House of Commons
Treasury Committee

Climate change and the Stern Review: the implications for Treasury policy

Fourth Report of Session 2007–08

Report, together with formal minutes, oral and written evidence

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The Treasury Committee

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Summary

Climate change is one of the biggest challenges facing the world today and requires an urgent response from Government, industry and the individual. Our inquiry was triggered by the publication of the *Stern Review on the Economics of Climate Change* in late 2006, which stressed the need to stabilise carbon emissions sooner rather than later, and warned of potentially catastrophic impacts if that was not achieved. The *Review*, which this Report welcomes, framed the climate change debate in terms of economic choices, and considered the use of economic tools such as environmental taxation and permit trading schemes as economically-efficient mechanisms for cutting emissions. This Report recommends that the Government give primary consideration to the use of economic tools in combating climate change: The Treasury’s policies and action in this regard were the main focus of our inquiry.

This Report expresses regret that Phase I of the European Union Emissions Trading Scheme over-allocated permits, and stresses the need for the Government to strive for a much tighter allocation in Phase II.

This Report also considers the issue of environmental taxation. At the moment, confusion reigns over the definition of environmental tax, with the Office of National Statistics (ONS) and the Treasury using different measures, and we urge the Treasury to come into line with the ONS. In our view, the Government’s commitment to the 1997 *Statement of Intent on Environmental Taxation* has not been maintained and we express our disappointment at this.

Prior to the proposed inclusion of aviation in the EU ETS, the Government must ensure that airlines are at least covering the environmental cost of their actions. We express concern that airlines are dragging their feet in cooperating on environmental schemes, and recommend that airlines adopt a system of eco-labelling, so that consumers can compare the environmental footprint of each airline when purchasing their tickets.

We welcome the Government’s proposal that Air Passenger Duty (APD) be replaced by ‘Per Plane Duty’, but regret that the Government has taken so long to do so. APD does not currently differentiate between full and half-empty planes, between flights to Morocco and flights to Australia, or between clean planes and relatively dirty planes. We urge the Government to ensure that cargo flights and private planes are included in the new regime and that tax differentials be introduced to encourage investment in cleaner technologies.

We do not agree with the suggestion that the UK’s response to the climate change threat can rely solely on adaptation measures, but instead recommend the Government pursue a twin-track approach, including both adaptation and mitigation. Nevertheless, adaptation is crucial, because climate change is affecting the UK now. We recommend that the Treasury track and publish public spending on adaptation, and, in the specific area of flood risk management, give early notice of spending plans beyond 2011 prior to the next Spending Review. We also recognise that many of the world’s least-developed countries face more urgent and profound threats than the UK from climate change, and call on the Treasury to
specify and ring-fence part of the Department for International Development’s budget for overseas climate change adaptation.

Many Government departments are involved in Climate Change programmes and we welcome the establishment of the Office for Climate Change (OCC), which seeks to promote cross-departmental cooperation. We recommend that a Minister should take responsibility for the OCC, in order to create an effective Champion of Climate Change across Government.
1 Introduction

Our inquiry

1. In July 2005, the then Chancellor of the Exchequer, Rt Hon Gordon Brown MP, commissioned Sir Nicholas Stern to report to the Prime Minister and the Chancellor by Autumn 2006 on an evidence-based assessment of the economics of moving to a low-carbon global economy and the implications of that assessment for the UK. Sir Nicholas was then Head of the Government Economic Service and former chief economist at the World Bank. On 30 October 2006, Sir Nicholas’ review of The Economics of Climate Change was published. On publication of the Review, HM Treasury described it as “the most comprehensive review ever carried out on the economics of climate change”.

2. On 14 December 2006, we announced an inquiry into climate change and the Stern review: the implications for HM Treasury policy on tax and the environment. We intended to examine the effectiveness of steps taken by HM Treasury to tackle climate change. In particular, we stated that we would consider:

- the Government’s use of environmental or ‘green’ taxes that are specifically targeted at tackling climate change;
- the extent to which the Government uses environmental taxation to encourage behavioural change, rather than solely to raise revenue, and the social impact of such taxation; and
- looking forward, the appropriate role of environmental taxation, in the context of the range of means by which the Government can seek to achieve its environmental policy aims—for example, by means of regulation, a voluntary agreement or a spending measure.

In relation to the Stern Review, we announced that we would give particular consideration to:

- the innovative and novel aspects of the economic analysis carried out in the Stern Review, in order to examine what new perspectives the Stern Review has brought to the climate change debate; and
- the design and the parameters of the economic modelling used in the Stern Review.

