake.

COST REDUCTION

The costs of rolling out micropower technology are coming down slowly. There is large scope for efficiencies in manufacturing and installation techniques, both through economies of scale and improved working practices if investment is put in place to achieve them. The Government must set targets for microgeneration and adopt a long-term approach to fiscal incentives.

Achieving cost reductions will reduce payback time which is a critical factor in consumer demand, particularly in the UK where people typically move home every seven years.

²¹⁵ Survey carried out by IPSOS Mori—sponsored by Utility Week Magazine and Accenture Management Consultants

²¹⁶ “Potential for microgeneration report” Energy Saving Trust 2005

The Micropower Council is looking at a number of alternative consumer models which will allow residents to acquire microgeneration but not necessarily have to pay for all of the cost. For example a third party may chose to “rent” roof space on a resident’s property.

ADAPTING THE CODE FOR SUSTAINABLE HOMES

Assessment against the Code for Sustainable Homes should become mandatory for all new homes and adapted to apply to existing housing stock. Despite, major obstacles, implementing change in existing housing stock is possible and has already been achieved in a number of areas. For example, regulations on condensing boilers, gas safety and the metering of electricity and of water have helped improve the environmental standards in existing homes.

Incentive schemes such as the Energy Efficiency Commitment (and now the Carbon Emissions Reduction Target), Low Carbon Building Programme and Renewable Obligation Certificates have also provided incentives for people to improve their homes, or suppliers to improve the homes of their customers.

PLANNING

Planning issues are a significant obstacle for the installation of some microgeneration technologies on existing households. For example, planning issues are the reason for over one third of cancelled orders for B&Q wind turbines. In April this year, the Department for Communities and Local Government published its consultation paper on Permitted Development Rights for Householder Microgeneration²¹⁷ with the declared aim of extending and clarifying the scope of permitted development. We agree with the broad scope of the proposals, but are concerned at the delay in publishing the final amendments. The industry needs to engage planning officials in microgeneration, but before this can happen, the Government must publish the amendments to the General Permitted Development Order.

The government’s Microgeneration Strategy emphasised the success of the Merton Rule and was critical in building confidence that government wished to see a vibrant microgeneration industry making its full contribution to tackling climate change. The Merton Rule is the borough-wide local planning policy which requires developers to use onsite renewables on major new developments where viable, and has proved to be a major cause of growth in the uptake of microgeneration in the last few years. We were concerned to learn that the Merton Rule may be discarded in the draft planning policy statement currently being considered by Ministers at DCLG.

The Merton Rule has been a modest yet proven and highly successful policy in growing the market for microgeneration technologies to date. The Micropower Council is opposed to any restriction on the ability of local authorities to set their own high environmental standards via the Merton Rule. Without the Merton rule in place, the national zero carbon homes timetable is unlikely to deliver any microgeneration until 2013 at the very earliest and could have serious consequences for the industry.

The Merton Rule is vital to ensuring the government achieves its targets for zero-carbon homes by 2016 and should not be discarded. All local authorities should be encouraged to develop Merton Rule style policies

APPENDIX A

Table 1

ESTIMATED MICROGENERATION INSTALLATIONS IN THE UK—END 2004²¹⁸

<i>Technology</i>	<i>Number of Units</i>	<i>Notes and applicability</i>
Solar Thermal	80,000 installed	Fully commercial, but technology improving.
Wind	700 installed	Typically roof/wall mounted, mass market domestic sector (< 3kW)
MicroCHP	200 installed	Mass market for gas boiler replacements
Photovoltaics	1100 installed	Technology becoming more established
Fuel Cells	10 installed	High electrical efficiency & therefore carbon offset
Ground Source Heat	400 installed	Particularly attractive for new build sector
Biomass heating	150 installed	Wood pellet boilers
Micro-hydro	100 installed	Water Mill conversions

²¹⁷ DCLG *Changes to Permitted Development: Consultation Paper 1—Permitted Development Rights for Householder Microgeneration*; 4 April to 27 June 2007, available at: http://www.communities.gov.uk/pub/367/ChangestoPermittedDevelopmentConsultationPaper1PermittedDevelopmentRightsforHoun_id1509367.pdf

²¹⁸ Source: “Our energy challenge: Microgeneration Strategy: Power from the people” Department of Trade and Industry, March 2006. <http://www.berr.gov.uk/files/file27575.pdf>

TYPES OF MICROGENERATION TECHNOLOGIES

SOLAR THERMAL HOT WATER HEATING

Solar thermal is the most commonly installed form of solar energy currently in use today. Solar water heating can typically provide almost all hot water requirements during the summer months and about 50% year round. At the end of 2005, around 80,000 solar thermal installations existed in the UK.

There are three main components for domestic hot water systems: Solar panels, a heat transfer system, and a hot water cylinder. The solar panels, or collectors, are usually fitted to the roof and collect heat from the sun's radiation. This heat is used to raise the temperature of the household water and is delivered by the heat transfer system which takes the heated water to the hot water cylinder for storage until use.

Solar hot water systems can also be used on larger applications such as swimming pools.

Performance Details:

The performance of a solar thermal system is best when the solar collectors are installed on a southeast to southwest facing roof receiving direct sunlight for the main part of the day. There are different types of solar systems available, the typical installation cost for a domestic plate collector system is £2,000–£3,000 and for an evacuated tube system around £3,500–£4,500.

The average domestic system will usually provide almost all of an average family's hot water during summer months and about 50% year round. The solar system would typically save approximately 400kg of CO₂ per year, depending on the fuel replaced.

SOLAR PHOTOVOLTAIC (PV) ELECTRICITY GENERATION

Photovoltaic or PV generates electricity from sunlight. Small-scale PV modules are available as roof mounted panels, roof tiles and conservatory or atrium roof systems. 1-3 kW is a typical power output for a domestic installation although this is very flexible and depends on the number of PV modules installed.

A typical PV cell consists of two or more thin layers of semi-conducting material, which is most commonly silicon. The electrical charge is generated when the silicon is exposed to light and is conducted away by metal contacts as direct current (DC). Although the electrical output from a single cell is small, when multiplied together a desired electrical output can be achieved. Therefore, PV cells are connected together and encapsulated, usually behind glass, to form a module or panel and any number of modules can be connected together..

Performance details:

The performance of a PV system will depend upon the size of the system, the type of PV cell used and the nature of the installation. The average domestic system is usually between 1.5 and 2 kWp (kilowatt peak) in size and costs are around £4,000–£9,000 per kWp. Solar tiles, which can be integrated into a roof, maybe worth considering if major roof repairs are intended to be carried out.

The PV system generates no greenhouse gases and save approximately 325kg of CO₂ per year or about 8 tonnes over system's lifetime—for each kWp. A typical 1.5–2 kWp system will produce enough electricity to supply almost half of an average family's annual supply, assuming that the heating is fuelled by gas and that the house has no energy efficiency savings.

MICRO-WIND TURBINES

Wind Turbines harness the wind to produce electrical power. The efficiency of a domestic system will depend on factors such as location and surrounding environment and the electricity output is usually between 2.5 and 6 KWs, but can be as low as 1KW.

Calculating electricity generation from a wind turbine requires consideration of the characteristics of wind. Wind power is proportional to the cube of the wind's speed which means that large changes in potential output can result from relatively minor increases in wind speed. Because wind speed increases with height, a typical wind turbine is mounted high on a mast or tower and an ideal location is on a smooth-top hill with a flat, clear exposure and is free from obstructions such as buildings, forests or other large trees that can cause excessive turbulence.

The latest development in domestic wind turbine technology is roof-mounted turbines for installation on domestic dwellings. These mini-wind turbines give a nominal output of 1kW and are designed to generate energy from low wind speeds. They are typically mounted on the gable end of buildings although in some cases can be attached to the building side-walls.

Performance details

The performance of domestic wind systems depend upon the size and type of the turbine and location. The optimum size for the average household is normally between 1.5–3kW, however smaller and larger sized turbines can be installed depending upon application. Systems up to 1kW will cost around £3,000 and larger systems between 1.5kW and 6kW will cost around £4,000 to £18,000.

Small-scale wind power is particularly suitable for remote off-grid locations where conventional methods of supply are expensive or impractical. Roof mounted turbines usually 1kW can cost around £1,500 installed and can reduce an average annual electricity bill by up to 1/3 or around 500kWh to 1.2 MWh per annum. This would save approximately 500kg or half a tonne of CO₂ per year.

MICRO COMBINED HEAT AND POWER UNITS

These systems are usually fuelled on gas, although some can burn a range of other fuels, and produce electrical power and thermal energy from the single fuel source. The two major types of engines used in microCHP systems are:

Reciprocating engines

The electrical output of this type of micro-combined heat and power (microCHP) units typically start at about 5 kW offering around 10–12kW of thermal output. Significant development work has been underway and currently continues, particularly in the USA, but here in the UK Baxi Senertec are leading the market.

Stirling engines

These are external combustion engines with a sealed system using an inert working fluid, usually helium or hydrogen. They range in size from 1/2 kW upwards and are currently undertaking extensive field trials with a view to having production units in 2008–09. Leading brands such as Baxi and WhisperGen are working on units that will generate 1kWe for domestic dwellings.

In addition, fuel cells are an emerging technology for microCHP applications (see below).

Performance details

Micro-CHP systems in the UK are currently being developed and 200 are undergoing field trials within households. A typical domestic sized micro-CHP unit will deliver the same comfort levels as a modern boiler, whilst reducing the emissions of a typical house by up to 25% or 1.5 tonne of CO₂ per year. The 200 WhisperGen units currently on trial were sold for approximately £3,000 installed, but the mass-produced units are expected to be more cost competitive.

HEAT PUMPS

A heat pump moves heat energy from one place to another and changes the temperature from lower to higher. An example of a commonly known heat pump is a domestic refrigerator. Where heat pumps are used for heating applications, heat is removed from the source (ambient air, water, soil or bedrock) and then discharged where the heat is needed. Where cooling is required, the reverse happens and heat is removed and discharged into air, water, soil or rock.

The most common form of heat pump used within domestic dwellings and are eligible for government funding under the low carbon buildings programme, are ground source heat pumps. In the UK, the earth that lies a few metres below our feet, keeps a constant temperature of about 11–12C throughout the year. The ground has a high thermal mass which allows it to store heat from the sun during the summer.

Ground Source heat pumps tap the heat within the ground and convert it into energy. The heat pump operates under similar principles to a refrigerator. The heat is captured from within the ground by either pipes laid into trenches or down a borehole and is eventually distributed within the building through radiators or under-floor heating.

Performance details

The performance of Ground Source Heat Pumps is commonly measured by the coefficient of performance (CoP) which is the ratio of units of heat output for each unit of electricity used to power the heat pump. Typical CoPs range from 2.5 to 4, with the higher end of the range being for under-floor heating as it works at a lower temperature than radiators.

A typical 8kW system costs between £6,400–£9,600 plus the price of the distribution system, although this is variable with each property and location. Based on current fuel prices, a ground source heat pump with a CoP of three to four can be cheaper than space heating fuelled by oil, LPG and electric storage heaters.

MICRO-HYDRO

Harnessing hydro power at micropower level means typically under 100kW and involves utilising naturally flowing water on land, usually rivers and streams. The type of turbine that is submerged into the water depends upon the site, geological formation of the land and flow of water present.

Hydraulic power can be captured wherever a flow of water falls from a higher level to a lower level. This may occur where a stream runs down a hillside, or a river passes over a waterfall or man-made weir, or where a reservoir discharges water back into the main river.

Performance details

The performance and size of micro-hydro schemes is very site specific with plant ranging from a few hundred watts to 100kW, with the higher range used for commercial schemes. For a low head system costs are around £4,000 per kW for projects under 10kW (not including civil works) and for a medium head scheme, there is a fixed cost of £10,000 and then about £2,500 per kW for projects under 10kW. A typical 5kW domestic scheme may cost around £20,000–£25,000, however unit costs drop for larger schemes.

A typical house without mains electricity connection but with access to a micro-hydro site, can be serviced with a reliable electricity supply at low cost.

BIOMASS

Biomass heating usually involves the use of commercial energy crops in the form of fast-growing trees such as willow or poplar for woodchips or waste wood products such as sawdust, pallets or untreated recycled wood for pellets. These fuels are burned in either pellet stoves or larger scale boilers to provide heating and/or water heating.

Man has been producing energy from biomass for centuries, and in many parts of the world it is still the principle source of heat. However, modern technologies are far more efficient than open fires and an increasing range of fuels are now being utilised.

Biomass is often called “bioenergy” or “biofuels”. These biofuels are produced from organic materials, either directly from plants or indirectly from industrial, commercial, domestic or agricultural products.

Performance details

The performance of biomass heating for a domestic property depends upon the chosen system, usually either a space heating only, or a central heating and hot water system. The stand-alone stoves provide space heating for a room, and can sometimes be fitted with a back-burner to provide water heating. These systems have a typical output of 6–12 kW and are fuelled by logs or pellets. Boilers that are connected to a central heating and hot water system are larger with an output of more than 15kW. These systems can usually be fuelled by logs, chips and pellets.

Depending upon the size and type of system, typical costs for stand-alone room heaters are between £1,500–£3,000 installed and for a typical 20kW pellet boiler around £5,000 installed. Running costs are based upon the type of fuel, which generally depends on the distance from the supplier, so is therefore more favourable if located in an area without gas supply.

FUEL CELLS

A fuel cell uses hydrogen and oxygen (from air) in an electrochemical reaction. Unlike technologies which “burn” fuel, with fuel cells the conversion takes place electrochemically without combustion. Fuel cells are used in portable applications (mobile phone and laptop battery replacements), mobile applications (cars, buses, planes, etc) and stationary applications (as UPS, standby power, distributed microCHP or as large MW electrical generator).

Fuel cells can be run on a wide variety of fuels, and importantly, fuel cells make fuels last longer. When run on pure hydrogen fuel generated by renewable energy sources, fuel cells produce no carbon or other toxic emissions at all, and can therefore help tackle environmental and energy security challenges. In addition, fuel cells are quiet, have low maintenance requirements, have high energy densities and high efficiencies.

Performance details

Fuel cells offer an excellent contribution to the reliability of energy supplies, as they can be run on a wide and growing range of fuels, including bio-fuels, and in conjunction with other energy sources—gas and coal turbine generation, wind and photovoltaics—to provide overall improved efficiencies, reliable and secure supplies. In addition, they can help to provide a buffer for fluctuating renewable power.

As micro-CHP devices in the home, fuel cells can use existing gas supplies and replace conventional boilers to provide heat and power as needed, with an overall energy efficiency of 80–90% and a carbon saving estimated to be around 1 to 2.6 tonnes CO₂ per year.

Memorandum by the Housing Corporation

1. INTRODUCTION

2. Climate change is now acknowledged as a pressing and critical global challenge with implications not only for future generations but individuals and communities today.

3. In England government has set an ambitious national target of achieving a 60% reduction in carbon dioxide emissions by 2050 compared with 1990 levels.

4. While much attention has been placed on the emissions from transportation, a key part in realising this ambition will be reducing energy use in buildings. Energy use in buildings accounts for around 50% of carbon emissions. A significant proportion of this comes from the fuels we use (primarily for water and space heating) in our homes. The focus of this enquiry on existing housing stock is therefore timely and welcome.

5. Important measures are already being taken. In addition to toughening building standards, the Government has announced a target for all new homes to be zero carbon by 2016. Regulatory requirements to deliver this are being accompanied and supported by initiatives to drive change in the housing market such as the Code for Sustainable Homes.

6. However, while measures have been put in place to improve the energy performance of new homes, around two thirds of the homes that will be standing in 2050 will have been built before 2005. Most of these homes were built to standards (or indeed, were built before standards) that are significantly lower than what we would require of our new housing stock. These existing homes account not only for a greater number of buildings, but are also likely to account for a higher proportion of carbon emissions.

7. There are currently around 26 million homes in the UK, with the vast majority of these in England. These homes vary dramatically in age, size, condition, tenure and in their energy efficiency. Notably, 38% of these existing homes are over 60 years old, with 55% of them constructed before thermal regulations.

8. Unlike many other European countries, where there is a strong preference for private rental properties, a significant proportion of English housing stock can be found in the social sector. Around 18% of English housing stock is social or affordable housing, owned and managed either by housing associations, local authorities or their management agents (ALMOs).

9. The environmental performance of this social housing stock is therefore of particular interest and significance. In looking at how the social housing sector compares with other sectors we can see that it is better on average than other sectors (owner occupied and private rented). Since 1996 the average SAP rating across all stock in the social sector has risen from 47 to 57, with stock in the private sector only rising from 41 to 46²¹⁹. Many social landlords have also already undertaken core energy efficiency measures (such as loft and cavity wall insulation) both independently and as part of Decent Homes programmes. Today, almost all social sector housing (96%) has a rating of more than 30.

10. Yet, despite the important strides that have been made, the environmental performance of social housing, as with other existing homes, will require ongoing attention if government ambitions to reduce carbon emissions are to be realised.

11. As the government's national affordable housing agency, the Housing Corporation is responsible for both investment in new affordable homes and the regulation of 2 million housing association properties. We therefore play an instrumental role in not only ensuring that new affordable homes meet and exceed current sustainable building requirements but also that housing associations manage their existing stock efficiently and effectively—including steps to improve environmental performance.

12. Looking ahead, our successor agency, the new Homes and Communities Agency, announced by the government in February 2006, will have a key role to play in promoting and ensuring environmental sustainability in English housing. This is particularly the case with new homes, as it will deliver one in every three new homes in meeting the affordable housing targets set out in the recent Housing Green Paper. It will also play a key role in improving existing homes, notably as it exercises its likely remit around estate regeneration and transformation.

13. Government is also currently considering the regulatory future of social housing. Any new regulatory model will also have a distinct contribution to make around the sustainability of both new and existing homes.

²¹⁹ SAP methodology was revised by BRE in 1998, 2001 and 2005 affecting comparability between years. However there is a clear trend towards improvement and conclusions about comparability between the sectors are valid.

14. DECENT HOMES PROGRAMME

15. 70% of the homes that will exist in 2050 are already built. The Housing Corporation is well placed to contribute to the improvement of existing affordable housing, using experience and knowledge gained from implementation of the Decent Homes programme in the social housing sector.

16. In 2000 the Government made a commitment to bring the fabric of all public sector homes up to a minimum standard by December 2010. The Decent Home Standard was established as this minimum standard. The Housing Corporation is responsible for ensuring that housing associations meet the standard within the required timescale.

17. The Housing Corporation monitors and has researched housing association asset management performance in monitoring the sector's progress towards meeting the Decent Home Standard in 2010. We are currently extending the criteria we use to assess associations' performance (Housing Corporation Assessments or HCAs) to place greater emphasis on asset management.

18. Housing associations, without exception, report that they will meet the 2010 deadline. More significantly, housing associations have made commitments to their tenants to meet the target.

19. The total Decent Homes Standard failures reported in the sector fell by 46,860 in 2006 to a total of 293,556, which is 5.5% of total stock. It is important to note that a number of variables other than stock condition affect both the total number and the percentage of Decent Homes Standard failures and make it difficult to monitor year-on-year trends. These include changes in the total stock number which can be affected by new stock transfer associations bringing more properties into the housing association sector, new development completions, sales to tenants, disposals on the open market and demolitions.

20. Importantly though, the Decent Homes Standard is a trigger for action, not an aspirational standard, as such it is therefore a minimum standard, and social landlords are expected to carry out work in excess of the standard.

21. Under the 4th Decent Homes criteria, social landlords must ensure that properties meet minimum standards of thermal comfort. Associations have programmes of installing roof and cavity wall insulation, often funded by utility companies under EEC and Warm Front. The Housing Corporation is also working closely with utility companies to increase take up of this.

22. Upgrading insulation is the most effective thing that social landlords can do with existing stock to reduce carbon emissions; much of this work is underway. We are aware of the challenges faced in improving the thermal efficiency of properties without cavity walls: there is a need to develop solutions such as internal or external wall insulation for these.

23. ECOHOMES XB

24. Under our 2003 Sustainable Development Strategy the Housing Corporation commissioned the Building Research Establishment (BRE) to develop an environmental assessment methodology for existing stock. The BRE produced the Ecohomes XB (eXisting Buildings) resource in 2006.

25. This product enables social landlords to assess the current performance of the stock, plan the most effective interventions to improve the worst cases and on the back of actions taken measure the improvements made.

26. EcoHomes XB recognises that existing stock includes a wide range of property ages and types. It will help housing associations and local authorities to identify the best score that can realistically be achieved by their particular stock—the XB Goal and to track their progress towards it.

27. Following a successful pilot programme and evaluation, Ecohomes XB has now been made freely available to all social landlords.

28. The Housing Corporation ensured that Ecohomes XB is aligned with housing association business practices and objectives. We believe that it is a tool that will assist associations to build improvement of environmental performance of their existing stock into their business practices.