We made clear that we would not seek to examine the environmental science of climate change, except where it related to the economic modelling undertaken in the Review.

1 The full terms of reference are available at www.hm-treasury.gov.uk/independent_reviews
2 “Publication of the Stern Review on the Economics of Climate change”, HM Treasury press notice, 30 October 2006
3. We received 32 written memoranda and took oral evidence from: Professor Paul Ekins of the Policy Studies Institute; the British Air Transport Association (BATA); British Airways; easyJet; Virgin Atlantic Airways; Climate Change Capital; the Centre for Sustainable Energy; Sir Nicholas Stern himself; Rt Hon Lord Lawson of Blaby, a former Chancellor of the Exchequer; the Better Regulation Commission; Friends of the Earth; the Environment Agency; Ms Farhana Yamin of the University of Sussex; the International Maritime Organisation; the Chamber of Shipping; the International Air Transport Association (IATA); and the then Financial Secretary to the Treasury, John Healey MP, and Treasury officials. We are grateful to all those who gave evidence or otherwise assisted with our inquiry.

**Previous work by the Treasury Committee**

4. We have previously considered issues relevant to this inquiry in our examinations of the 2006 Budget and Pre-Budget Report.³ In our Report on the 2006 Budget, we examined the drop in the proportion of revenue yielded to the Exchequer from environmental taxes, from a peak of 9.8% in 1999 to 8.3% in 2004, and expressed concern about the apparently limited assessment the Treasury had made of the reasons for this decline.⁴ We described the Government’s justification of its decision to freeze air passenger duty (APD) for the fifth year running as “incoherent and unconvincing” and recommended that the Government gave serious consideration to increasing rates of APD.⁵ Finally, we accepted that it was important to bring aviation within the EU Emissions Trading Scheme (ETS) but, given the time lapse before aviation was likely to be included in the EU ETS, we recommended that the Government also act at a domestic level by giving urgent consideration to how it could best use the tax system to increase incentives to reduce the harmful environmental effects of aviation.⁶

**Relevant work by other select committees**

5. Several other select committees have recently reported to both Houses on climate changes issues:

**Pre-Stern Review**

The House of Lords Economic Affairs Committee explored issues relating to the Economics of Climate Change in 2005–06.⁷

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⁴ HC (2005–06) 994–I, para 99

⁵ HC (2005–06) 994–I, paras 100–101

⁶ HC (2005–06) 994–I, para 102

Post-Stern Review

In September 2007, the Environment, Food and Rural Affairs Committee reported to the House on Climate change: the “citizen’s agenda”, a Report which examined how the ordinary citizen could change his or her lifestyle to minimise the impact of climate change and to mitigate its effects.8

In March 2007, the Environmental Audit Committee reported on the 2006 Pre-Budget Review and the Stern Review,9 in June 2007 reported on the Climate Change Programme Review and the Draft Climate Change Bill,10 and in October 2007 reported on the Structure of Government and the challenge of climate change.11

Climate Change Bill

The Environment, Food and Rural Affairs Committee also considered the Draft Climate Change Bill and reported in 2007.12

The Joint Committee on the Draft Climate Change Bill reported on the Climate Change Bill in August 2007.13

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8 Environment, Food and Rural Affairs Committee, Eighth Report of Session 2006-07, Climate change: the “citizen’s agenda”, HC 88–I
9 Environmental Audit Committee, Fourth Report of Session 2006-07, Pre-Budget 2006 and the Stern Review, HC 227
10 Environmental Audit Committee, Seventh Report of Session 2006-07, Beyond Stern: From the Climate Change Programme Review to the Draft Climate Change Bill, HC 460
# The economics of the Stern Review

## The Stern Review

### Background

6. With a length of 579 pages, the Stern Review is a comprehensive and ambitious document. Sir Nicholas Stern explained to us that his Review, whilst not necessarily covering new ground in terms of understanding climate change science or the economic tools available to reduce carbon emissions, differed from previous economic analyses in three primary ways: It considered the economics of climate change risk; it considered the issue of achieving international consensus on climate change action; and it considered the equity implications of climate change.  

### Overall analysis of the Stern Review

7. Professor Ekins noted that most of the arguments rehearsed in the Stern Review have been available for some time, but the “novelty” of the Stern Review was in Sir Nicholas’ choice of emphasis. First, Professor Ekins noted, Sir Nicholas addressed the science of climate change, which was unusual for an economist. He then focused on the equity and social justice issues, which in Professor Ekins’ view was the correct way to start, because these “are very important public social as well as economic issues”.  