29. The following are the aspects of housing association planned maintenance practice that are relevant to Ecohomes XB:

30. Work to improve environmental performance falls into two categories:

- (a) Work that associations are carrying out under their planned maintenance programmes. This has to comply with Building Regulations and therefore new boilers must be A rated condensing models, new windows must be double glazed with low e glass.
- (b) Improvement work such as installation of renewables, eg CHP, Photo Voltaics, solar panels. These incur additional cost and currently involve a degree of technical research and feasibility studies.

31. Housing association maintenance is funded from rental income and social Landlords are under pressure to keep rents down. It also does not make economic sense to carry out improvements randomly or over short term. Properties are occupied and it is necessary to keep disruption to residents to reasonable level. For these reasons work must be built into planned maintenance programmes, characteristically over 30 year periods.

32. Because of these factors, it is important to consider all aspects of climate change together in asset management strategies—adaptation and mitigation, energy, water and waste.

33. Ecohomes XB has been well received in sector and its take up continues to be positive. It is suitable for Local Authorities as well as housing associations and local authorities were involved in piloting it. In addition to the core resource, we have also commissioned Sustainable Homes to prepare practitioner focused Good Practice Guidance.

34. ENERGY PERFORMANCE CERTIFICATES

35. The introduction of Energy Performance Certificates is currently being phased in and will be required when homes are built, sold or rented. They provide homeowners with significant information about the energy performance of the home they are intending to occupy and provide advice on how they can make cost effective changes to improve its performance. As such they are an important tool in improving the environmental impact of existing properties.

36. The Housing Corporation has advised Communities and Local Government about the implementation of EPCs in the social rented sector. We recently commissioned Interim Guidance for housing associations on the introduction of EPCs on letting in October 2008.

37. The implementation of EPCs in social housing does present some particular challenges. Notably, there is a risk that production of certificates when properties are offered for viewing may extend void periods and slow down turnaround of re-letting properties. The Housing Corporation and Communities and Local Government are currently running a pilot programme for housing associations to produce EPCs with lessons from this used to inform and improve the wider roll out of EPCs in 2008.

38. An intention of EPCs is to create market pressure by educating people to demand energy efficient properties. The shortage of social housing makes this slightly less effective in this sector but Energy Performance Certificates will still play an important role in increasing awareness among tenants.

39. SUPPORTING RESIDENT CHOICE

40. The Housing Corporation has worked with the Energy Saving Trust to produce a toolkit for residents to learn about climate change and to disseminate information among neighbours and communities.

41. Tenant satisfaction is also a key measure of housing associations' performance. A recent Housing Corporation survey of our Existing Tenants' Panel on environmental issues revealed significant levels of awareness and concern about energy efficiency. Demand from tenants will therefore be an important driver for improving environmental performance of existing stock.

42. Residents' play a significant role in two other ways: their co-operation is needed in giving access for works to be carried out and in submitting to the disruption that they entail. We also know that individual behaviour is critically important in achieving carbon reductions and maximum environmental performance. The Energy Saving Trust estimates that 25% of target carbon reductions may be achieved through behaviour change. In this, it is equally important that technical measures are accompanied by support for resident education.

43. GOLD AWARD

44. Our 2006 "Gold Award" theme last year was Environmental performance. The Gold Award is made to housing associations who achieve outstanding practice in the field. It rewards and encourages associations, and the award is followed by a programme of dissemination where winners share the learning. The audience for this includes local authorities and house-builders, as well as other housing associations.

45. Drum Housing Association was one of the Gold winners in 2006. It has improved central heating and insulation in 95% of its existing homes during the past ten years, targeting the most polluting homes where solid fuel systems are replaced with renewables. The average SAP rating of its stock is now 70. Low water demand appliances are fitted in all its new homes and in the refurbishment of existing homes.

46. The association is also developing methods of reducing carbon emissions in existing housing with the Energy Saving Trust through one of a long list of partnerships it has established to deliver its sustainability strategy. Other partners include local authorities, the World Wildlife Fund, housing associations, government agencies, the Hampshire Sustainable Business Partnership, utility companies and the association's own customers.

47. The association established and co-ordinates SHREC—the Sustainable Housing Renewable Energy Consortia—which has more than 50 members and works to reduce the costs of renewables through bulk purchasing deals. With Kingston University it has created a Sustainable Asset Management Index, which it uses to gauge and track the sustainability of all its homes. Through its Affordable Warmth Strategy it is targeting technical and benefit advice to tenants living in fuel poverty.

48. In a similar vein, a mixture of innovation in construction, resident involvement and a commitment to sustainability secured a Gold award for Greenoak Housing Association and produced warm homes and affordable energy bills for its 258 customers. Greenoak's existing houses and flats have a whole-stock average SAP energy efficiency rating of 92 (the UK average is 51). New homes built by the association have overall CO₂ emissions as low as 13kg/m²/yr—way below the UK Building Regulations requirement of 57 kg/m²/yr. Greenoak has also forged links with local authorities and is a member of the 12-strong Small Housing Associations Pursuing Excellence (SHAPE) group.

49. One of the largest housing associations, Places for People, was also a Gold winner. Places for People (PfP) has successfully moved environmental sustainability from the margins to the mainstream of its business with a sophisticated sustainable development matrix created to identify key targets for each business area in the group's seven companies. It also runs a large programme of research and innovation to support and inform the group's work.

50. Its approach to partnership work has also yielded benefits for PfP's 58,625 customers. During the past four years the Group has spent more than £3 million on energy savings improvements to existing homes, producing a whole-stock average SAP rating of 73. Its Affordable Warmth Strategy delivers an average annual energy savings of £200 a customer, and the group is now working with National Energy Action on the development of fuel-poverty proofing.

51. RESEARCH AND DEVELOPMENT

52. We are aware of increasing interest from developers, landlords and tenants in improving the sustainability of both new and existing stock. We are also aware however of uncertainty about how best this can be achieved—both in terms of new and existing technologies that can be adopted and those that will provide best value for money, and in terms of facilitating cultural change amongst consumers. This technological complexity represents a risk for social landlords of adopting potentially costly and inappropriate measures.

53. We have therefore commissioned a research study into the most effective technologies and practices that social landlords should consider in developing their asset management strategies and maintenance programmes. These present particular challenges: it is significantly more complex to improve the environmental performance of existing, occupied homes.

54. We will use this research to moderate the risk that landlords may undertake in implementing technologies which are inappropriate or insufficiently developed, or simply inappropriately adopted, because of a lack of knowledge. We will be looking to promote this research beyond the social housing sector and will work with the Local Government Association, the House Builders Federation, the Audit Commission and Communities and Local Government to promote the findings.

55. CONCLUSION

56. The Housing Corporation is committed to championing and seeking to improve the ability of social landlords to improve the environmental performance of existing social housing stock.

57. In this we will continue to work closely with Communities and Local Government, local authorities, residents and communities, the Audit Commission, CABE, the Energy Savings Trust, and affordable housing providers.

58. Work is currently underway planning the activities of the new Housing and Communities Agency and, potentially, a new regulatory body following implementation of the Cave Review recommendations. In addition to delivering on our current work in this area, we are also supporting the development of environmental objectives as a key part of transition thinking.

Memorandum submitted by Calor Gas Ltd

Energy Performance Certificates (EPCs) must now accompany the sale of all homes in the UK with 3 or more bedrooms. They will gradually become compulsory to cover all house sales. They are designed to influence consumer behaviour in the purchase and alteration of homes; and, it is clearly hoped that house builders will have an eye to favourable EPCs being awarded after construction. The aim is to push the housing market towards lower carbon outputs.

They suffer from a fundamental flaw inherited from a system of grading houses by their notional cost of providing energy for heating and hot water per square metre. SAP ratings between 1 and 120 must be provided before buildings can be erected or converted. The lower the energy cost, the higher the rating. These SAP ratings are effectively transposed into the EPCs where they are shown in the form of bands from A (cheap to heat) to G (expensive to heat). The essential purpose was, as a Government consultation put it: "A reduction in the carbon emissions they [homes] would otherwise produce." Thus, the flaw at the heart

of the system is the link assumed between heating costs and carbon output. But this is unfair to a premium fuel such as LPG which is often cleaner in its emission profile on a range of pollutants, often including carbon—see above.

We propose as a replacement to the Energy Efficiency banding a banding based solely on dwellings' carbon emission rate (calculated at the same time as SAPs). The following data is taken from a model, based on SAP Worksheet (Version—9.80 draft July 2004), which illustrates how SAP scores are calculated. In comparing four methods of heating (LPG, oil, electricity and mains gas) we found the following results based on a constant four bedroom house with identical solar, internal and external gains all being constant with the fuel used for the central heating system being the only variable.

MODEL BASED ON A 4 BEDROOM DETACHED HOUSE

	<i>Electricity</i>	<i>LPG</i>	<i>Oil</i>	<i>Mains Gas</i>
Dwelling Volume	240	240	240	240
Total fabric heat loss	106.2	106.2	106.2	106.2
Ventilation heat loss	47.5	47.5	47.5	47.5
Total Internal Gains	747.7	747.7	747.7	747.7
Total Solar Gains	485.6	485.6	485.6	485.6
Space Heating Requirement	4906.42	4131.72	4094.83	4131.72
Total energy cost (£/year)	£263.05	£336.77	£154.34	£155.28
SAP Rating (Under current proposals)	56	47	73	73
Total CO ₂ (Space and Water) kg/year	3291	2107	2267	1658
Dwellings Carbon Emissions rate	33	21	23	17

The data illustrates that under the current fuel cost based calculation for SAPs, a more expensive fuel such as LPG, which produces considerably less CO₂ than both heating oil and electricity, is penalised and given a far lower rating under this system—actually two bands less than oil. By translating the bottom line figure into “bands” a more accurate indication of the true environmental impact of a home can be communicated to the consumer. In this example, oil and LPG would actually be in the same band (or depending on the band range, LPG might be one better).

The Scottish EPC system is intriguingly different. It contains a banding system A–G, but this is solely related to relative carbon output. In England there are two illustrations side by side—the first being the A–G banding based on cost called an Energy Efficiency Rating, and the second being the Environmental Impact Rating (CO₂ emissions). The Scottish EPCs contain a space for advice on low cost measures for cost-effective energy savings. The Scottish system does not unfairly skew the housing market, complies with EU legislation, and gives useful information on how to save money. If consumers thinking of purchasing or renting a home, or house builders are forced to comply with a system of skewed price signals it could alter the pattern of our housing stock for the worse, not the better.

The English EPC system has another potential flaw because the snapshot taken of heating costs does not take the volatility and relative volatility of fuel prices adequately into account. Volatility in energy prices over recent years has been influenced by more labile meteorological patterns, and by political factors—not least nervousness over the price of oil, and by relatively sharp variations in demand, including, for instance, dramatically increased levels of demand for energy in China. With continued uncertainties over pipeline integrity in chronically unsettled parts of the world, and with the decline in North Sea production it could well be that such volatility is likely to increase rather than decrease. In the UK we are seeing a tightening of markets because of declining UKCS gas production, making us more susceptible to the vagaries of European gas prices derived as they are from a less liberalised market context. A statement of the relative expense of one form of domestic heating over another is therefore unlikely to hold stable over a 15 year period, and the risk is that the certificate will be an unreliable indicator.

OFGEM's recent “Probe Into Wholesale Gas Prices” (October 2004) was sparked by wholesale gas prices increasing by over 80% in October 2003 compared with gas for delivery in October traded in September: “The traded gas markets have seen unprecedented volatility . . . in recent weeks with significant and rapid movements seen in both prompt and forward gas prices on a number of days. The increase in gas prices has also had a significant impact on the wholesale price of electricity . . . since September 2003, the wholesale price of electricity has risen by over 43%. This has been largely driven by increases in gas prices although increases in international coal prices have also played a part . . .” So, there is energy price volatility, and although the prices of oil and gas are linked: “As competition develops in key European markets the link between oil prices and gas prices is likely to break down or be significantly diluted”. In other words, an EPC relating to the heating costs of a home delivered in one month may have little bearing on the outturn price, and increasingly in future fuels may be expected to vary relatively in price over time rather than maintain a constant or predictable relationship. This is another reason for adopting the Scottish format.

RECOMMENDATION

- The Scottish EPC system should be adopted in England and Wales.

Joint memorandum submitted by the Departments for Communities and Local Government; Environment Food and Rural Affairs; Business Enterprise and Regulatory Reform; and Innovation, Universities and Skills

SUMMARY

The subject of the Committee's inquiry is broad and goes much wider than the policy responsibilities of Communities and Local Government. This memorandum has been prepared jointly by the Departments for Communities and Local Government (CLG), Environment Food and Rural Affairs (Defra), Business Enterprise and Regulatory Reform (BERR), and Innovation Universities and Skills (DIUS) to provide a coherent overview of current policies and programmes and possible future activity designed to address the impact of existing homes on climate change.

New build accounts for a very small proportion of the total housing stock in any given year. Dwellings are designed to last a long time so the homes that exist today will continue to comprise the bulk of the housing stock for many decades to come. But many of them were constructed to much lower energy efficiency standards than are required today and the even higher ones that will be introduced over the next 9 years. So improving the energy efficiency of the existing stock will be a critical element in delivering the Government's carbon emission reduction targets.

Energy efficiency measures offer householders improved thermal comfort and often significant savings on their energy bills. Many measures are highly cost effective, quickly repaying their investment costs through reduced bills. But the Government recognises that a number of barriers exist that discourage or prevent householders from installing these measures.

This memorandum describes the policies, actions and programmes that are in place or are being developed to overcome these barriers. These seek to significantly improve the information available to householders to enable them to make better informed decisions. They provide financial assistance, where justified, with a particular focus on those on low incomes or otherwise considered to be fuel poor. They cover the privately owned, rented and social housing sectors. And they support research and development for new and immature technologies and markets where products are either not yet fully effective or low demand results in prohibitive costs.

It is expected that this broad range of interventions will make a significant contribution to delivering the overall carbon emission targets the Government has set but the Government acknowledges that further action will be required, and describes further initiatives that are currently being developed or are planned for the future to help close the remaining gap.

The Annex to this memorandum brings together and summarises information that we have provided in the main body of the text to address the specific topics identified in the Committee's Call for Evidence.

SECTION 1—INTRODUCTION

1. There is now a clear consensus that climate change is the greatest long-term challenge facing the world today.

2. This Government has committed itself to taking action to dramatically reduce green house gas emissions from all sectors of our economy including the built environment and has already made significant progress:

- We are one of only a few countries on course to meet and go beyond our commitments under the Kyoto Protocol: our green house gas emissions are projected to be almost 20% below 1990 levels during the Kyoto period 2008–12.
- We have also set a challenging national target of achieving a 60% reduction in carbon dioxide emissions by 2050 compared with 1990 levels. And the Prime Minister has asked the climate change committee to consider whether this target should be even stronger.

3. Achieving such significant reductions will be far from easy. In 2005 the UK emitted more than 550 million tonnes of carbon dioxide (MtCO₂), the main green house gas driving climate change. Energy use in buildings accounted for nearly half of these emissions and more than a quarter came from the energy we use to heat, light and run our homes (about 150MtCO₂).

4. For several years, changes in the building performance standards demanded through building regulations and other policy interventions have been driving a steady reduction in carbon emissions from buildings. But recent policy announcements have demonstrated a determination to speed up the pace of change and make a much more significant contribution to tackling climate change within a much shorter timescale.

5. The announcement in July this year that the Government would adopt a target for all new homes to be zero carbon by 2016 is at the centre of this new commitment. This target will be delivered through regulation and will sit alongside other policy initiatives which will encourage change in the new homes market such as the Code for Sustainable Homes²²⁰.

6. Building on this, work is also currently underway to determine whether a similar long-term target can be set for dramatically reducing the emissions from our new non-domestic buildings. And we are also working with industry to understand the barriers to and potential options for driving improvement in the existing non-domestic market.

7. This Memorandum concerns the remaining sector of the built environment and the subject of this inquiry—existing homes. Even taking account of the Government’s commitment to dramatically increase housing supply in the coming years, around two thirds of the homes that will be standing in 2050 will have been built before 2005. The majority of these will have been built to standards significantly below those we expect from homes we build today and therefore are likely to be responsible for the great majority of household carbon emissions.

8. The Government has consistently recognised this fact and has in place a wide range of mutually reinforcing policies and programmes which are designed to tackle these emissions. These schemes, which include the introduction of energy efficiency requirements for thermal elements into the Building Regulations and key programmes such as the Energy Efficiency Commitment (EEC), Warm Front and Decent Homes, are expected to deliver reductions in emissions from existing homes of around 23MtCO₂ by 2020 and represent a total investment by Government and energy companies of over £1 billion a year.

9. The Government recognises, however, that we need to seek out further opportunities to tackle emissions from existing homes and at the same time contribute to issues such as fuel poverty and the diversification of energy supply. This memorandum summarises the key actions we are taking in this critical area, the rationale for those actions and our analysis of the impact they are having.

10. As the range of policies covered here will demonstrate this is not an issue that can be tackled by any one Department. Many Departments have a role to play and these Departments work together closely to ensure that the best outcome is achieved from their combined efforts. In order to provide a coherent description of Government policy and actions in this area, the Departments for Communities and Local Government, Environment Food and Rural Affairs, Business Enterprise and Regulatory Reform, and Innovation Universities and Skills have worked together to provide the overview in this memorandum, updating and bringing together the policies and measures already detailed in the Climate Change Programme 2006, the Energy White Paper 2007, and the Energy Efficiency Action Plan 2007.

SECTION 2—THE CHALLENGE

11. At the present time there are over 26 million homes in the UK; over 23 million in England and Wales alone. These homes vary dramatically in age, size, condition, tenure and in their energy efficiency. As mentioned above, together, these homes are responsible for around a quarter of our carbon dioxide emissions, mainly through the provision of heating and hot water. The contribution each individual home makes to this total depends on a number of factors and the most cost effective solution for reducing that contribution will vary significantly depending on those factors.

12. Not tackling existing homes is not an option; they represent more than 99% of the building stock at any one time, with new construction running at less than 1% each year. As around two-thirds of homes that will be standing in 2050 have already have been built, the majority of the 2050 housing stock will still be performing very significantly below today’s building standards unless they are improved.

The energy efficiency profile of our existing housing stock

13. In determining our approach it is very important to understand the profile of the existing homes that we may need to improve. The energy performance of individual buildings is measured using the Government’s Standard Assessment Procedure (SAP, a rating scale of 1 to 100) which takes account of the fuel efficiency of the heating systems and thermal efficiency of the building fabric, ie how well it retains heat in winter, as well as many other factors including type of construction (eg cavity-wall or solid wall, terraced, semi-detached, detached, flats) building shape, size and orientation, window sizes and distribution.

14. An analysis of the data that is available on our existing homes shows that large, irregular-shaped, detached houses are typically the least energy efficient (primarily as a result of the larger external surface area through which heat is lost), and that mid-floor flats and mid-terraced houses are typically the most energy efficient. The relatively poor energy performance of larger homes is confirmed by the early emerging findings from the roll out of Energy Performance Certificates (EPCs) to four bedroom homes:

- they typically receive an “E” rating (on the A-G scale);

²²⁰ Code for Sustainable Homes: A step-change in sustainable home building practice http://www.planningportal.gov.uk/uploads/code_for_sust_homes.pdf

- the installation of EPC-recommended energy efficiency measures could potentially raise this to a “C” rating; and
- annual fuel bills could be reduced by £270 (£180 heating; £60 lighting; £30 hot water) as a result.

15. Further analysis of the available data also reveals that, although the energy performance of many older homes will have been improved by the owners over the years (through draught proofing, insulation, upgrading of roof insulation, windows, heating systems etc), there remains a close correlation between the age of the property and its energy performance as measured by the SAP methodology. The English House Condition Survey²²¹ reveals that pre-1919 homes have an average SAP rating of 39. This rises progressively through all the property age bands to an average of 65 for post-1990 dwellings.

16. There are also significant differences in SAP ratings between different types of tenure, with homes in the private sector typically having lower average SAP ratings than those in the social sector. Although social rented housing accounts for only 18% of the total stock, approximately 38% of homes with a SAP rating of 60 or more (relatively good energy efficiency) are in this sector. In contrast private sector housing accounts for 82% of the total stock, but 93% of housing with a SAP rating of 30 or less (ie poor energy efficiency).

17. Overall the private stock tends to be older and have more houses than flats, all of which tend to be less energy efficient. Not only is the social sector inherently more efficient, it has also improved more than the private sector since 1996—the average SAP rating across all stock in the social sector rising from 47 to 57, but across all stock in the private sector only rising from 41 to 46.

18. This relative improvement is seen across all housing types in the social sector and reflects the impact of programmes such as Decent Homes and the Energy Efficiency Commitment, and the efforts of the Housing Corporation and housing associations and local authorities across the country. Much of this activity is described in more detail in the Housing Corporation’s memorandum to the Committee.

19. Looking over the whole of the existing housing stock, SAP data shows us that action to improve the energy efficiency of buildings over the years has had some impact, with average SAP ratings increasing for all property age bands between 1996 and 2005, and the overall average for all dwellings rising from 42 to 48 over this period.

20. Progress reflects a combination of factors—improvements in the energy performance of existing buildings, demolition of some older, less energy efficient stock and improvements in the standards to which new homes are built. Improvements in SAP ratings are seen for all age groupings and types of property with the exception of converted flats between 1996 and 2005.

21. Overall, the proportion of homes with a SAP rating greater than 60 has increased from 9% in 1996 to 22% in 2005, whilst the proportion of homes with a SAP rating below 30 has fallen from 17% in 1996 to 10% in 2005.

22. However despite this progress there is still much to be done. The latest available results of the EHCS show that:

- the oldest housing stock has not improved as much as properties built since 1919. More generally the least efficient housing stock is improving less than the more efficient stock
- only 40% of properties with cavity walls have cavity wall insulation
- only 30% of properties with a loft have insulation to a depth of 150mm or more (although most properties with lofts now have some insulation).

23. The table below provides a summary of the numbers of homes in England categorised by age, type, tenure and sector. For each category it shows the percentages with SAP ratings of 30 or less and 60 or more, and average SAP scores for 2005 and 1996 (ie tracking the improvement of the existing stock over 10 years) from the latest English House Condition Survey Annual Report.

24. The table clearly illustrates the correlation between the age of properties and their energy efficiency. Purpose-built flats and mid-terraced houses stand out as being generally more energy efficient than other dwelling types. And social sector dwellings typically perform better than those in the private sector. While there appears to be little between owner occupied and rented homes in the private sector in terms of energy efficiency, the former comprise a much larger proportion of the total housing stock (about 70% compared with 11%) They, therefore, represent the most significant and challenging target for delivering improvements, with a particular focus on older detached, semi-detached, end of terrace and converted flats as being the least energy efficient property types.

²²¹ English House Condition Survey 2005 Annual Report <http://www.communities.gov.uk/documents/housing/pdf/321566>

Table 1

2005 HOUSING STOCK SAP RATING BY DWELLING AGE, TYPE, TENURE AND SECTOR

	<i>proportion of 2005 stock in group</i>		<i>average SAP</i>	
	<i>SAP rating 30 or less</i>	<i>SAP rating 60 or more</i>	<i>2005</i>	<i>1996</i>
<i>age of dwelling:</i>				
pre-1919	23.9%	3.3%	39	36
1919–44	11.4%	7.5%	43	37
1945–64	7.5%	15.2%	48	41
1965–80	5.8%	26.3%	51	46
all post 1980	1.3%	57.4%	61	54
1981–90	1.8%	36.3%	56	*
post 1990	0.8%	76.4%	65	*
<i>dwelling type:</i>				
end terrace	12.7%	16.1%	45	39
mid terrace	5.4%	23.7%	51	46
semi-detached	10.0%	10.8%	45	38
detached	16.9%	13.9%	44	38
bungalow	13.8%	9.8%	44	38
converted flat	17.0%	9.9%	43	43
purpose built low rise	3.1%	63.1%	61	53
purpose built high rise	4.4%	61.4%	60	56
<i>tenure:</i>				
owner occupied	10.9%	15.4%	46	41
private rented	16.4%	21.7%	46	38
local authority	4.2%	38.8%	55	46
RSL	3.2%	53.1%	59	51
<i>private sector:</i>				
house	12.1%	12.6%	45	40
flat	8.5%	43.8%	54	48
all private	11.6%	16.3%	46	41
<i>social sector:</i>				
house	4.7%	31.2%	53	41
flat	2.5%	64.2%	62	54
all social	3.8%	45.2%	57	47
ALL STOCK	10.2%	21.6%	48	42

* The 1996 survey yielded insufficient sample cases of post-1980 housing for 1981–90 and post-1990 stock to be analysed separately.

Current and future patterns of energy use in homes

25. The task of reducing emissions from homes is not likely to get easier in terms of the amount of energy home owners are using.

26. In 2005, almost three quarters of the total emissions from existing homes arose from heating—53% from space heating and 20% from water heating. Over the long term, the use of energy for heating has remained fairly stable, with increases in demand being offset by improved insulation and more energy efficient heating systems. Lighting and appliances are the main growth area, with domestic energy use in this area increasing by over 60% between 1971 and 2001. Current demand for more energy-hungry consumer electrical goods, which often encourage householders to use energy-consuming standby modes rather than switching off, suggest that this trend will continue.

27. As indicated above, heating of water for showers, baths and taps accounts for a significant proportion of the energy used in homes (as much as 60% in small flats). This does not include water heated in appliances such as kettles, washing machines and dishwashers, nor the energy costs of purifying and delivering water and treating effluent. The carbon footprint of domestic water use is therefore significant, accounting for about 30 MtCO₂ a year—over 5% of the UK's carbon emissions.

28. Climate change itself is also likely to have an impact on the energy we use in our homes. As higher temperatures become more common it is likely that we will see a reduction in demand for heating but an increase in the take up of energy intensive air conditioning systems which could further increase the growth in demand for energy to power appliances.

29. Current projections of the future UK climate are consistent in their predictions of hotter drier summers, warmer wetter winters and more winter storms and intense precipitation and that the most significant climate change will occur in the south east. However, there is considerable uncertainty about the most probable scale of changes or on the chances of specific thresholds being exceeded and how frequently. Such information is essential if we are to properly assess the risks associated with climate change and to identify the most effective approaches that Government can adopt to help householders adapt their properties. The UK Climate Impacts Programme (UKCIP) will be delivering the first probabilistic scenarios in October 2008 and these will be essential to future work in this area.

Barriers to change

30. It is generally in the interests of households to improve the energy efficiency of their homes as the savings on energy bills can be significant, with several energy efficiency improvements such as draught-proofing, cavity wall and loft insulation quickly repaying their installation costs. However, even the most rational households are often faced with barriers to investing in energy efficiency measures which can be difficult to overcome:

- hassle—difficulty commissioning work and the inconvenience and disruption caused during installation;
- trust—householders often lack confidence in their ability, through lack of experience, to identify reliable installers/contractors and are suspicious of energy suppliers offering them energy saving deals;
- up-front costs—although some measures are inexpensive, others involve significant capital outlay and relatively low energy prices result in lengthy payback periods. The cost of treating different houses also varies considerably with older houses often costing more because of the number and type of measures needed (eg solid wall insulation rather than the much cheaper cavity wall insulation);
- information/knowledge—lack of knowledge of what can be done, how to obtain grants and subsidies and where to go for advice;
- split incentives—with rented property, typically the landlord would meet up-front installation costs and the tenant would benefit from the reduced energy bills; this is reflected in the fact that the private rented housing sector includes some of the least energy efficient homes;
- technological immaturity—many zero or low carbon technologies are still low volume and relatively expensive;
- risk—households may not be certain whether their tenure will be sufficiently long for future energy bill savings to repay the initial outlay. They may also be wary of the risk associated with new (or unfamiliar) products or services; and
- other priorities—householders will often have higher home improvement priorities, for example preferring to invest larger sums in visible improvements such as an extension or kitchen and bathroom remodelling (with obvious implications for property values) rather than much smaller sums in “invisible” energy efficiency improvements, such as cavity wall insulation, which would nevertheless quickly pay for themselves through reduced energy bills.

31. As this summary of the existing analysis around energy efficiency in existing homes shows, any strategy for tackling these buildings needs to be flexible and multi-faceted enough to deliver solutions which recognise and respond to a wide variety of different circumstances. Some home owners may only need information; some may need help organising work; some may have particularly hard to treat houses which require particular approaches or technologies; and some may need full financial support. The Government’s approach to dealing with this is set out below.

SECTION 3—APPROACH TO DATE AND IMPROVEMENTS DELIVERED

32. With the exception of some new and emerging technologies, primarily those concerned with microgeneration, renewable energy and low carbon technologies, the products and materials required to improve the energy efficiency of existing homes are well known and have well established markets. Details of some of these, their costs and savings were set out in the November 2006 CLG initial analysis²²² and more recent data were included in Defra’s carbon saving allowances under the forthcoming Carbon Emission Reduction Target published in March 2007²²³.

²²² Review of the Sustainability of Existing Buildings: The Energy Efficiency of Dwellings—Initial Analysis <http://www.communities.gov.uk/documents/planningandbuilding/pdf/154500>

²²³ Final energy and carbon savings for the EEC 2008–11 Illustrative Mix <http://www.defra.gov.uk/environment/climatechange/uk/household/eec/pdf/illustrativemix-final2007.pdf>

33. The existing policy framework for tackling energy efficiency in existing homes directly reflects the point made above about the need for a range of interventions which recognise the barriers which individual householders may face and which may prevent them from taking action. This policy framework is described below and is made up of:

- minimum standards for all existing homes that undergo building work;
- action to inform, support and incentivise those who are prepared/able to change their behaviour and/or take action in their own homes (including the use of obligations on other parties such as energy suppliers);
- financial incentives to tackle issues such as split incentives, encourage innovation and improve the uptake of low and zero carbon technologies; and
- action to ensure that the most vulnerable in society—those that are least likely to be able to improve their own homes and those that are most likely to suffer from fuel poverty—are assisted.

SETTING A MINIMUM STANDARD

34. The statutory minimum energy efficiency requirements for homes are set out in the Building Regulations. In recent years the energy efficiency standards for new homes and existing dwellings undergoing extension or major renovation have been progressively raised culminating most recently in the April 2006 revision to Part L of the Regulations which requires standards 40% above pre-2002 levels and 70% above 1990 levels.

35. For any existing home that is undergoing extension or major refurbishment, these more rigorous requirements have three key implications:

- that the work itself must comply with the new standards;
- that it should not result in a worsening of the overall energy efficiency of the building concerned; and
- that if 25% or more of the surface area of any thermal element (eg a wall or the roof) is being renovated, the entire element should usually be improved (the 25% limit is intended to exclude minor repairs but to ensure that any significant upgrading incorporates energy efficient construction).

36. As the Government has already announced²²⁴, the standards set by the Building Regulations will continue to rise over the coming years—increasing by a further 25% in 2010; 44% in 2013 and reaching zero carbon levels in 2016.

37. Recent changes to the Building Regulations have also resulted in some specific requirements which have additional implication for the energy efficiency of existing homes. These set energy efficiency standards at component level when certain types of building work are carried out including the replacement of windows and doors, boilers and hot water systems.

38. To support the changes to Building Regulations, the Government has also taken a number of actions to improve compliance with the standards they set out. Building Regulations is a fully devolved system and Local Authorities and Approved Inspectors are responsible for ensuring building work complies. Prior to the introduction of the 2006 standards there was significant concern about the level of compliance that was being achieved. A Building Research Establishment study in 2004 suggested that only 43% of new homes that were tested conformed to the airtightness requirements in the regulations and although this told us nothing specifically about compliance in existing homes it was an indication of the existence of a wider problem.

39. As part of the introduction of the 2006 regulations the largest ever training and dissemination campaign associated with a Building Regulations change was undertaken. This ensured that every building control officer in the country had access to training on the new Part L. We also introduced a number of Competent Person Schemes for work relevant to part L which are designed to ensure that work is carried out by competent individuals who are fully trained and whose work is regularly sample checked for compliance.

40. We are still in the early stages of the implementation of the 2006 Part L and it is difficult to establish at this stage whether our efforts to improve compliance have been successful. Even a year after the change in the regulations, builders are still completing new homes that received their original approvals against the previous regulatory requirements. However, we are already gathering information from stakeholders on how implementation is progressing and will ensure that this is taken into account in our review of the implementation of 2006 Part L which will take place in 2008.

41. Clearly, using regulations to mandate minimum levels of improvement helps in overcoming the risk of householders' other priorities taking precedence—one of the barriers to change identified above.

²²⁴ Building a Greener Future: policy statement (CLG July 2007) <http://www.communities.gov.uk/documents/planningandbuilding/pdf/building-greener>

INFORMING, SUPPORTING, INCENTIVISING

Energy Performance Certificates

42. The introduction of Energy Performance Certificates, which are currently being phased in for all homes—new and existing—when they are constructed, sold or rented out, represents a major step forward in improving the provision of information to homeowners about the energy efficiency of the home they are intending to occupy at the point in time when they are most likely to consider making improvements and most likely to take account of the cost and benefits of such improvements in their forward planning.

43. Energy Performance Certificates are designed to help potential building owners and occupiers understand the current and potential energy performance of the building they are considering occupying, and provide advice on how they can make cost effective changes to improve its performance. The Certificate also contains behavioural advice on saving energy in the home, and suggestions for more expensive measures (such as the installation of low and zero carbon technologies) that could be pursued.

44. Energy Saving Trust and CLG research suggests that, in the early stages of rolling out Energy Performance Certificates, home buyers are most likely to act on the recommendations and make changes to their homes. Longer term, however, the market may make energy efficiency a greater factor in the decisions that people make about which buildings they choose to buy or rent, and landlords and sellers should become more likely to make changes to improve the market appeal of their buildings.

45. CLG's Regulatory Impact Assessment sets the net cost of domestic Energy Performance Certificates at £81 million per year, for which a saving of around 0.9 million tonnes of carbon per year is expected to be delivered by 2020²²⁵.

46. The implementation of Energy Performance Certificates for the domestic sector is being accompanied by a communications campaign to inform all those who will be receiving or providing certificates of the benefits and obligations associated with them. Communications is a key part of the implementation of Energy Performance Certificates because there is no legislative requirement for building owners to act on the advice given in them. Achieving carbon savings is dependent, therefore, on incentivising consumers to act.

47. Communications work is being carried out in conjunction with the Energy Saving Trust (see below), who will act as the main point of further information for consumers on Energy Performance Certificates and advice on making energy efficiency improvements and adopting more energy efficient behaviour.

48. The introduction of Energy Performance Certificates is a significant response to the information/knowledge barrier identified in Section 2 above.

Energy Efficiency Commitment (EEC)

49. The Energy Efficiency Commitment is an obligation on electricity and gas suppliers in Great Britain to promote and deliver improvements in energy efficiency in households.

50. Energy suppliers can deliver their obligation and meet their target by mixing and matching a range of measures and activities. So far, in the first two 3-year phases (2002–05, 2005–08) they have focussed on cavity wall and loft insulation, providing low-energy light bulbs and subsidising the installation of energy efficient appliances. The scheme has also encouraged innovative approaches to the delivery of energy efficiency, including partnerships with Local Authorities, charities and community groups and has provided incentives for the deployment of new innovative energy efficient technologies.

51. In total EEC phase 1 (2002–05) stimulated about £600 million of investment in energy efficiency, will save around 0.3 MtC (million tonnes of carbon) a year by 2010 and delivered net benefits to householders in excess of £3 billion. Detailed evaluation of the programme showed that, for every £1 spent by suppliers, householders benefited by about £9. Most low income households in Great Britain benefited from this phase of the scheme—mainly from appliances and lighting savings. The markets for fridges, freezers, washing machines and dishwashers have been transformed, while the growth of condensing boiler sales and associated installation experience during the course of this phase was part of the reason the Government decided to legislate through the Building Regulations to bring about a radical transformation of the residential boilers market.

52. The current phase of the scheme, EEC 2 (2005–08), requires broadly double the level of activity of EEC 1 and is expected to deliver savings of 0.5 MtC annually in 2010. The next phase, starting in April 2008, will be called the Carbon Emission Reduction Commitment, and is expected to require a further doubling of supplier activity (see section 4 for further detail).²²⁶

53. Whilst it does not have a specific fuel poverty objective, the Energy Efficiency Commitment does require suppliers to direct 50% of energy savings towards a priority group of low-income customers. The scheme has been important, therefore, in supporting Local Authority objectives under Decent Homes, the

²²⁵ Regulatory Impact Assessment: Energy Performance of Buildings Directive Articles 7–10, p29, <http://www.communities.gov.uk/publications/planningandbuilding/regulatoryimpactenergyperformanc>

²²⁶ Further details of the programme and evaluations are available on the Defra website at: <http://www.defra.gov.uk/environment/energy/eec/index.htm>

Home Energy Conservation Act and Warm Front (see below). Evaluation of the first phase of the scheme suggests that this priority group benefited from increased comfort and reductions in energy bills worth around £1.8 billion.

54. This scheme addresses several of the identified barriers to change by reducing the up-front costs and by beginning to help address the hassle and trust barriers by providing the service through approved contractors, or through innovative energy efficiency schemes in which the energy supplier partners a local authority or other third party (eg supermarkets, department stores, appliance retailers and DIY stores). It also drives suppliers and installers to initiate their own marketing and communication campaigns.

Energy Saving Trust

55. The Energy Saving Trust (EST) was established following the 1992 Earth Summit in Rio de Janeiro and plays an important role in helping the Government to meet its climate change targets. It is part grant-funded by Government to work directly with householders and through local authorities and other key stakeholders to encourage and promote the sustainable and efficient use of energy in homes.

56. The Trust engages with over one million households annually, providing advice on energy efficiency and carbon emissions reductions. Energy Performance Certificates have raised, and will continue to raise, the public profile of the Energy Saving Trust by directing householders to them for further advice on improvement measures and grants and subsidies.

57. The Energy Saving Trust, therefore, is a key player in the Government's efforts to address the information/knowledge barrier. They have several core activities directed at household consumers:

- a network of Energy Efficiency Advice Centres (EEACs) providing advice to consumers to help them assess their energy use and signpost grants and subsidies available in the householder's area;
- accreditation of products under the Energy Saving Recommended label (which signposts consumers to products that save the most energy) and maintenance of an on-line searchable database of energy efficient products;
- the "Commit to Save Your 20%" consumer marketing campaign, which is the source of information and call to action for consumers to reduce their energy use and install energy efficient measures;
- administering a number of programmes for local authorities and registered social landlords, including Practical Help, a tailored source of information and support on delivering energy efficiency to their communities; and
- On-line Home Energy Checks—a personalised report showing consumers how much energy and money they can save in their home.

58. This is another significant measure to address the information/knowledge barrier but, through endorsing materials, appliances and promoting grant/subsidy schemes, the Energy Saving Trust also address the hassle, trust and cost barriers.

Increasing Awareness of Climate Change

59. All of our policies and programmes are underpinned by the need to generate an increased awareness and understanding of the link between individual action and climate change, through carbon dioxide emissions. In addition to the targeted policies and programmes highlighted above we are also working more generally to promote behaviours such as insulation installation, the take up of energy efficient products and better home energy management through:

- Grant funding for communications projects through the Climate Change Communications Initiative focused on shifting attitudes towards tackling climate change. This has provided £8.5 million in grant funding to 83 local and grassroots projects helping to encourage more positive attitudes towards tackling climate change;
- Freely available communication resources, including a website www.climatechallenge.gov.uk, a booklet *Climate change: your guide to inspiring action*, an award-winning two-minute film about the causes of climate change that has achieved over £8 million of free air time, and a new short film *My CO₂* about the links between individual/household energy use and climate change;
- Provision of "information tools" to help individuals take action. As part of this, we have launched the *Act on CO₂ calculator*²²⁷ to increase awareness of the different actions people can take in their everyday lives to help tackle climate change. The calculator has already seen almost half a million individuals and households find out their CO₂ footprint. The calculator also enables users to receive a tailored action plan with recommendations about how to reduce their emissions (eg by installing insulation). It also directs the public to links on further information in Directgov's *Greener Living Guide* and other websites;

²²⁷ The Calculator is available at www.direct.gov.uk/ActonCO2

- A new cross-departmental campaign brand “Act on CO₂.” This has been used by both Defra and the Department for Transport (on eco-driving). The key message in Defra’s campaign is that carbon dioxide emissions cause climate change and that over 40% of emissions in the UK come directly from individual behaviour. The campaign tells people the simple, easy things they can do to reduce their impact on the climate, which will often save them money too. It has used TV, press and digital advertising, as well as promotional methods (for example, a roadshow promoting the calculator at regional shopping centres).
60. This is another range of measures that address the information/knowledge barrier.

DIRECT FISCAL INCENTIVES

VAT reduction on energy efficiency materials/products

61. The Government recognises that fiscal incentives can play an important role as part of a package of measures tackling energy efficiency. In successive Budgets since 1998, the Government has rolled out a reduced VAT rate of 5% for the professional installation of certain energy-saving materials including insulation, draught proofing, hot water and central heating controls, and microgeneration (solar panels; micro wind and water turbines; ground source and air source heat pumps; micro combined heat and power (micro-CHP); and wood fuelled boilers). In addition, the reduced rate applies to professional installation of central heating systems, heating appliances and factory-insulated hot water tanks when they are part of grant-funded installations in vulnerable households.

62. The Government continues to lobby for the introduction of a reduced VAT rate for to energy-efficient products as an incentive for the private consumer to make more sustainable decisions. In March 2007, Gordon Brown, as Chancellor, wrote to Commissioner Kovacs and other EU Finance Ministers on this issue. In October, at the time of the 2007 Pre-Budget Report, Alistair Darling wrote again, this time jointly with the French Finance Minister.

63. These measures help to address the barriers of up-front costs and technological immaturity by reducing costs and helping to stimulate the emerging markets for microgeneration and renewable energy technologies.