Many organisations welcomed the Stern Review: Natural England, for example, argued that the central finding of the Stern Review, that inaction will be more costly to the global economy than immediate action, had sent a strong signal to the international community and further demonstrated the UK’s global leadership on this issue.

8. The Government has accepted the Stern Review’s analysis, the thrust of its conclusions and the policy direction that it suggests. The Minister commented that:

> the importance of the Stern Review overall is [that] the analysis leads to the conclusive message that there are significant costs in dealing with the challenge of climate change but those costs will be far greater if we do not take the action that is necessary and those costs will be far greater if we do not take that action internationally rather than unilaterally within the UK or elsewhere.

### Key findings of the Stern Review

9. The Stern Review argued that there is now overwhelming scientific evidence that climate change is a serious global threat and that this threat demands an urgent global response.
The Review concluded that the benefits of strong and early action to reduce carbon emissions would outweigh the economic costs of not acting and warned that the consequences will be wide-ranging and severe if the world fails to act:

Climate change will affect the basic elements of life for people around the world—access to water, food production, health, and the environment. Hundreds of millions of people could suffer hunger, water shortages and coastal flooding as the world warms.\textsuperscript{19}

10. The Stern Review estimated that the overall costs of climate change if no preventative action were taken would be equivalent to losing at least 5% of global gross domestic product (GDP) each year, now and forever. When considering a wider range of risks and impacts, these costs could rise to 20% of GDP or more. According to the Review, the costs of preventative action, such as reducing greenhouse gas emissions to avoid the worst impacts of climate change, could be limited to around 1% of global GDP each year. The Review stressed that decisions made in the next couple of decades would have a “profound effect on the climate in the second half of this century and in the next”.\textsuperscript{20} If no action were taken to reduce emissions, the Review estimated that the concentration of greenhouse gases in the atmosphere could double its pre-industrial level by 2035, which would lead to a global average temperature rise of over 2°C. In the longer term, “there would be more than a 50% chance that the temperature would increase by more than 5°C”.\textsuperscript{21} This would result in major changes to the world’s physical geography, which would lead to changes in where, and how, people could live their lives. Despite these grave warnings, the Review was optimistic that the costs of stabilising the climate were manageable:

The risks of the worst impacts of climate change can be substantially reduced if greenhouse gas levels in the atmosphere can be stabilised between 450 and 550 parts per million (ppm) CO\textsubscript{2} equivalent (CO\textsubscript{2}e). The current level is 430ppm CO\textsubscript{2}e today, and it is rising at more than 2ppm each year. Stabilisation in this range would require emissions to be at least 25% below current levels by 2050, and perhaps much more.\textsuperscript{22}

11. Sir Nicholas explained that, if mankind were to take no action to reduce carbon emissions for 30 years, it would be very difficult to achieve stabilisation of 550ppm. To achieve such stabilisation, he said, total emissions would have to peak 20 to 25 years from now and decisions and action had to be taken in the next few years.\textsuperscript{23}

12. \textbf{We welcome the Stern Review as an impressive document that contributes much to public discussion of climate change. Sir Nicholas Stern deserves credit for bringing into stark relief the problem of risk and uncertainty concerning potentially ruinous environmental catastrophes. We also support Sir Nicholas’ attempts to frame the}
climate change debate in terms of economic choices, which should serve to assist policymakers in taking the difficult decisions necessary to combat climate change.

The international nature of the climate change problem

13. Climate change is, both in its causes and consequences, an international problem: The direct effects of global warming such as rising sea levels and more unpredictable weather affect countries without regard to the source of emissions. The Stern Review argued that “because climate change is a global problem, the response to it must be international … based on a shared vision of long-term goals and agreement on frameworks that will accelerate action over the next decade”.

14. The then Financial Secretary to the Treasury, John Healey MP, stressed that the UK’s ability to exert influence on the international stage was dependent on the UK demonstrating that it was possible to enjoy economic growth whilst simultaneously dealing with the emissions challenge. Friends of the Earth commented that the adoption by the UK Government of a clear climate change strategy would have a galvanising effect amongst the international community. The Centre for Sustainable Energy noted the “desperate need” for the Government to establish a clear and consistent ‘framing’ of the climate change issue in all its communications, because “it is only ever through leadership and example that international treaties are established that lead to effective global solutions”.

15. The Stern Review described how countries will be affected in different ways:

All countries will be affected. The most vulnerable—the poorest countries and populations—will suffer earliest and most, even though they have contributed least to the causes of climate change.