Incentivising energy efficiency in rented properties

64. In Budget 2004, the Government introduced the Landlords Energy Saving Allowance (LESA), which provides an allowance of up to £1,500 for landlords who invest in cavity wall and loft insulation. This allowance has since been extended to solid wall and hot water system insulation as well as draught proofing, and floor insulation. The availability of the allowance has been extended from 2009 to 2015 and it now applies per property rather than per building, ensuring smaller properties have access to the full allowance. The Government is also seeking State Aid approval to extend the availability of the Landlords Energy Saving Allowance to all corporate landlords and bring more private rented properties within the scope of the scheme.

65. This allowance seeks to address the split incentive barrier which has held back energy efficiency improvements in the private rented sector and therefore makes a significant contribution to achieving carbon reductions in one of the least well performing sectors.

Supporting Microgeneration/renewables

66. Microgeneration has a significant role to play in meeting our goal of achieving sustainable and secure energy for all. The Energy Saving Trust estimated that by 2050, microgeneration could provide around 30–40% of the UK’s electricity needs and help to reduce carbon emissions by 15%²²⁸.

67. The Government’s Microgeneration Strategy (published in March 2006) sets out to create the conditions under which microgeneration could become a viable alternative or supplementary energy source for individual householders, communities and small businesses.

68. The strategy identified actions designed to tackle all of the main barriers to widespread take-up of micro-generation, including issues around cost of installation, lack of information and technical constraints.

69. Following the publication of the strategy the Government launched the Low Carbon Buildings Programme (LCBP). This is an £86 million grant programme which is designed to demonstrate the potential for encouraging both energy-efficiency and microgeneration technologies in a range of buildings, as well as driving down costs and making the microgeneration market more sustainable.

70. The Low Carbon Buildings Programme offers capital grants to successful applicants. To date, £21.5 million has been committed to projects in a range of buildings that include households, schools, social and local authority housing, businesses, charities and the public sector—including nearly £7 million to over 4,000 households.

²²⁸ Energy Saving Trust: Potential for microgeneration—study and analysis, 2005.

71. Other measures to tackle cost include enabling microgenerators to gain better access to the rewards for generating electricity such as easier access to Renewable Obligation Certificates (ROCs) and rewards for exporting excess electricity to the grid.

72. The new UK Microgeneration Certification scheme will provide consumers with independent certification of microgeneration products and services and a route for complaints. Over 200 installer companies have registered to join the scheme which builds on existing accreditation schemes.

73. Route maps are being created for each of the key technologies, focussing on opportunities and barriers to deployment, and giving a clear indication of the research and development need.

74. Finally, the Distributed Generation Review²²⁹, published alongside the Energy White Paper²³⁰, has identified further practical proposals to encourage more widespread deployment of distributed generation and enabling it to compete effectively with larger scale centralised generation. Most notably, the Energy White Paper gave a commitment for BERR and Ofgem to consult later this year on options for more flexible market and licensing arrangements for distributed low carbon electricity, to be implemented by the end of 2008. The measures will seek to make it easier for smaller operators to establish local energy schemes, to participate in the energy market, and to obtain value for excess electricity generated.

75. This activity addresses the technological immaturity barrier and, as a result, will contribute to reducing up-front costs.

Helping the most vulnerable

76. Government has a statutory requirement to eradicate fuel poverty, as far as reasonably practicable, in all vulnerable households by 2010 and in all households across England by 2016. Households deemed vulnerable include those with members who are elderly, disabled, have a long term sickness and/or are low income families with children. Clearly these households are also going to be amongst those who are least likely to be able to undertake physical improvements to their homes on their own.

77. Commitment to these targets has been underlined by increased funding. The 2004 budget increased funding to the Warm Front Scheme (the main fuel poverty programme in England) by £140 million and the 2005 pre-budget report committed a further £300 million across the UK, with £250 million for England. Total funding for the 2005–08 period in England is now more than £850 million.

78. Considerable inroads have been made on fuel poverty with figures falling from 5 million households in England in 1996, of which 4 million were vulnerable, to 1.2 million and 1 million vulnerable in 2004. However, due to the unprecedented increases in fuel costs since 2003 it is estimated that an additional 1.2 million households are in fuel poverty in 2006 compared to 2004.

79. Fuel poverty is driven by three elements: household energy efficiency, income and fuel prices. Action is needed on all fronts to address the challenges in a sustainable way.

80. The following sections highlight two of the key actions we are taking which aim to tackle fuel poverty through tackling the energy efficiency of existing homes. By providing financial support they address the barrier of up-front costs while also focusing on the properties in greatest need of improvement and households least able to afford those improvements themselves.

Warm Front

81. The Warm Front Scheme is the Government's main programme for tackling fuel poverty in the private sector in England, through the direct provision of a range of heating and insulation measures to householders. Assistance from the scheme is enabled through receipt of a qualifying income or disability related benefit, thereby focussing on vulnerable households. Since its inception in 2000 Warm Front has helped over 1.5 million vulnerable households feel warmer and more comfortable in their homes.

82. Changes to the scheme have been made since 2000 including the offer of central heating for all qualifying applicants, benefit entitlement checks and a £300 scheme to assist pensioners who are not in receipt of any qualifying benefits, towards the cost of gas central heating installations.

83. Action undertaken by Warm Front has had a significant impact on the aim of reducing carbon emissions. In total, Warm Front is expected to save 0.5MtC each year by 2010. In 2006–07 alone Warm Front activity in the households they worked with resulted in:

- an average SAP improvement of 16 points, from 40 to 56.
- an average reduction in carbon dioxide emissions of 0.81 tonnes a year
- an average saving of almost £200 in energy running costs every year.

²²⁹ Review of Distributed Generation <http://www.berr.gov.uk/files/file39025.pdf>

²³⁰ Meeting the Energy Challenge: A White Paper on Energy <http://www.berr.gov.uk/files/file39387.pdf>

84. There is still much to do but the Government remains committed to meeting its fuel poverty targets. Subject to final decisions, the combination of Warm Front and the focus on low-income customers through the priority group obligation in the Carbon Emission Reduction Target mean that spending on energy efficiency and other measures in low-income households will rise in the 2007 Comprehensive Spending Review (CSR07) period compared to the previous spending period.

Decent Homes

85. We are committed to ensuring that all social homes are made decent by 2010. The Decent Homes standard is designed to ensure that social landlords tackle the worst housing conditions across a range of criteria. By ensuring that homes are warm, dry and have reasonably modern facilities, the delivery of the Decent Homes target has helped to make homes more energy efficient, as well as contributing to other cross-Government commitments to reduce health inequalities and tackle fuel poverty.

86. To be classed as decent, a home must provide a reasonable degree of thermal comfort, which means it must have effective insulation and efficient heating. Improvements to insulation and heating are a major focus of the decent homes refurbishment works.

87. Between 2001 and 2006, central heating improvements have been made to over 700,000 local authority dwellings, over 600,000 have benefited from insulation improvements, and over 800,000 have had double glazing installed. Progress is being made on thermal comfort at a faster rate than the other components of the Decent Homes Standard, and the number of social sector homes failing on that criterion has more than halved since 1996—down from nearly 2 million to 850,000.

88. The Decent Homes programme also includes a target for vulnerable households in the private sector to increase the proportion living in decent homes to 70% by 2010. Progress has been good, with the proportion living in decent homes increasing from below 43% in 1996 to 66% now.

89. The Decent Homes standard acts as a threshold that triggers action to improve homes which fall below it, rather than a standard to which work is carried out. This ensures that resources are targeted at properties in the worst condition which will benefit most from improvement works. Furthermore, when carrying out these improvement works, landlords are encouraged to deliver a higher standard. Research by the Buildings Research Establishment²³¹ found the vast majority of local authorities and Registered Social Landlords (RSLs) are carrying out work well in excess of the thermal comfort standards with 90% planning to install both cavity wall insulation and loft insulation in homes with gas or oil programmable heating where only one form of insulation would be required by the standard. The research survey also estimates that by 2010 around 85% of lofts in social rented homes will have at least 200mm of insulation whereas the standard states that homes with less than 50mm must be improved.

90. By 2010 we expect 95% of the stock to be decent, with the majority of landlords making all their stock decent in this timescale. Work will have been completed to 3.6 million homes, with improvements for 8 million people in total, 2.5 million children among them.

SECTION 4—THE NEXT STEPS

91. The key policies and programmes we have described above are expected to deliver reductions in carbon emissions of around 19 MtCO₂ (million tonnes of carbon dioxide) a year by 2020.

92. There is no assumption on the part of the Government that each sector of the built environment or the economy as a whole must carry an equal burden in terms of reaching the Government's 60% target, and given the difficulties identified earlier, it may not be cost effective to seek to achieve the full 60% from existing homes. However, it is clear that we need to continue to seek new opportunities to achieve further reductions in carbon emissions from existing homes where these are practical and cost effective.

93. Below we have set out a number of areas of ongoing work which are either in the process of being developed or already planned for the future which will make a further contribution.

Future development of Energy Performance Certificates

94. The recent launch of Energy Performance Certificates offers government a powerful new route for active engagement with householders as well as other market players on the issue of energy efficiency. As well as ensuring active communication and engagement with householders to encourage them to act on the recommendations, the Government is keen to look at the further opportunities that EPCs open up and to work with others to develop ideas around this.

95. As a result of EPCs, for the first time householders will have detailed information about the energy performance of the house they occupy and clear advice on how to act on it. One possible route for making the most of this increase in information could be to encourage the development of market-based mechanisms which would draw on the information to develop and offer affordable, hassle free and comprehensive energy efficiency packages at the point in time when householders are most likely to consider them.

²³¹ Implementing Decent Homes in the Social Sector <http://www.communities.gov.uk/documents/housing/pdf/324500>

96. There may be a number of ways of doing this. Mortgage lenders might team up with energy suppliers and product installers to offer packages at the time of arranging the mortgage; or energy suppliers might develop their own packages to offer customers who wish to act on EPC improvement recommendations.

97. All proposals are at an early stage and Government will continue to work with stakeholders to establish what role it should play in the development of these products and to fully understand the costs and benefits of the various approaches.

98. The future of the Energy Performance Certificate is also likely to be linked in to the wider Government climate change agenda in other ways. One of the predicted benefits of Energy Performance Certificates is the increase in consumer interest in energy efficiency measures.

99. Longer term developments in policy are likely to depend on the results of the current implementation phase, and also developments in Europe. The Commission has stated its intention to strengthen the Energy Performance of Buildings Directive, and any changes in domestic policy would need to reflect these changes. Communities and Local Government is planning to take an active role.

The next phase of the Energy Efficiency Commitment

100. Defra has recently completed a statutory consultation on a new Carbon Emission Reduction Target (CERT) for energy suppliers for the period 2008–11. This will replace the Energy Efficiency Commitment—the change of name reflects the fact that it now includes the full spectrum of carbon emission reduction measures, going beyond energy efficiency and including all microgeneration technologies as well as behavioural measures. The Government proposes an increased carbon target on energy suppliers, effectively requiring them to double their current effort, significantly increasing activity in well established markets like insulation while encouraging a big push into new markets like microgeneration. The increased level of activity means that even more customers are likely to benefit from supplier activity.

101. The legislation for the Carbon Emission Reduction Target is expected to be in force by the end of 2007, allowing the scheme administrator (Ofgem) and energy suppliers to prepare for the April 2008 start. To facilitate a smooth transition from EEC2 to CERT, Defra published the carbon savings to be attributed to established energy efficiency measures allowed under the new scheme earlier this year²³². Energy suppliers are able to start work on their targets early and are able to carry-over any over achievement against their current EEC2 targets so there is no need for them to scale down activity now if they have already achieved their Energy Efficiency Commitment targets for 2005–08 early.

A Longer-term Supplier Obligation from 2011–20

102. In last year's Energy Policy Review the Government committed to continue some form of household supplier obligation until at least 2020. The level of the target will be similar to that under the Carbon Emission Reduction Target, delivering cumulative annual savings of 3 to 4 MtC by 2020.

103. As the most cost-effective opportunities to improve energy efficiency of existing homes are taken up over time, realising savings will become increasingly difficult to achieve. If we are to continue to deliver carbon savings from households, we need to bring about a change in consumers' approach to energy use. Suppliers and customers need to have a shared incentive to reduce emissions. Creating this shared incentive will require an innovative policy, which changes the way the supplier views their relationship with customers. Rather than simply selling units of energy, the suppliers' focus needs to shift to the marketing of energy services.

104. Encouraging suppliers to make this change will be challenging, and cannot be made in one step. It will require suppliers to develop alternative business models, earning profits through a combination of low carbon measures, related services and sales of energy. The Carbon Emission Reduction Target is a first step towards creating such a marketplace, with its rewards for innovative approaches and domestic microgeneration.

105. Market transformation will also require changes to other aspects of energy markets. Steps to improve billing, and over time, to roll out smart meters to domestic customers will improve the opportunities for suppliers to develop alternative business models. Energy services relationships are likely to involve longer-term contracts between suppliers and customers. Such contracts will be further facilitated by Ofgem's recent removal of the "28 Day Rule"²³³. Removing this rule makes it possible for suppliers to offer more innovative contracts to customers, whereby the supplier makes investments in the customer's home in return for the customer committing to a fixed term contract, for example.

106. The Government intends to reach a clear conclusion on the direction for the post-2011 supplier obligation in 2008. The options under consideration include setting supplier targets in terms of absolute reductions in carbon or delivered energy as discussed in the Energy Review Report, as well as alternatives

²³² Final energy and carbon savings for the EEC 2008–11 Illustrative Mix <http://www.defra.gov.uk/environment/climatechange/uk/household/eec/pdf/illustrativemix-final2007.pdf>

²³³ This rule required that all domestic supply contracts must be capable of being terminated with 28 days notice, and so may act as a barrier to contracts where suppliers make up-front investments in their customers' homes with the intention of recouping this investment over time

such as a further evolution of the measures-based approach as under the Energy Efficiency Commitment and Carbon Emission Reduction Target. As part of this policy development process Defra issued a Call for Evidence to enable interested parties to offer their views at an early stage in the policy development process. The Call for Evidence closed on 14 September and Defra will be publishing a summary of responses later this year.²³⁴

Further action to increase awareness of climate change

107. Improving awareness of climate change and energy efficiency and the role of individuals will continue to be an important Government activity.

108. Since 2005–06, the Energy Saving Trust have been piloting a Sustainable Energy Network (SEN), building on their network of Energy Efficiency Advice Centres, as a new delivery route for more effective advice to consumers, engaging proactively and enabling individuals to make personal commitments to reduce carbon. In addition to energy efficiency, Sustainable Energy Networks promote carbon saving through renewable energy technologies and low carbon transport. Government is now looking actively at the emerging results of this pilot, the Act on CO₂ calculator, Climate Challenge Fund, and other public engagement initiatives and will determine the future direction for continued roll out of these information tools and programmes in the light of the 2007 Comprehensive Spending Review settlement and other competing priorities.

109. The Energy Saving Trust will also be piloting a “green concierge” approach with the Greater London Authority, through which householders will be offered a complete service including energy audits, advice, help with financing measures as well as assistance in finding and managing contractors. If successful, they aim to promote the approach with local authorities in 12 core cities across the UK.

Real time displays, smart meters and home automation

110. The provision of better information to consumers about their energy use and how much it is costing them has been shown to be an effective way to drive behavioural change. Studies have shown that direct feedback, in real-time, is the most effective means of inducing behavioural change because it’s the easiest way to identify waste and how much appliances cost to run. Accurate and more frequent bills have also been shown to help consumers understand their energy use better and motivate them to invest in energy efficiency measures—Government has announced a policy that energy suppliers, from May 2008, should provide a graph of actual historic consumption on domestic energy bills.

111. The Government has announced that from as early as possible in 2008, for a period of two years, households will be able to get a free display from their energy supplier. The Government has also announced that all new and replacement electricity meters from May 2008 should be provided with a real-time electricity display. This provision applies to any meter installed, so if a smart meter is installed it too would have to come with a real-time electricity display. The Government is further considering the potential for providing more frequent information to households about their gas consumption by real time display.

112. Further, the Government has a vision that every household should have a gas and electricity smart meter in the next decade and is considering the costs and benefits of different roll out scenarios. Smart meters primarily provide benefits to energy suppliers as they can reduce their meter reader and call centre workforce along with other reductions in the costs of serving their customers. Energy suppliers will have much more information about their customers’ energy consumption if smart meters are installed and could, potentially, provide this information to their customers in ways that would improve understanding of their energy use.

Changes to the Planning System

113. In April this year CLG launched a consultation on proposals to change the planning system to allow householders to install microgeneration equipment without the need to apply for planning permission. While the proposals seek to increase the take-up of microgeneration by removing a regulatory burden that can be costly in terms of both time and money, they also try to ensure there are safeguards in place to ensure proposals do not have a significant impact on others.

114. The consultation period closed on 27 June. Whilst there was general support for what the proposals sought to achieve, there was a significant amount of detailed comment on the various conditions and limits proposed to protect the impact on others. The department is currently considering the responses.

115. In May this year the Government also published the Planning White Paper: *Planning for a Sustainable Future*²³⁵. The White Paper underlined the important role of regional and local planning in actively planning for, and supporting, renewable and low carbon energy supplies. It makes clear that local

²³⁴ Further details are available from the Defra website at: www.defra.gov.uk/environment/climatechange/uk/household/supplier/index.htm

²³⁵ <http://www.communities.gov.uk/documents/planningandbuilding/pdf/320546>

planning authorities have a crucial role to play in tackling climate change and states that the Government 'intends to legislate to set out clearly the role of local planning authorities in tackling energy efficiency and climate change.

116. The Planning White Paper confirmed the Government intention to publish the final Planning Policy Statement (PPS): Planning and Climate Change later this year. We are fully committed to this. It will set out how planning, in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and resilient to the climate change now accepted as inevitable. The consultation draft of the PPS, published at the end of 2006, attracted significant support and responses made clear the value put on using planning positively to help tackle climate change.

Encouraging action by local authorities

117. The Home Energy Conservation Act (HECA) places a duty on all Energy Conservation Authorities to produce improvement plans aimed at achieving a voluntary 30% energy efficiency improvement in all housing in their areas, within ten to fifteen years ie by 2006—2011. It has raised the importance of energy efficiency within the areas for which local authorities are responsible and encouraged them to work together with a number of other agencies, including voluntary and business sectors, to ensure a holistic approach to improving household energy efficiency.

118. In the period 1 April 1996 to 31 March 2006, English authorities reported an overall improvement in domestic energy efficiency of all housing in their area of over 19%, as measured against a 1996 baseline. These improvements were as a direct result of other policy programmes, notably the Energy Efficiency Commitment, Warm Front and Decent Homes. Defra is currently consulting on a review of the Act, as implemented in England, to assess its future role in our framework of action to improve household energy efficiency.

119. Given the significant role that local government can play in tackling climate change the Government has committed²³⁶ that the new performance framework, which is to be implemented from 2008, will also have an appropriate focus on climate change. Decisions on national outcomes, indicators and targets will emerge from the Comprehensive Spending Review. The new performance framework for local government will provide stronger mechanisms for ensuring that national priorities such as climate change are translated into effective action both in their own estate and across their communities, bolstered where appropriate, with local targets and indicators.

Further Changes to Part L of the Building Regulations

120. As stated previously, we have set out our intention to accelerate the process of raising the statutory energy efficiency standards for new dwellings, with improved Building Regulation standards in 2010 and 2013 culminating in a zero carbon new home requirement by 2016. Based on projected levels of new build and demolition, we estimate that around one-third of the homes that will exist in 2050 will have been built between now and then. This raising of Building Regulations standards is therefore intended to ensure that we do not needlessly exacerbate the problem of the existing housing stock in the period leading up to 2050.

121. Existing standards focus strongly on the conservation of heat in winter. Between now and 2016 we will be introducing higher standards for summer performance to take account of the increased popularity of domestic air conditioning. From 2016, we intend that air conditioning energy consumption will be included in the net annual zero carbon dioxide emission calculation.

122. The proposed review by the European Commission of the Energy Performance of Buildings Directive in 2009 may require other changes to the Building Regulations. It may present a further opportunity to consider what other measures might reasonably be taken to improve the energy efficiency of the existing housing stock.

Supporting energy efficient lighting

123. Gordon Brown, as Chancellor, announced in March 2007, his aim for the UK to be one of the first countries to phase out inefficient light bulbs and set an ambitious target date to achieve that by 2011, ahead of possible mandatory measures under the EU Framework Directive on Energy-using Products. In September 2007 Hilary Benn announced that the major retailers and energy suppliers have responded positively to this and that they will be driving a voluntary initiative, with the strong support of the lighting manufacturers, to help phase out traditional high-energy light bulbs. This action will also see consumers saving money on energy bills.

²³⁶ See Chapter 8, 2006 Climate Change Programme and Annex F: Strong and Prosperous Communities

Longer-term support for new and emerging technologies and industries

124. The Government supports a wide range of measures to stimulate research and development in low carbon technologies throughout the R&D energy innovation chain.