The Review argued that, in both developed and developing economies, it would be possible to make the reductions in emissions on the scale necessary for stabilisation in the required range without endangering economic growth. It noted that the developing world had an important role to play; “even if the rich world takes on responsibility for absolute cuts in emissions of 60-80% by 2050, developing countries must take significant action too. But developing countries should not be required to bear the full costs of this action alone.”
16. Economic growth in non-OECD [Organisation for Economic Co-operation and Development] countries, most notably China and India, is expected to lead to significant increases in global energy demand, with the non-OECD share of total energy demand projected to exceed half of the global total by 2015. Such increases in demand for natural resources create environmental pressures, not least those relating to climate change. Professor Amartya Sen from Harvard University argued that international agreements on the environment had to address the problem of “historical fairness”—namely, that many developed nations attained their level of development without unduly considering the impact of their economic growth on the environment, so that it would be unfair of them subsequently to seek to restrict the growth of developing nations on the basis of environmental concerns.

17. The Minister believed that the developed countries, which were “largely responsible for the emissions that are currently creating the climate change problems”, had to accept a greater responsibility and a greater share of the cost of resolving the climate change problem. Lord Lawson though was sceptical of the prospects for carbon emission abatement in the developing world. He did not see any prospect of China, for example, cutting back on its carbon emissions “unless somebody else pays for carbon capture and storage”, which he said no country was likely to agree to. However, the Minister stated that the Government was actively working with China on developing and deploying carbon capture and storage (CCS). The 2007 Comprehensive Spending Review announced details of a competition to design and build a full-scale demonstration of CCS technology, which, the Government hopes, will contribute to the UK’s ambition of assisting the transition of China and India to low-carbon economies.

33 Long-term opportunities and challenges for the UK: analysis for the 2007 CSR, HM Treasury, November 2006, para 4.37, p 59
34 Treasury Committee, Fourteenth Report of Session 2006—07, Globalisation: prospects and policy responses, HC 90, Q 315
35 Q 277
36 Q 214
37 Q 276
38 2007 Pre-Budget Report and Comprehensive Spending Review, HM Treasury, p 118, paras 7.27–8
Criticisms of the Stern Review

The independence of the Stern Review

18. The Stern Review was commissioned by the then Chancellor of the Exchequer, and reported to the then Prime Minister and Chancellor. The author, Sir Nicholas Stern, was at the time the serving Head of the Government Economic Service and a former Second Permanent Secretary in HM Treasury. There was some criticism that the Stern Review was not independent and was subject to political pressures. Professor William D Nordhaus of Yale University had written that the Stern Review should be viewed as a political document, rather than an academic study. Like most Government reports, he argued, it was published without an appraisal of methods and assumptions by independent outside experts.39

19. Lord Lawson argued that the Stern Review was “basically a work of advocacy”, and that a “more objective, analytical approach would have been helpful”. He suggested that the Review was biased, exaggerating the costs of warming and downplaying both the benefits of warming and the costs of mitigation:

He ramps up the alleged costs of warming to an inordinate degree and the benefits of warming are scarcely mentioned. The costs of mitigation are grossly understated in my view and the whole thing is very biased. One way in which the bias comes out very clearly is the treatment of technological advance. One of the reasons he comes to his relatively low cost [of reducing emissions to a sustainable level] of 1% of Gross Domestic Product is that he assumes there will be a huge technological advance in renewable and non-carbon-based energy and also things like carbon capture and storage. None of these things is remotely economic at the present time but he believes that there will be a huge technological advance. He assumes it and allows for it. When one comes to the mitigation of consequences—adaptation—he assumes that there is virtually no technological advance at all. Technology advances where he wants it to but not where he does not want it to. I think that is implausible.40

In a lecture to the Centre for Policy Studies, Lord Lawson claimed that “as a good civil servant [Sir Nicholas] was simply doing his master’s bidding”.41 In evidence to us, he explained that statement:

I think that the Government had taken a policy stance on this issue. As a highly intelligent man, [Sir Nicholas] knew Mr Blair had said that this was the greatest danger facing the planet and all that. Obviously, he knew he had to come up with

40 Q 204
41 “The Economics and Politics of Climate Change: An Appeal to Reason”, speech by Rt Hon Lord Lawson to the Centre for Policy Studies, 1 November 2006, p 1
Climate change and the Stern Review: the implications for Treasury policy

something which conformed to the position that ministers had already taken. He did not need to have a diktat to know that.  