125. All energy technologies broadly go through the same stages of development: research through to deployment, each stage requiring different types of support. In reality, this process is rarely linear and projects at the demonstration and deployment stages often have further research and development needs.

126. The Government has announced an Environmental Transformation Fund (ETF), within which Defra and BERR will use a domestic fund of £370 million to support the demonstration of new energy and energy efficient technologies. Defra and BERR will work closely with DIUS to develop a strategy for the low carbon framework across the full energy innovation chain from initial research and development to demonstration, deployment and diffusion.

127. Support for the research, development and demonstration of new technologies forms the technology push aspect of innovation. Market pull comes by providing the market mechanisms and incentives that help create the demand for the wider deployment of new technologies, such as the Renewables Obligation which is currently being banded to offer greater support to emerging technologies.

128. Public sector funding for technology push is increasing steadily, both in the UK and EU. Within the UK there are also major changes being made to how this funding will be delivered in future. These changes will ensure that our energy industries are in an excellent position to contribute to and gain from the move to low and zero carbon energy generation. The key bodies involved, most of which are funded through DIUS, are:

- Research Councils—funding the development of new renewable energy sources to replace or complement existing or future low carbon energy generation, as well as improving existing energy generation and energy utilisation. Their budget in 2007–08 will amount to over £70 million. Activities include the Carbon Vision project which supports action to identify carbon-saving technologies which could be fitted in existing buildings, and to examine policy, economic, social and technical issues to help achieve a radical transformation in CO₂ emissions from the UK building stock.
- Technology Strategy Board—oversees the Technology programme which is designed to stimulate innovation in the UK economy and provides funding to support Collaborative Research & Development (CR&D) and Knowledge Transfer Networks (KTN). Priorities for the Technology Programme have included low carbon energy technologies including renewables, and sustainable production and consumption.
- Energy Technologies Institute—due to be launched later this year—is a joint venture partnership which brings together public and private sector R&D in the UK to set strategic direction in low carbon energy research and fund its delivery. Current partners include BP, E.ON UK, Shell, EDF Energy, Rolls-Royce and Caterpillar. It will provide the UK with a world-class means for delivering applied energy technology research to underpin deployment. The Institute currently has a budget of up to £600m over ten years, which will rise (to take up Government matched funding up to £550m) as new members join.
- Framework Programme 7—the EU’s Framework Programme for Research and Technological Development is the main instrument through which research is supported at European level. The Seventh Framework Programme (FP7) will be accelerating the development of energy technologies and ensuring that European industry can compete successfully on the global stage. FP7 has a budget €50.5 billion over the period of 2007 to 2013 of which €2,350 million is available for the Energy Theme.

Personal carbon allowances

129. The Government is looking into the potential value of personal carbon trading. This 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. Following an initial scoping study produced for Defra by the Centre for Sustainable Energy (CSE), the Government is now carrying out a pre-feasibility study to assess whether personal carbon trading might be a practical and feasible policy option, compared with other measures for constraining emissions. This work programme complements the research and academic work being undertaken by researchers and academics such as The Tyndall Centre for Climate Change, the Environmental Change Institute and the Royal Society for Arts.

Adaptation to Inevitable Climate Change

130. As indicated earlier, a degree of climate change is inevitable and measures to reduce carbon emissions take many years to have an appreciable impact on the rate of climate change. So, in addition to reducing the impact of our existing homes on the environment, we also need to adapt them to these inevitable changes in the UK climate. The main risks to which our homes are likely to be exposed, which are already all too familiar to us, are:

- higher average and extreme temperatures;
- increased risk of flooding;
- increased risk of ground subsidence and heave; and
- increased risk from storms and storm damage

131. CLG has already initiated work to review homeowners' experiences to date, lessons from existing work on adaptation and resilience led by others, and the evidence base for specific and relevant changes in the climate. Some threats and appropriate adaptations to them are already well researched and documented, eg the recent CLG/Defra/Environment Agency publication on flood resilient construction²³⁷. Future work will focus on tackling those areas where gaps in our understanding of the threats, opportunities and barriers are less well understood or documented, with a view to identifying areas where CLG and other government departments might be able to make a positive intervention. This is most likely to be with regard to overheating and minimising storm or heave damage. This is an area at early stages of development with regard to policy.

SECTION 5—CONCLUSIONS

132. Our policies need to respond to different market failures in different ways. In some cases regulatory interventions (eg Building Regulations) can be the most effective and cost effective response. There is also a role for better information (eg product labelling, real time displays), incentives (Warm Front, LESA); and market mechanisms (eg EEC). Existing policies and programmes have already delivered significant improvements to millions of existing homes. But the existing housing stock is very large—over 23 million homes in England and Wales—and their longevity means that the bulk of the houses that exist today will still be here in 2050. So investing in energy efficiency improvements to existing homes is not just worthwhile; it is crucial to the achievement of the Government's overall carbon emission reduction target for 2050.

133. Sections 3 and 4 of this memorandum set out the existing and planned policies and programmes which exist to increase the rate of improvement. Together, these measures will deliver a reduction in domestic carbon emissions of around 41MtCO₂. But these measures are not the end of the story.

134. In the period leading up to 2050, yet further measures will be required. These will need to take account of the impact of the new measures now being put in place and of future technological developments that may make significant further improvements more readily achievable and more cost effective.

135. We will continue to seek to identify further measures, targeted at the barriers to improvement and at those sectors of the stock in most need of improvement, to ensure that we are able to deliver an appropriate contribution to the overall carbon emission reduction target. To that end, we are undertaking a review of existing buildings focusing on a number of different work streams. The initial analysis of existing housing energy efficiency was published on the CLG website in November 2006²³⁸. This work was then developed by the Office of Climate Change as part of their wider household emissions project. Their analysis will feed into future policy decisions by all departments on how to further improve the energy efficiency of existing homes.

136. If we are to increase household energy efficiency, all sectors of society need to play their part. This means creating the conditions for people and organisations to change; demonstrating the benefits (such as saving money, and improving the environment); and making action easier. It also means continuing to support innovation in technologies. Many players have a role to play: central and local government, agents such as the Energy Saving Trust, energy suppliers, house owners, occupants and landlords. At the end of the day, we remain committed to working to overcome the barriers to the take up of household energy efficiency measures identified in this memorandum, and to drive investment in energy efficiency measures. This is worthwhile for individual householders, in terms of offering them both better thermal comfort in their homes and lower energy bills. In many cases, the cost savings will quickly repay any up-front investment.

²³⁷ Improving the Flood Performance of New Buildings; Flood Resilient Construction (CLG May 2007)

²³⁸ The Energy Efficiency of Dwellings—Initial Analysis <http://www.communities.gov.uk/documents/planningandbuilding/pdf/154500>

SUMMARY RESPONSES TO THE ISSUES HIGHLIGHTED IN THE CALL FOR EVIDENCE

The significance of existing housing compared to new build and the different levels of performance each display.

New homes account for less than 1% of the total housing stock in any given year. The longevity of houses means that around two-thirds of the homes that will be standing in 2050 had already been built before 2005. So today's existing housing stock is and will remain highly significant in terms of reducing carbon emissions. The energy performance of individual dwellings differs considerably as a result of many factors, but there is a strong correlation between the age of properties and their average energy efficiency. This has been particularly marked since 1990 following a series of improvements in the Building Regulations energy efficiency standards. Planned further improvements to these Regulations will ensure that future new homes achieve even higher energy efficiency standards. Sections 2, 3 (paragraphs 34–41) and 4 (paragraphs 120–122) of this memorandum give further details.

The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency.

All these players have important roles to play. Central government is responsible for setting the regulatory framework through the Building Regulations, for promoting energy efficiency primarily through the Energy Saving Trust, for providing financial support to more vulnerable households through grants, and for supporting technological development, where necessary, to ensure better materials and products reach the market. Government has also imposed an obligation on energy suppliers to promote and deliver energy efficiency in homes which has proved highly cost effective in improving large numbers of dwellings. Local authorities have a vital role in facilitating and joining up services locally. But, ultimately, householders have much to gain, in terms of improved thermal comfort and reduced energy bills so there are real incentives for them to invest in energy efficiency measures. Landlords, who might otherwise find themselves investing in improvements that resulted in cost savings for their tenants, are provided with a direct financial incentive through the Landlords Energy Saving Allowance (paragraphs 64–65). The roll out of Energy Performance Certificates to rented properties will provide clearer information on the specific improvements that could be made using the allowance. Further details of specific initiatives are at Sections 3 and 4 of this memorandum.

Energy Performance Certificates

Energy Performance Certificates are, primarily, a means of providing prospective householders with information about the current and potential energy efficiency of their homes, the measures they can take to realise that potential, and where to go for further advice on these measures and sources of financial assistance. Ultimately, as they become an established part of the property market, they are likely to have a greater impact on buying and renting decisions, and they may provide a platform for developing future policies and incentives. Details are given in Sections 3 (paragraphs 42–48) and 4 (paragraphs 94–99).

The provision of information for households and prospective house buyers, including Energy Performance Certificates

Energy Performance Certificates will form an increasingly important vehicle for providing more and better information to householders. The Government also part-funds the Energy Saving Trust to promote domestic energy efficiency. See Sections 3 (paragraphs 55–58) and 4 (paragraphs 107–109).

Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

The wide range of actions and programmes that address different sectors of the housing market and/or the various barriers to voluntary action are described in Sections 3 and 4.

The technologies available to reduce emissions and the Government's role in facilitating relevant technological development

Most materials and products to improve the energy efficiency of existing homes are well known and have well established markets. The Energy Saving Trust maintains an extensive web-based database of products carrying their "Energy Saving Recommended" endorsement. Sections 3 (paragraphs 66–75) and 4 (paragraphs 124–128) of the memorandum describe what Government are doing to promote immature and emerging technologies, particularly in the fields of microgeneration, renewable energy and low carbon technologies.

The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government's ambitions to reduce poverty

Many measures such as draught-proofing, loft and cavity wall insulation are relatively low cost, are not highly disruptive to have installed and quickly repay their installation costs through reduced energy bills. But Government recognises there are a number of barriers that may discourage or prevent householders or property owners from installing them; these are described at paragraph 30. The memorandum goes on to describe the range of actions and programmes that are designed to overcome these barriers and, in particular, to assist low income households and those considered to be in fuel poverty.

The specific challenges which may arise in relation to housing of special architectural or historical interest

Generally speaking, buildings of special architectural or historic interest and buildings in conservation areas do not have to comply with the energy efficiency requirements of the Building Regulations "where compliance . . . would unacceptably alter their character or appearance" (quote from Regulation 9 of the Building Regulations). However, English Heritage have worked closely and constructively with CLG to produce detailed guidance for owners of historic buildings and those in conservation areas on how they might reasonably comply with the requirements of the Regulations without compromising the historic value of their properties. English Heritage and the Commission for Architecture and the Built Environment (CABE) are expected to submit detailed evidence separately on this matter.

Memorandum submitted by E.ON UK

1. Improvement to the energy efficiency of the UK's existing housing stock is essential if the UK is to meet its carbon emission reduction targets by 2020, given that housing accounts for 27% of total UK emissions. Suppliers have already played a significant role in reducing household emissions largely through the Energy Efficiency Commitment scheme which has been in effect since 2002 (EEC 1 2002–05 and EEC 2 2006–08), which requires suppliers to install energy efficiency measures which deliver predefined levels of carbon savings. From April 2002 to March 2008, E.ON UK will have installed measures which will deliver discounted lifetime energy savings of over 30TWh at a cost of over £250 million.

2. The scheme to run from April 2008 to March 2011 will be known as the Carbon Emissions Reduction Commitment (CERT) and will require suppliers to achieve savings about 50% higher than under EEC 2. The Government has said it intends to retain some form of supplier obligation until 2020 and expects to achieve total annual savings of 5.4MTC per annum by 2020 from EEC, CERT and future obligations, about one fifth of all the savings it currently expects to achieve through energy efficiency measures across the economy as a whole.

3. The current EEC/CERT approach essentially requires suppliers to subsidise the provision of energy efficiency measures to customers who receive them with the costs reflected in tariffs to customers as a whole. While this has been effective in rolling out more efficient lighting, cavity wall and loft insulation to a large number of properties, it has done little to engage customers directly in the need to reduce the carbon emissions impact of their homes and their use of energy or to encourage suppliers to adopt a more innovative approach to encouraging customers to use less energy. We believe this current subsidy based approach is not sustainable in the longer-term particularly as the relatively low cost measures such as cavity wall insulation begin to be exhausted.

4. Our belief is that customers are becoming increasingly engaged with climate change and energy efficiency issues and that by the next decade a policy framework is required which will incentivise suppliers (and indeed other service providers) to offer a wider range of energy products and services on a more innovative and commercial basis, engaging customers more directly and leading to a sustained reduction in energy consumption.

5. We believe this approach is much more likely to be achieved with a policy which focuses on outcomes (ie the required level of emission reductions expected from suppliers in the domestic sector) rather than the provision of specific measures as at present. An outcomes-based obligation, with auction of carbon allowances to suppliers, with Government only setting the overall target demand reduction, will create the right positive framework. Our views on this are set out in our response to the recent DEFRA call for evidence on the supplier obligation after 2011 which we would be happy to provide to the committee if that is helpful. However, whatever model is adopted, the policy framework for suppliers must be stable over the next decade, to create the best possible environment for investment in skills and technology and the development of customer relationships and propositions.

6. The provision of "smart" metering which the Government has said it wishes to see rolled out to the domestic sector within ten years will complement this approach by giving consumers and suppliers more accurate and specific information about their energy consumption. The Government is currently consulting on how this should be achieved.

7. Government itself has an important role in incentivising customers to take up energy efficiency measures. It will in particular be essential to capitalise on the introduction of Energy Performance Certificates (EPCs):

- for owner occupiers, to link energy services investment to improved house value and saleability. The aim should be to highlight any shortfall in achieving the home's potential rating, both to inform the new owner of the potential need to investment and incentivise the existing owner to carry out any improvements when opportune (for instance to install microgeneration or boiler replacement). The introduction of tax incentives, such as rebates on stamp duty or council tax, to reward investment to improve the energy efficiency of properties will be desirable to reinforce these incentives;
- for rented property, to enable reliable information about the energy efficiency of a property to be given to potential tenants. We think the introduction of EPCs would make it practical to encourage (or require) landlords to provide information on the energy efficiency of the property and to make available both rental and estimated average energy costs to tenants. This type of presentation would give landlords an economic rationale to invest in energy efficiency improvements, as tenants will look at the total occupancy costs and landlords would more easily see a return from investment in energy efficiency measures. The attached annex presents this idea in more detail.

8. In view of the importance of EPCs to raising consumer interest in energy efficiency measures we consider that more flexibility is required in current DCLG rules governing who can carry out assessments.

9. The current DCLG proposals are that the assessor must be completely independent from any organisation that will carry out the energy efficiency work. The rationale for this is to avoid undue pressure on the customer to take-up recommended measures, at the time of the assessment. We agree that this is important but the effect is also to place an additional burden on householders as they must then seek out service providers when the key objective is to encourage them to undertake the necessary upgrades.

10. The DCLG's proposed approach goes further than the requirements of the Energy Efficiency in Buildings Directive (the legal basis for EPCs) which state that the certification is to be carried out "in an independent manner". We believe that customers can be protected effectively by requiring assessors both to carry out assessments in an independent manner and to declare any affiliation with an organisation which may carry out energy efficiency work. Customers would then have the choice of selecting an assessor who could offer to provide the necessary upgrades or an assessor who will provide only the basis assessment. This will then protect customers, whilst at the same time providing suppliers with an effective means of delivering carbon saving measures to customers.

Annex

ENGAGING LANDLORDS—COMBINING RENT AND ENERGY

Rent—£650 per month.

Bills for heating and lighting—£120 per month.

Total (rent and bills)—£770 per month.

- The property has no cavity wall insulation and insufficient loft insulation, and has an EPC rating of "F".
- Rent is £650 per month.
- Bills are £120 per month.

In this advert to rent a 3 bed semi detached house, the rent and heating and lighting bill per month are shown, along with the EPC rating of the property.

Rent—£650 per month.

Bills for heating and lighting—£75 per month.

Total (rent and bills)—£725 per month.

- Cavity wall insulation and loft insulation have been fitted, as well as low energy lighting for all fixed outlets to give the property a new EPC rating of "D".
- The bills have been reduced by £45 per month due to these measures.

This demonstrates what happens when the EPC rating of the property is improved through installing cavity wall insulation, loft insulation and low energy lighting for all fixed outlets. Along with an improved EPC rating, the heating and lighting bills have reduced by £45 per month. This reduced level

Rent—£670 per month.

Bills for heating and lighting—£75 per month.

Total (rent and bills)—£740 per month.

- Cavity wall insulation and loft insulation have been fitted, as well as low energy lighting for all fixed outlets to give the property a new EPC rating of "D".

- Rent has been increased by £20 to be £670 per month.
- Both the tenant and the landlord benefit.

This example demonstrates how the landlord can take advantage of the bill reduction from an improved EPC rating. The landlord can increase the rent by around half of the reduction in the monthly bill. In the example the monthly bill reduced by £45 so the landlord increased the rent by £20 per month. Both the tenant and the landlord benefit.

Memorandum submitted by the National Insulation Association

1. This submission is from the insulation industry and has been produced by the National Insulation Association (NIA) and the Cavity Insulation Guarantee Agency (CIGA). The NIA represents the manufacturers and installers of insulation products including cavity wall insulation, loft insulation and other innovative products. CIGA provide independent Guarantees and Technical leadership for Cavity Wall Insulation.

2. Due to the changes in Building Regulations in April 2005, nearly all new boiler installations are energy efficient (condensing) which will result in higher efficiency in the generation of space heating. Therefore the key task for Government is to ensure that this efficiently generated heat is not simply escaping into the atmosphere through a lack of adequate insulation. It is vitally important therefore to insulate the remaining cavity walls, lofts and solid walls.

3. As an industry we support any work carried out to help eradicate fuel poverty and ensure those on low incomes can afford to properly heat their home. However, the only way to ensure all those on low incomes benefit from a thermally efficient home is to insulate all of the housing stock and therefore “future proof” this stock. This means that where a low income householder moves property we can be ensured that they move into a thermally efficient home. It makes far more practical sense to look at how we can insulate all the stock in the most cost-effective manner as opposed to hindering the efficient delivery of carbon reduction schemes with a focus on benefit claimants or the like.

4. A key area where those on low incomes are not been adequately assisted at present is where they live in one of the over six million properties which does not have a cavity. The propensity to be fuel poor in a property with a cavity is less than 5% yet this doubles to 10% of all those who live in solid wall properties. This build type needs to be a priority moving forward.

5. Market transformation to ensure the capacity is built to deliver solid wall insulation in sufficient numbers to insulate such homes is also vital to the future of the insulation industry which has grown to deliver energy/carbon savings via the installation of cavity wall and loft insulation with the encouragement of Government. Government have already stated they wish for all the remaining potential for these measures to be fulfilled by 2016–20, it is therefore vital that the solid wall market is transformed to provide a future for our industry. If this is not achieved then the future of our industry is at substantial risk which would be an extremely negative development for the UK Plc and cost effectively meeting the carbon targets set by Government.

6. Further interventions in the Private Rented Sector to incentivise or regulate landlords to have cost effective measures installed are also required. At the moment there is no incentive for either tenants or landlords and this is resulting in this tenure not receiving an “equitable” amount of measures.

7. Work on how the implementation of Energy Performance Certificates (EPC’s) can be best utilised to encourage landlords and householders to have cost effective energy efficiency measures installed is urgently required. Due to the time that it will take for sufficient numbers of EPC’s to be delivered Government cannot rely heavily on these to make a major contribution to the cost effective delivery of measures in the short term. However, these could be instrumental in the medium term provided these highlight a channel of action for properties do not have sufficient levels of insulation a channel to turn the advice into action.

8. A major omission in the cost-effective delivery to date has been the lack of a whole house approach where all effective measures are installed at the same time. A useful starting point would be that no renewable energy heating and electricity generation are installed until all cost effective insulation measures have been professionally installed with the lofts and walls being insulated at the same time.

9. This response is limited to the requirements of the insulation industry to ensure that ALL housing stock is brought up to a suitable thermally efficient standard. The insulation industry requires certainty that this will happen and any policy developments brought to bear will not be at the detriment of technical physical measures being installed. More behavioral “soft” measures could also have a future benefit as could further development of less cost effective measures such as renewables. However, developing the correct mechanisms to encourage these should neither delay nor jeopardise all homes receiving the insulation measures they require.

Memorandum by the Greater London Authority

1. Introduction

1.1 Existing housing is the single greatest contributor to London’s carbon emissions and the largest user of London’s public water supply. Reducing emissions from this sector will be of crucial importance in tackling climate change. The Mayor of London’s policies to reduce carbon emissions from London’s existing homes have been laid out clearly in his Climate Change Action Plan and his recently published draft Mayor’s Housing Strategy.

1.2 London has approximately 3.2 million homes. These have been built using outdated environmental standards designed for a previous climate and will constitute 70% of the homes that will be with us in 2050. It is important that these spaces provide safe and healthy environments that are able to withstand the impacts of climate change that will be experienced over the coming century—including increasing summertime temperatures, water scarcity and flood risk. Adapting our homes sooner rather than later will reduce the need for carbon intensive “mal-adaptations” later, such as air conditioning, which carry their own carbon costs.

1.3 The Mayor believes that preparing London for the impacts of climate change is vital to the future of London and is preparing a Climate Change Adaptation Strategy to identify the key climate risks to London and to provide policies and proposals to manage these risks.

2. Summary

2.1 This submission is set out in sections 3–6 below, responding to the headings set out in the Committee’s call for evidence of July 2007. The key points the Mayor wishes to make are:

- Public interventions should focus more strongly on incentivising and enabling homeowners and landlords to retrofit their properties so that they are energy efficient and fit for purpose.
- The most effective way to reduce carbon emissions from existing homes once they have been made thermally efficient is to move towards decentralised energy provision. Encouraging this further will require national action to remove barriers and disincentives to the creation of such a system.
- There is a case for a successor to Decent Homes for the upgrade of social rented properties focussing on “hard to treat” properties, support and guidance in upgrading community heating systems, fitting Combined Heat and Power (CHP) and ensuring that homes are adapted so that they are fit for the changing weather they will experience over the coming century.
- London is vulnerable to the increasing risks of flooding, overheating and water scarcity as the climate changes. Ensuring that properties are adapted for these effects is essential for the health and well-being of residents, but by implementing measures that conserve water and passively cool homes, adaptation measures will also have significant carbon impacts. The Mayor therefore recommends that the Committee should consider the issue of adapting existing housing stock to climate change.

3. The significance of existing housing compared to new build and the different levels of performance each display

3.1 Energy use in existing homes is the largest single source of carbon emissions in London, accounting for 38% of London’s total emissions (excluding aviation).²³⁹ Older properties have, on average, a lower SAP rating than new properties. The table below shows that London’s housing stock is much older than the national average.

Table 1

ENERGY EFFICIENCY OF PROPERTIES BY AGE

Location	Construction period				
	pre 1919	1919–1944	1945–1964	1965–1980	post 1980
London	30%	28%	14%	15%	12%
England	21%	18%	21%	22%	18%
Average SAP	40.1	44.8	47.8	53.8	65.1

Source: English House Conditions Survey, CLG 2003 Regional Report.

²³⁹ See figure 14, Mayor’s Climate Change Action Plan, p35

3.2 Retrofitting our existing homes so that they are energy efficient is therefore essential to reducing carbon emissions. However, tackling climate change in the round will require that our existing homes are also adapted for the changing climate that they will experience over the next century, including higher summertime temperatures, increased water scarcity in the South East of England (exacerbated by new development, population growth and warmer weather) and increased flood risk.

3.3 Failure to adapt to our changing climate will incur financial, human and carbon costs. The costs of recovering from a flooding event, or building new water infrastructure to accommodate current patterns of water use are high. Currently 100,000 properties in London are at “moderate” or “significant” risk of flooding from the tributaries to the Thames and this figure may increase by another 30,000 existing properties by 2050. The London Climate Change Partnership has estimated that a flooding event in London could cost in the region of £30 billion.

3.4 London is also designated as an area of serious water stress by the Environment Agency. During dry periods, London currently has over a 200 megalitre a day water deficit. Recent periods of water scarcity have already shown us that conserving water from existing homes is essential to meet our overall water requirements, but water conservation will also help in reducing carbon emissions. The national water industry used 7,700 GWh of energy in its total operations during 2005–06, and emitted over four million tonnes of greenhouse gases. This is just under 1% of total UK greenhouse gas emissions.

3.5 In addition to the direct emissions from the water industry, there are very significant energy costs associated with many water uses in homes. Domestic hot water use from baths, showers, taps and white goods alone emits about 30 million tonnes of carbon dioxide per year. This amounts to over 5% of the UK’s total annual greenhouse gas emissions.²⁴⁰ Retrofitting low flow fixtures and fittings is a relatively simple way to reduce water consumption. Currently only 19% of London’s homes are metered for water use.

3.6 The human costs of failing to adapt to climate change should also not be underestimated, some 2,000 excess deaths occurred in the United Kingdom during the 2003 heat wave, 600 of which were in London. It is anticipated that by the middle of the century, a typical Victorian house will be uncomfortably hot for between 13–18% of occupied hours. Vulnerable households will be the most susceptible to the effects of overheating and least able to adapt to them. By far the easiest way for households to adapt to overheating at the moment is to purchase air conditioners. These are carbon intensive and will add to carbon emissions and contribute further to the urban heat island effect.

3.7 It should be noted that even new homes built to achieve high levels of the Code for Sustainable Homes are not being designed to cope with the climate impacts they will endure over their lifetime, particularly hotter temperatures. This will simply add to the number of existing houses that will need to be retrofitted and also potentially increase the numbers of vulnerable communities living in poorly performing homes.

4. *The respective roles of residents, homeowners, landlords, local government, central government and the energy industry in promoting and delivering greater energy efficiency*

4.1 Given the significant contribution to London’s carbon emissions made by the domestic sector, the biggest immediate priority for the Mayor is to enable the lower consumption of energy in existing homes. The Mayor’s Climate Change Action Plan (CCAP) sets out how annual domestic carbon emissions can be reduced by 7.7 million tonnes by 2025 (against a 1990 baseline) through the Mayor’s Green Homes Programme.

4.2 The Green Homes Programme is comprised of the Green Homes Concierge Service, which offers a bespoke energy audit and project management of the installation of energy efficiency measures for those who are able to pay; a telephone and web-based advice service to advise Londoners on the measures they can take to reduce their carbon emissions supported by subsidised offers for insulation and other energy efficiency products and schemes aimed at home owners and landlords to improve the environmental performance of their homes.

4.3 Some of the necessary carbon emissions savings can be achieved through small measures—roughly half of this reduction can be delivered if just two thirds of Londoners make simple behavioural changes and put basic energy efficiency measures in place. For instance, if every lightbulb in every London home was energy efficient, it could save 575,000 tonnes of carbon and £139 million per year. Ninety per cent of London homes have some loft insulation but only five per cent have sufficient insulation. However, it is clear that it is not possible to make the carbon savings required without all the actors involved in housing—including estate agents, government agencies, homeowners and landlords—playing their part.

4.4 Whilst there are small things that individuals can do to help reduce carbon emissions, their capacity to act in larger ways will, in part, be determined by their tenure or role in the housing market. Some 56% of households in London own their homes, a further 19% rent in the private sector and the remaining 25% live in social rented accommodation.²⁴¹ Tenants have far less ability to make larger changes to the fabric of a home than do owners.

²⁴⁰ Ian Pearson, Defra. 2007

²⁴¹ Figures sourced from CLG, *Housing in England 2005–06*, (2007) This differs significantly from national trends, where 70% own and 12% rent in the private sector.

Landlords and renters

4.5 The capacity for renters in the private sector to improve the energy efficiency of their dwellings is limited. Improvements to the fabric of a building are typically the responsibility of the landlord or freeholder. A government survey of private landlords in 2001 revealed that private individuals own 65% of dwellings in the private rented sector and only 9% of those individuals viewed renting out their property as a full-time occupation. Private residential companies own only 7% of properties in this sector.²⁴²

4.6 The disparate nature of private sector landlords represents a real challenge for policy makers attempting to improve the energy efficiency of privately rented homes. Not only is this a difficult group to reach, but also one that will not benefit from the economies of scale which larger landlords might in improving their stock portfolio. Policymakers must also be mindful of the split incentive—which is where landlords make investments that they do not themselves profit from. The difficulty in reaching this group is demonstrated by the relatively low uptake of the Government’s Landlords Energy Savings Allowance. Reaching these landlords is an essential part of the Mayor’s Green Homes Programme and will be taken forward through his Green Landlord Initiative.

4.7 Although it is much easier to reach Registered Social Landlords (RSLs) and local authority landlords than their private counterparts, there is no regulatory requirement for RSLs to consider the environmental case in their asset management strategies. The Mayor believes that there should be as at the moment, the main driver for home improvements beyond routine maintenance and repair in this sector has been the Decent Homes programme.

4.8 There are tools available to all social landlords that enable them to track the cumulative impact of integrating environmental considerations into their routine management and maintenance programmes. In his draft Housing Strategy, the Mayor strongly encourages social landlords to make use of the EcoHomes toolkit for existing buildings (EcoHomes XB), which encourages improved environmental performance, including achieving reductions in carbon emissions. The Mayor believes that energy efficiency is of particular importance for these landlords as they will also contribute to reducing energy costs for the most vulnerable residents.

Homeowners

4.9 There are incentives and schemes to aid homeowners in improving the energy efficiency of their properties and reduce their carbon emissions, but these tend to be disparate and ill known. The success of the Mayor’s recent promotion of loft and cavity wall insulation with British Gas, suggests that there is willingness to act where incentives are provided to homeowners in a clear and comprehensive fashion.

4.10 To that end, the Mayor is working in partnership with the Energy Savings Trust to support the transition from local Energy Efficiency Advice Centres (EEAC) to a Sustainable Energy Network (SEN). This approach has been piloted in other regions outside of London and aims to provide a single point of contact and improved advice to homeowners in order to achieve additional carbon emission reductions.

4.11 A homeowner’s capacity to act will also vary according to their financial status and awareness of the options available to them. For those who are able to pay for improvements, often the greatest barrier to action is the “hassle factor”. The Mayor is seeking to overcome this through his Green Homes Concierge Service, which is currently in its second pilot phase. This offers interested homeowners an integrated and comprehensive “greening” package, with a focus on reducing carbon emissions. The procurement and management process is fully organised and managed by a third party on behalf of the homeowners, greatly reducing the hassle to the homeowner. It is anticipated that this programme will be rolled out across London.

4.12 For homeowners who are classed as “equity rich and cash poor”, in addition to the hassle of reducing carbon emissions by improving energy efficiency, there is the added hurdle of arranging to pay for improvements to the home. The Mayor has committed to further exploring options to encourage, where appropriate, the uptake of financial products amongst these groups that would allow them to improve their homes in his recently published draft Housing Strategy.

Government

4.13 Research supporting the Mayor’s Climate Change Action Plan shows that in order to stabilise carbon concentrations at 450 parts per million (and thereby avoid the tipping point for climate change), it would be necessary to achieve a 60% reduction in carbon emissions against a 1990 baseline.

4.14 Under all scenarios the Mayor considered in CCAP, the most the Mayor and GLA can achieve on their own is a 15% reduction. Responsibility for tackling climate change must therefore be shared between the Mayor, the London boroughs (5–10% of requirement), London’s companies and public sector organisations (35–40%), Londoners (5–10%) and national government (30%).

²⁴² Private Landlords survey: English house conditions survey 2001.

4.15 The single biggest barrier to reducing carbon emissions is the way in which energy supplied to homes and offices is produced and distributed. Centralized electricity generation, whether through coal, oil, gas or nuclear power stations, is inherently inefficient—wasting two thirds or more of its original energy input in the form of expelled heat. Further losses occur in the process of distributing electricity from rural power stations to the towns and cities where it is mostly consumed. The Mayor’s goal is to enable a quarter of London’s energy supply to be moved off the grid and on to local, decentralised systems by 2025, with the majority of London’s energy being supplied in this way by 2050.

4.16 This is reflected in his draft Further Alterations to the London Plan, which contains policies to promote the necessary infrastructure to enable this to happen in the future. In order to make it easier for such systems to be put in place, the Mayor believes it is necessary for national changes to be brought about to the regulatory barriers that currently make decentralised energy provision difficult.

5. The costs associated with reducing carbon emissions from existing housing, who should meet those costs and particularly, in respect of low-income households, interaction between carbon emission reductions and the Government’s ambitions to reduce poverty

5.1 By improving the efficiency with which energy is supplied and used and taking small measures to reduce carbon dioxide emissions, Londoners could save up to £1 billion per year by 2025, or approximately £300 per year per average household. This will be of particular benefit to those on lower incomes for whom expenditure on heat and power consumes a large portion of disposable income.

5.2 Considering that average energy bills have increased by 60% for electricity and nearly 100% for gas over 2005–07, achieving these reductions becomes increasingly significant for everyone—and particularly for lower-income groups. Critically, these carbon-reducing energy efficiency measures will improve quality of life at a relatively small up-front cost.

5.3 Given the amount of investment required to bring the nation’s housing stock up to standard, and the vast amount of equity in existing homes, the Mayor believes that government should pursue, where appropriate and feasible, interventions that enable homeowners to unlock the equity in their homes. The Mayor has committed in his housing strategy to further explore this option in order to increase the uptake of equity release products in the capital, recognising that for some homeowners, such as those with little or no equity, grants and other financial products may be more appropriate.

6. Government efforts to reduce carbon emissions from existing housing stock whether in private or public ownership and other related programmes including Decent Homes

6.1 The Mayor welcomes government efforts to reduce carbon emissions from existing housing stock but believes that thus far they have not gone far enough to comprehensively tackle the challenges of climate change, particularly in London.

6.2 There are a number of energy efficiency initiatives already underway in London, such as the Energy Efficiency Commitment, Warm Front and funding through the Decent Homes program. Funding within the Regional Housing Pot is already helping to support valuable private sector renewal work to meet Decent Homes targets, with most programs working to improve thermal comfort through increased energy efficiency and better heating systems.

6.3 Welcome though these initiatives are, much more needs to be done to increase take up, co-ordinate existing funding streams and create economies of scale across London. To that end, the Mayor’s Green Homes program includes a new IT-based portal and a major marketing campaign, aimed at increasing awareness, providing information, helping individuals to achieve energy savings and developing supply chains.

6.4 The Mayor is concerned that the Decent Homes programme has not gone far enough in comprehensively tackling climate change in London. In order to meet the “thermal comfort” criterion homes are required to have effective insulation and efficient heating. Homes that are classified as “hard to treat”—ie) those that are flatted or built before cavity walls became commonplace (in around the 1930s), are not picked up. This poses particular challenges for London as 45% of its housing stock is flatted and 30% of its housing stock was built before 1919, with a further 28% being built over the period 1919–1944 (see table 1 in para 3.1).

6.5 The Mayor welcomes the recent Government announcements committing to further investigating energy efficiency solutions for these “hard to treat” properties in its housing green paper, but believes that energy efficiency only represents the first step in reducing carbon emissions from existing homes. GLA research has shown that the greatest potential to reduce carbon emissions from London’s existing homes lies through altering the way that energy is supplied to London’s homes by upgrading communal heating systems and moving towards Combined Heat and Power.²⁴³

²⁴³ CCAP, p xviii

6.6 The Mayor believes that in order to address the challenges of climate change in the round in London's existing homes, a successor to the Decent Homes programme is required, and has committed to developing, with partners, a new Decent Environment standard by 2009. This standard will look to address hard to treat properties, upgrading communal heating systems and moving towards CHP. The standard will also look to ensure that homes are adapted for the effects of climate change—by incorporating simple measures that could reduce the risks of overheating, make best use of scarce water resources and minimise flood risk. The Mayor will consider the findings of a research project currently being undertaken by the Three Regions Climate Change group investigating the measures that can be taken to retrofit existing homes so that they are adapted for the weather of the coming century in developing this standard. The Mayor is keen to work with government in developing this standard, and would welcome discussions to this effect.

Supplementary memorandum by Centrica plc

British Gas “Green Streets” campaign

BACKGROUND

As the country's largest energy supplier British Gas can play a key role in helping consumers reduce their energy consumption by becoming more energy efficient. We have customer relationships with over 13 million UK households and therefore have the reach to make a significant contribution to driving carbon emission reductions in the domestic sector in the UK.

As a result of poor insulation, £1 in every £3 currently spent heating homes in the UK is wasted and households account for around a quarter of total UK CO₂ emissions.

While building regulations require all new homes to be “carbon neutral” by 2016, projections show that by 2050, less than one in four (22%) homes will be “new” (built between 2007 and 2050) rather than houses we already live in now. Whilst ensuring that new homes are built to a far higher standard is important, Government data shows that changes to building regulations for new homes can achieve no more than 7% of realistic CO₂ savings by 2020.

By contrast, over half (52%) of all realistic CO₂ savings by the UK's estimated 25 million homes can come from simple measures such as cavity wall and loft insulation in existing homes. There are still around nine million homes with un-insulated cavity walls.

GREEN STREETS

The British Gas Green Streets campaign is a year-long national social experiment in improving energy efficiency and reducing CO₂ emissions which will help to demonstrate what can be achieved by households up and down the country in existing homes.

The aim of the Green Streets initiative is to better understand the motivations and reservations of individuals towards taking steps to reduce their domestic carbon emissions. It is designed to deliver an insight into the barriers to energy saving behavioural change.

Eight households in eight “green-themed” streets in each of eight major metropolitan areas nationwide have been selected to show what can be done to reduce domestic CO₂ emissions. From hundreds of volunteers, the final 64 households were selected to ensure a realistic cross section of the national picture and represent the full housing mix in the UK.

Participating households will need to work with the other seven households on their street towards the goal of reducing their collective carbon emissions over the course of a year. Residents include both British Gas and non-British Gas customers.

Each street is being given a budget of £30,000 to spend on domestic energy saving equipment—from energy efficient light-bulbs, to cavity wall insulation, right up to solar panels and heat pumps. Each street will work with a British Gas energy expert who will provide practical advice on energy-saving measures and the benefits of behavioural change.

The “Green Streets”—in Manchester, Leeds, London, Birmingham, Edinburgh, Cardiff, Plymouth and Southampton—will compete against one another in this unique national energy saving experiment.

The homes that drive down their CO₂ emissions the most over the course of a year will be awarded £50,000 worth of energy saving equipment to invest in a local community project. The target for each street is to reduce their emissions by 25%.

The IPPR will independently monitor the experiment over the year and draw policy lessons based on observing the behaviours and outcomes from the participating households. It is hoped that Green Streets will impact the policy debate in this area by helping to signpost what the average household needs to do to cut energy usage and how industry, local government and regulators can help them to achieve this.

Until January 2008 we will be undertaking detailed base-lining of the households current energy use, followed by the installation of the chosen energy efficiency measures. Energy use will be monitored until spring 2009.

Local Government Association

INTRODUCTION

The Local Government Association represents local authorities in England and Wales, promoting the interests of around 500 local 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, and assists local authorities in joining up their environmental work through its “greening communities” campaign and support for the Joint Environmental Prospectus launched this year with Defra.

The LGA also recognises that action needs to be taken more urgently in all sectors including local government and therefore established in March 2007 a Climate Change Commission to consider how local government can respond more effectively to both reduce greenhouse gas emissions and deal with the impact of climate change.

The objectives of the LGA Climate Change Commission are to:

- review and evaluate critically local government’s track record on climate change, and identify the factors which have contributed to and hampered local government’s effectiveness;
- make recommendations for local government, central government and other stakeholders on how the local government response could be improved; and
- raise the profile of climate change and the local government role in responding to it, to local government, central government and the public.

Tackling emissions from existing housing stock has been a key theme for Commission investigation. The Commission plans to report later this year with recommendations to international, national and local government to which the LGA will be responding over the following months in consultation with its membership.

SUMMARY

Tackling existing housing stock must be an immediate priority for national and local programmes of action to reduce emissions of greenhouse gases.

With home energy use accounting for 27% of UK CO₂ emissions and over two thirds of existing housing stock likely to be still in existence in 2050, it is vital that our current homes are brought up to the higher standards we are expecting homes of the future to meet.

With domestic emissions dependent not only on the condition of the fabric of homes, but also on fuel choices and behavioural decisions by millions of householders, no one approach will fully deliver the cuts in emissions that are needed from this sector. Rather we need a range of approaches joined together under a holistic strategy to enable maximum use is made of the myriad of individual opportunities to raise energy efficiency standards and increase the use of low carbon fuel sources.

Local authorities (Las) have a pivotal role to play in helping to meet national objectives on climate change, not least in the household sector where action can range from those of direct impact, such as improving energy efficiency in council owned stock, to less direct influencing and community leadership approaches.

Key approaches which the LGA believes could help to deliver emissions reductions from our homes further and faster include:

- Adopting a holistic approach at national level to feed through the higher standards of Building Regulations introduced from 2006 onwards to systematically address the improvement of the fabric of homes built prior to 2006.
- Using the focus of the carbon budgets approach of the Climate Change Bill to establish ambitions for the existing homes sector nationally.
- Enabling local authorities to develop and articulate a set of objectives for emissions from housing stock in their own areas, building on the basis of the Home Energy Conservation Act 2005 within the broader framework of climate change outcomes in the new Performance Framework for councils.

- Developing the synergies with other council agendas on fuel poverty, environmental quality, social inclusion, cost efficiency, economic growth and regeneration, to drive council action most effectively—for example through a higher thermal comfort requirement for Decent Homes in a Decent Homes Plus standard, and requiring all homes owned by social landlords to achieve SAP 65 or more.
- Integrating local authorities more closely with delivery of energy efficiency programmes such as Energy Efficiency Commitment/Carbon Emissions Reduction Target (EEC/CERT), through improved liaison with the Energy Supply Industry as a starting point.
- Giving local authorities access to key data such as that collected for Energy Performance Certificates (EPCs) to enable them to target energy efficiency programmes effectively.
- Establishing a national strategy to deliver the necessary skills and training for all aspects of sustainable construction and refurbishment at sufficient levels to meet the needs of higher standards for new build and to enable wide scale upgrading of existing buildings.
- While raising the bar nationally, retaining local flexibility to apply local planning policies to require higher standards for new homes ahead of the national Code for Sustainable Homes timetable and maximize local opportunities for renewables, where appropriate.

1. TACKLING EXISTING HOUSING STOCK AND CLIMATE CHANGE—THE CHALLENGE

1.1 Home energy use accounts for 27% of UK CO₂ emissions. The domestic sector is clearly a major priority area for action if national greenhouse gas emissions reductions objectives are to be met. However this is not a homogenous sector and, with over 25 million dwellings in the UK, it is only through galvanising millions of individuals to take action that significant progress can be made in tackling emissions from our homes.

1.2 The statistics demonstrate the contribution to be made from even modest percentage reductions in emissions from each household, when replicated across millions of dwellings.

1.3 Each UK household emits around 6.6 tonnes of CO₂ from electricity and direct fuel use in the home, with an additional 2.2 tonnes attributable to household appliances (1). Total emissions attributable to households, including activity such as personal transport, are around 20 tonnes. Nationally this means some 144 million tonnes of carbon equivalent is attributable to the domestic end user (2). The average household could save two tonnes of CO₂ per year by implementing standard energy efficiency measures to improve the fabric of their home and energy use within it.

1.4 Clearly there are cost effective benefits to be had from tackling this key sector but no one approach or policy lever can be adopted to translate this potential into results overnight. This is partially because there are a number of routes to achieve emissions reductions, but a more important factor is the variety in approaches needed to persuade 25 million people to go down these routes.

2. KEY ROUTES TO TACKLING THE CHALLENGE

2.1 In outline, the key routes for reducing greenhouse gas emissions from existing homes can be categorised as:

- a) Raising energy efficiency standards, eg:
 - upgrading insulation in walls and lofts, improving emissivity of windows/glass areas, reducing air leakage and draughts.
- b) Changing behaviour in energy use in homes particularly:
 - heating and cooling; and
 - appliance use.
- c) Increasing use of low carbon energy by householders:
 - contracting for green energy;
 - installing household microgeneration (CHP, micro wind, ground source heat pumps, solar thermal and solar PV); and
 - linking up to district scale renewable generation (CHP, renewable sources).

2.2 The main focus of much council activity is related to (a), raising energy efficiency in the fabric of homes, given the direct role for councils in this arena through their roles as landlords, as partners with other social and private sector housing landlords and their more indirect roles in supporting and influencing the owner occupied sector.

2.3 However behaviour change is also an area for council action. There has been a significant increase in the number and usage of electrical home appliances (as set out in recent Energy Saving Trust reports [*3]). The Energy Saving Trust estimates that around £1 billion worth of electricity is wasted by leaving appliances on standby. This equates to around 10TWh, or about 10% of the electricity consumption of the household

sector. It is important to tackle these broader issues in parallel with fabric issues not only to maximise carbon reduction at least cost but also to reinforce the need for individuals to take ownership of their carbon emissions and tackle them proactively and holistically.

2.4 The LGA is fully supportive of the concept of a hierarchy of approaches, whereby demand reduction needs to be seen as a top priority ahead of lower carbon energy supply and this is particularly true of the household sector. However, allied to demand reduction is the need to utilize lower carbon energy sources more widely, where appropriate, and there are gains to be made from taking action to ramp up household use of lower carbon energy supplies.

2.5 This includes household level micro generation, national grid supplied renewable energy and locally provided decentralised energy supplies. Lead times for infrastructure and technological implementation means that some of the most cost effective gains are to be had further down the road but, without falling into the trap of promoting technological fixes such as household micro generation beyond their actual potential to deliver, we need to maximise this approach at an early stage.

2.6 This requires a strategic approach to ensure delivery can match up to technological promise, addressing issues such as:

- supply chain readiness;
- skills and training;
- quality assurance, from advice on selection of technology through to installation and maintenance; and
- regulatory, fiscal and behavioural barriers.

3. MEETING THE CHALLENGE—A HOLISTIC RESPONSE

3.1 Government policies are pro-active in raising the bar for new homes and these are welcomed. For example Building Regulations introduced in April 2006 have dramatically raised the carbon performance required of new homes. A new house built to today's standards is 40% more efficient than one built before 2002. But with replacement of old homes with new running at only 1–2% per year this leaves a huge challenge for existing stock. Even with the higher targets recently announced for new homes, those built after 2007 are unlikely to account for more than around 30% of total housing stock in 2050 which means that two thirds of all homes in 2050 are likely to have been built to building standards with lower requirements on carbon emissions.

3.2 There is therefore a need for a holistic approach to feed through these higher standards into existing stock and this requires a set of joined up policies to systematically address the improvement of the fabric of homes built prior to 2007.

3.3 Arguably government policy on addressing domestic emissions has focussed disproportionately on the challenge of new build—understandably perhaps because there is the potential within existing approaches for regulatory standards to be set for building fabric standards where these relate to new homes which is not present in relation to existing buildings.

3.4 While wishing to endorse this vigorous approach to raise the bar nationally, LGA would also wish to see the potential for local flexibility to be maintained so that local authorities can apply local planning policies requiring higher Code for Sustainable Homes standards ahead of the national timetable, and maximize local opportunities for renewables, where locally appropriate.

3.5 Additionally a similarly vigorous and holistic government framework for existing buildings to be upgraded both in terms of energy efficiency of the fabric and access to low carbon energy supplies needs to be promoted through joined up cross government policies, spearheaded by CLG and Defra. The current public and political focus on carbon budgets via the Climate Change Bill provides a unique opportunity to provide cohesion to approaches on existing buildings. It is imperative that targets, budgets and trajectories build in factors for existing buildings as ambitiously as the aims for new build. Clearly the zero carbon agenda is not currently achievable to the same extent as for new build, given the range of age, types and construction methods in the homes we have inherited across our towns and countryside today, but there is a need for political leadership and vision on this issue at EU, national and local level.

4. MEETING THE CHALLENGE—THE LOCAL AUTHORITY ROLE

4.1 Tackling home emissions of greenhouse gases requires joined up action across a large range of players—from individual householders/tenants to energy supply companies and from international policy makers to local decision takers. The role of the EU and national frameworks in setting the context for local and individual action needs to be recognised while enabling locally appropriate approaches to tackling the specific housing circumstances of local areas.

4.2 An articulated set of aims, trajectories and targets at national level will be an invaluable starting point for each sector/set of actors to refine their own role in meeting national carbon objectives. For LAs this means developing and articulating a set of objectives around the role each LA can play at local level in

addressing housing stock emissions. This is not new since under existing frameworks LAs have specific direct roles and duties, and beyond this have wider influencing and place shaping roles, but a clearer articulation against specific sectoral aims is needed.

Current Key Drivers on Local Authorities

4.3 Synergies with a wide range of council agendas mean that there is scope to weave climate change objectives into existing priorities such as:

- tackling fuel poverty and social inclusion;
- transport provision to address air quality and congestion problems;
- economic and regeneration programmes; and
- waste collection and disposal.

Example

Birmingham City Council has been pro-active in addressing the energy efficiency and climate change agenda in the private housing sector, through the Affordable Warmth and Fuel Poverty programme. Focussing on four deprived wards, pilots provided a platform for new working relationships with the private sector to deliver area-wide energy efficiency improvements for vulnerable and low income households.

4.4 Broad policy drivers on councils include:

- Power of securing environmental, social and economic well-being (Local Government Act 2000);
- role of champions (elected member/officer);
- public pressure/local priorities; and
- Local Strategic Partnerships and sustainable community strategies.

4.5 The principle specific drivers for LA action on tackling emissions from existing housing currently in place can be summarised as:

- Home Energy Conservation Act 2005 (HECA).
- CPA/Comprehensive Area Assessment performance indicators (proposed new framework announced in the Local Government White Paper 2006) and Local Area Agreements/Multi Area Agreements.
- Home Health and Safety Rating System.
- Climate Change and Sustainable Energy Act 2006.
- Schemes including warm front and Energy Efficiency Commitment/CERT.
- Energy Performance Certificates (Energy Performance of Buildings Directive).

4.6 Of these drivers, the single key specific driver impacting most directly on current LA work is HECA. Local authorities with housing responsibilities are required to identify measures to improve the energy efficiency of all residential accommodation in their area by 30% between 1995 and 2005–10 and to report on progress made in implementing the measures. In the future, performance framework outcomes on community emissions promises to embed this HECA driver more holistically since it will be important for councils to address housing stock energy efficiency as a cornerstone of their performance management relating to community climate change outcomes.

4.7 Crucially a community emissions outcome as part of a honed down set of key performance indicators will give LAs a strong focus in not only addressing energy efficiency in their own housing stock but also in other socially owned stock and in the private rented and owner occupied sectors. The LGA believes that this will provide a powerful driver for councils to deliver at local level on national climate change objectives, particularly in extending the work of local partnerships, through Local Strategic Partnerships and Local Area Agreements, on emissions reductions for local areas. The domestic sector is key to delivery on the performance framework, not simply due to the importance of tackling a sector which is responsible for over a quarter of emissions by end user, but also because LAs have potentially significant traction to bring to minimising household energy usage.

Responding to the Drivers

4.8 LA action in response to these drivers ranges from actions under council direct control such as installing measures in council owned stock to far more indirect actions such as influencing consumer behaviour and choices. The broad categories for LA action relate to:

- Council owned stock
- Social housing (work with Registered Social Landlords)

- Private rented sector
- Owner occupier sector

Example

Kirklees has set up an authority wide Warm Zone bringing every resident the opportunity to improve the energy efficiency of their home through a £15 million, three year programme. Pro-actively contacting every householder to offer insulation, advice and deals on boilers and solar panels, the scheme is one of the biggest and most comprehensive in the UK.

Council roles involve promoting action through:

- promotion of measures through direct council incentives or advice services; and
- provision of measures through council run schemes.

Example

London Borough of Lewisham has adopted a small scale, highly focussed programme to increase energy efficiency and the use of renewables while reducing costs and fuel poverty in Energy Action Zones. Installing insulation, for example, in selected households will lead to carbon emission reductions of around 27,000 tonnes (over the lifetime of the measures)

- signposting to funding/incentives from other bodies for measures; and
- promotion of behaviour change through direct/indirect campaigns.

Example

Cornwall advice services run by the Energy Saving Trust, working with the Cornish District Councils, referred around 10,000 households for energy efficiency and insulation grants in 2006–07.

This would lead to around 21,000 tonnes of carbon saved per annum over the lifetime of the products.

Key Programmes

4.9 Government policy focusses on carbon savings through a number of significant programmes such as the Energy Efficiency Commitment (EEC/CERT) with further consultations underway around a future supplier obligation[*4] as set out in the Energy White Paper 2007. In conjunction are a number of key policies connected to government policies for addressing fuel poverty. Defra's Energy Efficiency Action Plan 2007 sets out that broadly the EEC/CERT/Supplier Obligation approach is expected to yield 5.4 million tonnes of carbon reductions per annum by 2020—plus another 0.4 MtC associated with fuel poverty programmes. In addition the new build approaches such as Building Regulations 2002 (England) and Building a Greener Future will lead to around 1.9 MtC per annum by 2020.

4.10 This underlines the key role of non government funded approaches, particularly funding from householders channelled via the energy supply industry, in delivering carbon reductions and the importance of ensuring that such programmes deliver in the most effective way holistically on national carbon reduction aims.

4.11 Defra's Energy Efficiency Action Plan 2007 *[5] summarises the overall government approach to the existing household sector.

To improve the energy efficiency of existing homes, we:

- will continue to strengthen the Energy Efficiency Commitment, with the third phase of the scheme from 2008–11, to be known as the Carbon Emissions Reduction Target, potentially saving 1.1 MtC per annum by 2010;
- will drive further energy efficiency improvements in the home through a continued obligation on energy suppliers until at least 2020;
- have set minimum requirements for efficient heating and thermal comfort for social landlords using the Decent Homes Standard, and other mechanisms in the devolved administrations;
- are continuing to improve energy efficiency of the homes of vulnerable groups by tackling fuel poverty, through the Decent Homes Standard in social housing, and Warm Front and other programmes elsewhere; and
- have introduced various financial measures to incentivise energy efficiency, including a reduction on VAT for professionally installed energy saving materials and the Landlord's Energy Saving Allowance."

(Defra Energy Action Plan 2007)

5. KEY BARRIERS

5.1 It is self evident that the existence of some nine million unfilled cavity walls and an as yet unmet potential for the average household to reduce emissions by some two tonnes means that the drivers are yet not fully effective.

5.2 Defra's Energy Efficiency Action Plan 2007 states:

"as the Stern Review identified, there are still obstacles and market failures preventing us realising the full technical and economic potential for energy efficiency". The Action Plan categorises some of the broad barriers including:

- the lack of appreciation of, and information about, the true costs and benefits of energy efficiency measures;
- lack of access to capital and high costs of capital; and
- split incentives, and lack of motivation, awareness or interest among consumers.

5.3 For council action, LGA views the key barriers as broadly grouped into policy, fiscal, regulatory and cultural/behavioural including:

- Funding approaches (revenue and capital):

The programme based, grant funding approaches with one off pots of funding make it difficult to gain momentum. Householders find it hard to negotiate their way through the processes and councils have to invest hard pressed resources in finding funding and supporting householders in obtaining funding.

Evidence to our Climate Change Commission stated that:

"the on-off nature of funding and eligibility criteria for energy efficiency and micro-renewable measures are real barriers to achievement in carbon reductions in the domestic sector"

- Relative policy emphases/competing priorities:

A holistic sense of purpose in addressing this key sector is missing at national level, although at local level approaches to join up through whole house, whole street/area programmes have demonstrated the effectiveness of a household focused approach.

- Political/cultural at local and national level:

The incremental nature of existing building stock approaches gives less scope for public impact and makes it harder to gain high profile political attention.

- Public priorities/level of knowledge and interest:

While the generally higher profile of climate change, coupled with higher energy prices has been a key driver in raising householder awareness, translating this into action is harder to achieve.

6. MEETING THE CHALLENGE—SEIZING THE OPPORTUNITIES

6.1 Setting out a path towards meeting our objectives on existing homes emissions means that we need a detailed road map, not just setting out the technical routes but more describing the policy route, identifying the barriers and drivers.

6.2 In the LGA's view, the issue of whether existing homes can be brought up to higher standards expected of today's new build is not principally about technical issues. For a large proportion of homes there are readily available, cost effective measures that can be implemented today. Given the ensuing benefits not only in terms of environmental improvements but also in direct terms financially to householders through reduced energy bills the issue is apparently also not directly to do with rational economic factors.

6.3 The key barriers appear to be household inertia and the detailed routes to overcoming this, needs to be explored further. Possible approaches span a spectrum from, at one end, a centrally driven programme, with statutory/regulatory teeth, systematically targetting housing in all sectors, through targetted incentives or marketing programme aimed at specific segments, down to ramped up information and advice programmes designed to stimulate individual responses.

6.4 Clearly these approaches are not mutually exclusive and some aspects of these approaches are already being adopted. The key question, as addressed by the LGA Climate Change Commission, is whether in their current mix they hit the right levers, to the right extent. The detailed questions the Commission asked itself and invited evidence on can be summed up as:

- Are there incremental changes we can make to current approaches—ie is there scope to move faster through a more overt focus on existing housing stock policies? and
- Are there bolder, more radical approaches we can suggest for the policy and programme framework? ie Is the current regulatory/statutory/fiscal framework right and do national policies have the right local focus?

Our evidence base

6.5 The Commission received a wealth of evidence in written form and at a number of regional and focus group events in spring/summer 2007 from council officers and members, regional and government bodies and a wide range of stakeholders. This evidence can be found at the Commission website. (<http://campaigns.lga.gov.uk/climatechange>).

6.6 A brief summary of some of the key points include:

- Without visible long-term benefits, improvements to current planning legislation and the sort of financial incentives available in other EU countries, significant take up of microrenewables will remain at “demonstration” level in the UK. Solid commitment from government is also essential for the renewables industry if their investment is to continue, to enable costs to be reduced and take-up increased.
- A common issue raised by councils (and others) is the need to engage longer-term factors in financial accountancy.
- the support of organisations such as Community Energy Solutions; Energy Savings Trust and Carbon Trust was considered very valuable.
- A number of councils commented on the difficulties and importance of influencing households, particularly in relation to energy efficiency.
“Help for the domestic sector has been delivered by the Energy Saving Trust through its Energy Efficiency Advice Centres (EEACs). The EEACs have provided a telephone advice line, followed up by the use of HECs (Home Energy Checklist)[but this] relies on the general public knowing about the service and making the first contact either by phone or at an event.
- Council tax reduction for householders installing energy saving measures received widespread support as an EEC promotion.
- The Decent Homes standard should be upgraded in connection with the thermal requirements to ensure that the Government meets its legal duty to relieve fuel poverty as well as achieving further reductions in carbon emissions from the domestic sector.
- A revival of investment in council house building is needed and under current policy, these homes would be built to Code for Sustainable Homes 3 Star rating, which is a considerable improvement on current Building Regulations.

6.7 Research: The Commission also commissioned research, undertaken by the Centre for Sustainable Energy (CSE) *[6] addressing the issue of how much traction local authorities can have on carbon reduction in specific areas. The CSE report presents a Local Carbon Management matrix setting out what can be done inter-alia on domestic energy efficiency, and how councils can progress through performance levels.

6.8 This indicated that some of the areas and approaches to enable councils to have maximum traction include:

- adopting specific programmes to improve private housing, with grant regimes reflecting these priorities,
- supporting and engaging on EEC/CERT and Warm Front schemes to promote locally increased take-up, and
- promoting senior strategic engagement within the council and partners with resourcing and “champions” with power to act.

6.9 This research also identified some “easy wins, big strides and lasting impact” measures including:

- distributing energy efficiency advice centre material regularly;
- endorsing local grant based schemes;
- setting higher thermal standards than in Decent Homes with a clear programme for achievement; and
- developing clear and tailored corporate strategy with political buy-in to improve energy efficiency with regular publicity for activities.

7. PROPOSED SOLUTIONS

7.1 As with many other aspects of tackling greenhouse gas emissions, there is no magic bullet for tackling emissions from this sector, rather a combination of renewed vigour to existing programmes and some potentially more radical solutions.

7.2 The LGA will be considering the Commission’s recommendations around this issue. At this stage, in advance of the publication of their findings, expected in December, the LGA has outline views on a number of potential routes for action.

7.3 In broad terms generating action at household level needs policies to focus both on strategy and implementation.

8. THE BIG PICTURE—GETTING THE STRATEGY RIGHT

8.1 An overarching strategy is needed for this sector, supported by the statutory frameworks such as the Climate Change Bill and the Local Government White Paper and embedded in regulatory structures and national programmes providing resource and financial support. Specific elements of such a strategy could include, for example:

- a nationally driven strategy ensuring higher standards in any retrofitting work done—a regime tightening training requirements for measures installers, or
- targets to ramp up delivery from the LA sector aligned to Comprehensive Area Assessment performance framework.

8.2 Within a broad framework, it will be important to then identify significant windows of opportunity to generate action, around key intervention points such as house sale, rental or extension/modernisation building in approaches to maximise individual, community and sector responses to the broad framework. Interweaving approaches around key intervention points could help to stimulate individual action by catching householders with incentives and requirements at the point where they are likely to be most active in tackling household fabric issues. Statistics collated by the Energy Saving Trust indicate that the maximum period for household renovations is within a few months of a property changing hands. Approaches could include, for example, use of Energy Performance Certificates to require homeowners to implement measures within a set timeframe of change of ownership, targeted information or incentive campaigns for first time buyers, new tenants etc.

A sectoral strategy

8.3 The current macro policy consideration through the Climate Change Bill together including, for the first time, attempts to set out carbon budgets over time, gives a unique opportunity to address the need for an overall policy framework for existing housing. This could provide the starting point for a more detailed sectoral approach, including the adoption of national budgets for the existing domestic sector.

8.4 A holistic programme for addressing fabric of existing homes to retrofit homes built prior to 2007 could be effectively driven by a trajectory set to reduce progressively over successive budgets the allocation for such pre 2007 homes, and could be a main driver to move all homes as far as possible to meet the higher carbon emissions standards of 2006 Building Regulations.

8.5 To support this work the LGA considers that more modelling of the current homes potential is needed, building on local housing stock surveys but with a more specific lens focussed on carbon reduction potential.

8.6 Performance frameworks for councils under Comprehensive Area Assessment processes, including outcomes on climate change, should prove to be a powerful driver for LA action. However we need further worked up modelling, measurement and tracking of the potential and actual impact, together with a process for ensuring area wide co-operation through Local Strategic Partnerships and Local Area Agreements if this driver is to have maximum impact. LGA would welcome further work with CLG and Defra on how a community emissions outcome could most effectively become fully embedded in LAA processes.

9. UNDERPINNING THE STRATEGY—IMPLEMENTATION

9.1 A number of the key elements supporting implementation of a strategy on existing housing stock are examined below, focussing on:

a) programmes b) fiscal approaches c) regulatory approaches d) information advice and marketing e) links to planning for new build f) skills and training and g) links to fuel poverty issues.

(a) Existing programmes

(i) EEC/CERT

9.2 Currently the most significant source of funding for energy efficiency, impacting on LA action, is the Energy Efficiency Commitment/Carbon Emissions Reduction Target (EEC/CERT). LGA supports the continued expansion of this and the supplier obligation which continues to focus on supplier delivery, since this is currently where there is the most potential to dovetail energy demand and fiscal approaches. However, in the longer run the potential to shift the responsibility, in parallel, to the consumer needs to be considered, with appropriate safeguards.

9.3 There are issues remaining over the operation on EEC approaches. For example, evidence to the Climate Change Commission stressed problems with EEC2 funding:

“the energy companies have currently met their Ofgem targets under EEC2, and are no longer releasing monies for the domestic sector, causing immense problems for local projects that were already underway and using this source of funding”.

9.4 Evidence to the Climate Change Commission also stated that:

“A far more effective use would be to focus on funding to local authorities, allowing them to work with local partnerships to pool budgets and innovation, in order to deliver whole community aims and targets to tackle climate change, rather than top down national and regional solutions. This would not just be looking at domestic energy conservation, but community buildings, businesses, transport, local food production.”

9.5 LGA agrees that the use of EEC/CERT funding to assist LA work needs further consideration. Currently the LA role is to facilitate achievement of carbon reduction targets for the ESI, providing the ESI with assistance in meeting targets which is missed would have significant bottom line impacts for the companies. The lever/driver for LAs to participate is currently less direct—being partly a sense of leadership and partly access to small scale funding. The barriers are significant—for a resource strapped small council attempting to access funding requires in-house expertise and liaison with potentially a number of different suppliers.

9.6 LGA considers that more effective use of such significant amounts of funding could be achieved by integrating LAs more closely into delivery, at the very least through informal mechanisms for partnership such as that being worked up by the LGA with the energy supply industry. A development beyond this could involve LAs more centrally in delivery of schemes and the LGA will consider any Commission recommendations on this issue closely.

(ii) Existing Programmes—Low Carbon Buildings Programme

9.7 The Low Carbon Building Programme is a significant programme and provides key signals of government commitment. LGA welcomes the improvements to the application process to ensure that energy efficiency measures are in place before grants can be provided for installation of supply technologies but notes that there is a considerable over demand for a relatively small pot.

Evidence to the Climate Change Commission stressed that:

“renewables funding is also somewhat erratic and insubstantial. Originally available under the Clear Skies and Solar PV programmes and now amalgamated under the Low Carbon Buildings Programme the levels of grant funding are still not adequate to encourage greater uptake by either the domestic or business sectors”.

(iii) Existing Programmes—Warm Front

9.8 In addition LGA notes the success of programmes such as Warm Front and would welcome further consideration of how these approaches, targeting specific groups, can be holistically interwoven with a wider approach to tackle emissions in parallel with fuel poverty aims.

Evidence to the Climate Change Commission highlighted problems with existing approaches:

“Warm Front, the Government’s main grant-funded programme, is available only for households meeting certain criteria. This can miss out a huge sector of the population which is neither “rich enough” to pay for energy efficiency measures themselves, or “poor enough” to meet the criteria for grants. This sector may also be the part of the population most likely to possess the motivation to take action if they were encouraged”.

(iv) Existing Programmes—Area Based Approaches

9.9 Defra programmes under the Community Energy Efficiency Fund focusing on an area approach and connecting up EEC and Warm Homes programmes are welcome but LGA would wish to see the current schemes analysed in detail to ensure any lessons from this approach are learned and can be rolled out more widely. Currently there is no clarity on how the use of this funding can be extended beyond what is effectively a pilot phase. *[7]

9.10 Clearly the able to pay sector remains a challenge and the solution is not about scarce grant funding going to the able to pay sector in increasing proportion, more it is imperative that we find better levers for this sector. Again no one magic bullet is likely to succeed but rather it will be a combination of information, regulation and fiscal incentives.

9.11 In addition, there are specific issues related to the hard to treat properties, as quoted in our Climate Change Commission evidence:

“neither of these grants schemes [warm front/decent homes] has helped some of the worst housing stock in the UK because the criteria have never covered the truly hard to heat homes, ie those properties with solid walls that require external or internal thermal insulation as opposed to cavity wall insulation, including the increasingly popular residential park homes”.

9.12 Evidence to the Climate Change Commission suggested that LA programmes can have a key influence:

“Herefordshire Council Private Sector Housing department found that when they ran their Special Energy Efficiency Scheme, the addition of a further £1,000 to add to the then £400 available under Clear Skies, and the availability of an interest free loan, made a considerable difference to take-up of the installation of solar thermal”.

(v) Existing Programmes—Decent Homes

9.13 The Decent Homes programme requires a higher thermal comfort standard to have a significant impact on the energy efficiency levels of homes. The suggestion from a House of Commons Select Committee that a new Decent Homes Plus standard be introduced post 2020 to include a much more ambitious thermal comfort criterion, in line with Building Regulations at the time the new Plus Standard is set. The LGA would wish this approach to be considered further along with other key policies in the Fuel Poverty Strategy and for funding for the different programmes to be closely co-ordinated.

(b) *Current fiscal approaches*

9.14 HMT has introduced a number of fiscal measures in budgets over the past few years, for example in relation to the private rented sector in recognition that this sector is not on track to meet the emissions reductions targets required. Such properties have low energy efficiency levels compared to the rest of the housing sector and typically produce 500 kg of carbon dioxide per year more than other houses.

9.15 Recognising a potential market failure, with split incentives deterring landlords from installing measures which would accrue benefits not to themselves but to their tenants, HMT introduced the Landlords Energy Saving Allowances (LESA) in 2004 offering a deduction against taxable profits for landlords installing energy efficiency measures with an extension of the allowance in subsequent budgets addressing some limitations of the original scheme.

9.16 There is potential to assess the impacts of such schemes and explore pro-actively the potential for wider ranging fiscal incentives. Included in a range of approaches which LGA will be considering further are:

(i) Council tax issues

9.17 As a property based tax, the council tax offers an obvious area for linking the energy efficiency of the property with the level of tax. It would be theoretically possible to band this so that it is progressive by stepping up the cost through the band levels linked to the energy efficiency levels (along the lines of EPC certificate bands). LGA recognises that council tax “rebate/discount” schemes adopted by some councils using EEC funding have been popular. LGA has considered that technical issues surrounding the use of this kind of pass through of ESI funding need to be addressed, but that this needs to be done in the context of the wider issues of council tax reform post Lyons review.

(ii) Stamp Duty

9.18 We welcome the linkage of zero carbon new homes to zero stamp duty and would welcome consideration for this to be developed for existing homes so that on sale there is a discount for the most energy efficient homes. This could have significant impacts but clearly also has significant costs.

(iii) VAT

9.19 The 5% VAT rate applicable to installation of specific energy saving materials is helpful, as is the extension of the list of qualifying technologies, such as air source heat pumps and micro combined heat and power units in recent budgets. LGA welcomes government moves to work with the EU to minimize VAT application on energy efficiency products and services and recommends that this be pursued vigorously.

(c) *Regulatory approaches*

9.20 Regulatory approaches are a key component in addressing emissions with two key examples impacting on homes being:

Trading standards

trading standards officers enforce regulations on misleading claims ensuring that consumers can be confident in selecting the most sustainable, environmentally friendly products and services. With the proliferation of labelling schemes and “green” claims this is increasingly important. Additionally the introduction of EPCs for home sales and rentals will mean an extended role over energy efficiency information provision.

Private Sector Housing

Housing Health and Safety Rating System (HHSRS)—local authority officers assess premises using the HHSRS. They can require owners/landlords to undertake work to protect occupants from excess cold, or damp and mould affecting the property. This can often contribute to alleviating fuel poverty and/or improving energy efficiency.

9.21 LACORS (the Local Authority Co-ordinators of Regulatory Services) published in 2007 a Climate Change toolkit for regulatory services containing a number of case studies and information on how councils can help householders to reduce emissions (www.lacors.gov.uk)

(d) *Information/advice/marketing*

9.22 Local Authorities have a useful role in the provision of carbon reduction advice and this needs further support both in terms of inhouse resources for councils to provide services but also for external agency support to assist the general public and councils in delivering advice services.

9.23 There are a number of useful support packages for councils wishing to access advice themselves on how to promote domestic energy efficiency—for example the Nottingham Declaration Action Pack (*9), and the IDeA/Beacon toolkit (*10) However these resources need to be maintained alongside other support packages such as the BERR Energy Measures report and Guidance for Local Authorities (*11)

9.24 Marketing approaches such as EPCs are welcome and the LGA would like to see a timetable published for their extension to all homes marketed for sale or rent. We would also like CLG to assess the potential to extend their use beyond a marketing tool, for example with mandatory implementation of energy efficiency measures identified or incentives such as preferable mortgage conditions for homes implementing measures. Local Authorities should also be given access to the data collected for EPCs to provide a cost effective source of information for targeting LA programmes.

(e) Planning

9.25 The use of planning policies to relate to existing buildings is developing. Extensions of refurbishment applications can be required to include energy efficiency improvements to compensate for the additional energy and carbon dioxide resulting from the building. This approach takes advantage of a key intervention point on existing homes and enables the cost effective installation of measures.

Example

Uttlesford District council requires cost-effective energy efficiency improvements to be carried out on dwellings when they are extended. The first LA in the UK to introduce a requirement of this kind, UDC has used the planning system to address existing homes with a time limit of six months from completion of the extension (or first use if earlier) to complete the measures.

(f) Skills and training

9.26 A key factor in delivering objectives for upgrading existing housing stock as well as new build will be the development of a structured strategy and implementation programme for significantly scaling up skills in the planning, construction, retrofitting trades as well as in priming supply chains to meet increased demand for products. LGA would like to see a national strategy to deliver on this at all levels, with an early assessment of likely key deficits in specific sectors and geographical areas assessed. It is also important to ensure high levels of quality assurance processes, including necessary accreditation schemes, to enable householder confidence in investing in energy efficiency measures and renewable technologies is maintained.

(g) Fuel poverty

9.27 In view of national objectives to eradicate fuel poverty, the impacts of energy efficiency/carbon reduction programmes on fuel poverty need to be assessed explicitly.

9.28 The Government needs to take a more holistic approach to identifying those in fuel poverty and linking them up with the programmes available. Given the range of contacts from LAs, the NHS and DWP with most of these households, a pro-active, integrated approach to link up the data held and maximise the use of existing contacts is needed. LAs have a key role here which can be maximised further.

9.29 Fuel poverty targets should be included in the new LA performance framework and it is important that Local Area Agreements should give reasonable priority to fuel poverty.

9.30 While the Decent Homes Standard has been very helpful in raising energy efficiency standards in the social sector, the low thermal comfort/energy efficiency provisions means that many homes meeting the Decent Homes Standard will still, have very significant carbon emissions and will leave households in fuel poverty. The Decent Homes Standards are lower than those of Warm Front, the Government fuel poverty programme for the private sector, which requires a SAP rating of 65 wherever practical. The social sector standard should be similarly demanding and set at the same level as the private sector standard of 65 since public funds are being used in both cases.

9.31 The Fuel Poverty Advisory Group (FPAG) is recommending that in the period to 2010 a SAP of at least 65 should be achieved wherever practical if Decent Homes Standard work is in any case being carried out in a Social Housing Dwelling. For the post 2010 period all Social Housing should have a SAP of at least 65, either by a change in the Decent Homes Standard or through a duty on landlords to achieve a SAP of 65 by 2016.

9.32 Local Authorities need access to the information, which will enable them to locate those who could benefit from the fuel poverty programmes, or who might also be helped by advice on Benefit Uptake. LAs should have access to the energy efficiency data of the Energy Performance Certificates so that they can effectively target information on both fuel poverty and energy efficiency programmes.

9.33 Current legal uncertainties mean that some councils do not feel able to access the data held within their own Authority on Council Tax and Housing Benefit recipients for the purpose of targetting the fuel poverty programmes. With FPAG we are urging the Government to clarify the legal situation to allow access for Local Authorities to their own data for the purposes of the fuel poverty programmes.

9.34 The Home Health and Safety Rating System and the Houses in Multiple Occupation Legislation will be important potential tools for acting on fuel poverty as well as on energy efficiency in the private rented sector. This legislation needs to be implemented effectively, with the necessary resources made available, and CLG could helpfully promote the use of the provisions for HHSRS inspections to be imposed on landlords refusing Warm Front or EEC low income group measures.

10. CONCLUSIONS

10.1 Achieving significant improvements in emissions from the existing housing stock are not an optional extra if we are to meet national objectives on reducing emissions.

10.2 Current research clearly indicates that there is significant untapped potential to make improvements with existing, cost effective technologies—and that these can be delivered quickly given the right impetus.

10.3 A holistic strategy for tackling this sector is needed, on the back of carbon budget approaches for sectors, with a holistic focus on fuel poverty in parallel to tackling climate change issues.

10.4 Local Authorities' pivotal role in delivering real impacts on reducing emissions from our housing stock has been recognised however there is further scope to focus emissions reductions through the agency of councils.

10.5 Future developments such as the new performance framework proposed by the Local Government White Paper, the introduction of the Energy Measures Report under the Climate Change and Sustainable Energy Act 2006 and the development of the leadership role of councils to secure the environmental well-being of their areas are all central to the embedding of councils at the heart of this agenda.

10.6 The LGA is looking forward to examining in detail the recommendations of the Climate Change Commission later this year and to use these as an informed basis for further development of LGA policy.

10.7 In parallel the LGA is keen to work with government departments to look at how the policy interfaces between housing, energy, local government and planning can be joined together to maximize the potential of LAs to generate householder action and how devolution to local level can help deliver on national agendas.

Local Government Association

26 September 2007

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“We will continue to ensure that energy suppliers work with householders to save energy and carbon emissions. We launch alongside this White Paper our statutory consultation on a Carbon Emission Reduction Target (CERT) for 2008–11. This is the new name for the Energy Efficiency Commitment and reflects the new scheme’s focus on reducing carbon emissions. The consultation proposes that energy suppliers double their current effort. Longer term, from 2012, we want to develop this scheme to support a transformation in the way suppliers view their relationship with the end consumer, helping their customers save energy, by shifting their focus to the provision of energy services, rather than simply selling units of energy.”
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Memorandum by the Fuel Poverty Advisory Group

The Committee asked for further information on FPAG's estimate of resource requirements for tackling fuel poverty. The information below is taken from FPAG's Fifth Annual Report, published in April 2007.

FPAG'S ESTIMATE OF RESOURCES REQUIRED TO TACKLE FUEL POVERTY

The Fuel Poverty Programmes are now substantial. In 2007–08 a little under £650 million is likely to be spent, made up broadly as follows:

FUEL POVERTY PROGRAMMES 2007–08

Warm Front £350 million
 Energy Efficiency Commitment—Priority Group £190 million
 Decent Homes* £100 million
 TOTAL 640

* The Decent Homes figure is a broad-brush estimate

FPAG has calculated the resources required to reach the target of eradicating fuel poverty amongst all households in England by 2016. The background work was carried out by DTI and Defra Officials, but the estimates of the resources required, based on this work, are FPAG's.

The work has concluded that a programme of about £1 billion pa is needed from 2008 to 2016. This would be very largely capital measures to improve energy efficiency and heating, but would include special measures to increase incomes and to reduce prices for a group of customers. The key capital measures are :

CAPITAL MEASURES TO TACKLE FUEL POVERTY

Mainstream Insulation £260 million
 Central Heating £440 million
 Non gas areas [gas central heating or renewables] £900 million
 Other [gas CH replacement, solid walls ins., solar thermal] £3,900 million
 TOTAL £5,500 million

These are purely the costs of the measures themselves. When account is taken of administration and marketing costs, the impossibility of targeting the measures precisely on the fuel poor, measures for non vulnerable fuel poor households and expenditure since 2005, the estimated total cost is £10 billion.

Given that a number of the measures are expensive, it will be more sensible to remove fuel poverty amongst a number of households by special income or price measures—benefit take-up, price discounts via social tariffs and lower relative prepayment prices. This would reduce the need for some high cost measures and bring the overall cost of the programmes down by £1 billion to £9 billion or about £1 billion pa in real terms to 2016.

This is a sizeable programme but, given current levels of expenditure and the prospects for increased EEC resources, it does not appear unrealistic. Specifically, if Warm Front is maintained at the 2007–08 level of £350 million and if EEC for the Priority Group is doubled, ie increased by £190 million (with EEC Priority Group measures more focused on fuel poverty)—then total expenditure would be around £830 million. This is below, but not too far below, the £1 billion pa required.

SOURCES OF EXTRA RESOURCES

Three potential sources of funding are worth specifically mentioning here:

- EUETS allowances, especially for the sectors not exposed to competition from outside the EU, should be auctioned as quickly as possible over time with the proceeds recycled into fuel poverty programmes. The Environmental Audit Committee has recently floated the possibility of windfall profits tax on the gains made as a result of EUETS.
- There should be a small change in Ofgem's duties to fill the gap in Ofgem's ability to act in customers' interests—exposed by Ofgem's inability to secure for customers a share of the gains that National Grid made on the sale of some of its distribution company subsidiaries. With such a change, Ofgem would have the power properly to protect customers in future and to secure benefits for low income and other customers.

- Winter Fuel Payments currently cost £2 billion pa. We appreciate that these are highly valued by those who receive them, but they are not at all well targeted—paid to everyone irrespective of income, and untaxed. A part of the expenditure could be better targeted and used to increase further the fuel poverty programmes.

29 November 2007

Memorandum by the Chartered Institution of Building Services Engineers

Dr Starkey MP indicated that the Committee might ask us some more questions and we welcome the opportunity for further dialogue. I have some documents and publications that the Committee may find helpful and will be sending these shortly.

In the meantime we feel it would be helpful to provide the Committee with some further background to the lack of progress in the development of a Competent Persons Scheme to support Part L of the Building Regulations—Conservation of Fuel and Power. This was an issue that came up in question 180.

BACKGROUND TO COMPETENCE SCHEMES AND PART L

Competent Persons Schemes were originally introduced to allow installers to certify that their installation work meets the requirements of the Building Regulations. The Schemes cover specific tasks, such as window replacement or domestic electrical installations, and were introduced to reduce the workload of Building Control Officers and to enable them to concentrate on high risk issues such as structural stability or fire safety, which cannot be covered in any other way.

Competent Persons are individuals who have the required training and have demonstrated their competence either by qualifications or through evidence or prior experience and learning. They join an independent certification scheme that has a Quality Assurance framework including a code of conduct, an insurance requirement and a complaints procedure. Any complaints are directed to the scheme operator and not to the Building Control Body.

The existing schemes allow competent individuals to certify their own installation work. But Part L is not about installation work, it covers design requirements. Demonstration of compliance requires checking and verification that a number of elements meet minimum compliance standards and that the whole building also complies. To do this the individual will have to undertake some checks but also collect data and information from others.

This is where the “legal difficulties”, referred to in our answer to Question 180, lie. CLG officials argue that the legal framework only allows self-certification of work actually done by the individual. The CIBSE solution was to devise a process by which the design work undertaken would be recorded and the information collected in a robust and auditable manner by the Competent Person. But this was still not deemed sufficient. CIBSE has offered to meet with CLG legal advisors but we are advised that this is not possible.

THE BENEFIT OF A COMPETENT PERSONS SCHEME FOR REFURBISHMENT

Under the Energy Performance of Buildings Directive, energy performance certificates and recommendation reports do not in themselves improve existing building stock. It is the decisions that are made as the result of an energy rating and associated report that will trigger improvements, but it will be voluntary unless regulations are introduced. There is also no requirement in the EPBD for EPCs after major refurbishment.

A Competent Persons Scheme would therefore be invaluable for domestic refurbishment and could tie in very well with any move to introduce requirements for consequential improvements in the next review of Part L.

Such a scheme would also provide a far greater level of expertise applied to Part L compliance for new work and for buildings other than dwellings, by transferring responsibility for detailed checking of compliance with Part L to those with demonstrable expertise in that task.

The Institution believes that a Competent Persons scheme offers a straightforward and cost effective mechanism for raising levels of compliance with Part L which transfers risk from Building Control without any additional costs the Building Control System.

30 November 2007