20. The Minister was adamant that the Stern Review was a “serious piece of work, carried out independently, with all the resources that [Sir Nicholas] needed from inside the Treasury and from outside as well in order for him to do that”. He added that the Report’s authority, credibility and integrity depended on the fact that Sir Nicholas conducted his Review independently and that, apart from Lord Lawson’s criticism, he did not see any serious evidence or argument to the contrary.  

21. The Stern Review is a serious contribution to the climate change literature. Although Lord Lawson was concerned that Sir Nicholas was insufficiently independent of Government, we believe that the Review has to be judged by the quality of its evidence and the arguments it puts forward, rather than the issue of its authorship.  

Discount rates

22. Much of the discussion on the economics of the Stern Review has centred on the use of a particular “discount rate”. In this context, the discount rate allows one to measure the value of future costs and benefits in today’s terms. A high discount rate, for example, indicates a preference for consumption now rather than in the future. Choosing an appropriate discount rate, whilst a highly technical subject, is crucial to assessing the extent of sacrifices the world should be taking now to prevent or slow down climate change damage affecting future generations. The issue of discounting across long time horizons raises awkward questions of intergenerational equity, such as ‘Should society be attempting to maximise welfare across all generations, or, alternatively, should it be seeking to equalise or smooth welfare across all generations?’ Choosing a lower discount rate has the effect of promoting a reduction in current consumption, so that the world inherited by future generations is less damaged.  

23. The Stern Review employed discounting assumptions that have caused some controversy amongst academic economists. Professor Ekins perhaps understated the debate when he said that “there has been a fair bit of controversy about how he arrived at his overall damage costs, in particular with the use of a discount rate that some perceived to be too small”. Lord Lawson referred to the critique made by Professor Sir Partha Dasgupta of Cambridge University:  

[The discounting] part of Stern is not only highly contestable but highly contested. Professor Dasgupta says it is ridiculous and he has pointed out that if you accept Stern’s [assumption about intergenerational equity] it means that the people of this generation should be saving 75% of their income for future generations. As he says, that is absurd. That part of Stern is, I believe, widely believed to be absurd. 
Lord Lawson argued that the sacrifices expected of the current generation should be set against the fact that future generations are likely to be much richer and enjoy a better quality of life:

The proposition is that we should ask the people of this generation all round the world … to make considerable sacrifices now in order that their great-grandchildren or great-great-grandchildren, or whatever, who will be seven times as well off as they are today rather than six times as well off. It is as if at the time of the industrial revolution just under 200 hundred years ago people were told that they should not embark on that process and burn coal but use wind and water, which were well known technologies at that time, so that we in this generation would not be as well off than we are today. I do not think they would support that. 46

24. Sir Nicholas defended his discounting techniques when we questioned him. He explained how there were two reasons for discounting. The first reason was discounting for growth, the idea that “in future, people may be better off than we are currently. An extra unit of stuff in future therefore has lower ethical value.” 47 Rejecting Lord Lawson’s allegation, Sir Nicholas stated that his Review performed such discounting for growth in exactly the same way as the Treasury would normally do. 48

25. The second reason for discounting, the pure time discount rate, is the discounting of future events for no other reason than that they are in the future, or, as Sir Nicholas described it, “the issue of how far we should discriminate between people by date of birth”. 49 The Association of British Insurers pointed out that the pure time discount rate chosen by Sir Nicholas, 0.1%, 50 contrasted markedly with the rate of 1.5% used in the Treasury Green Book, the rate which is normally used by economists when discounting future cashflows in public policy evaluations. 51 The Stern Review argued that standard treatments of discounting were valuable for analysing marginal projects, but inappropriate for the non-marginal impacts important for many aspects of climate change. 52 In a working note for the Stern Review, Dr Cameron Hepburn of the University of Oxford argued that the relevant discount rate for climate change decisions should reflect the risk of “societal collapse” (for example, an entire region or country succumbing to rising sea levels) and, on this basis, should indeed be smaller than the current Treasury rate of 1.5% and possibly 0% to a first approximation. 53

46 Q 199
47 Q 133
48 Q 135
49 Q 133
50 The Stern Review uses the value of 0.1%, rather than 0%, to allow for the possibility that humankind might suffer extinction from some catastrophe other than climate change, before climate change has its full effect. That, in Stern’s view, is the only valid reason to value future generations less than our own.
51 Ev 121
52 Stern Review, p 23
26. Sir Nicholas told us that the idea of discriminating on the grounds of date of birth was an ethical position that was “extremely hard to defend”. In his opinion there was little justification for such discounting when conducting cost benefit analysis at the planetary level (as with climate change), and argued that this approach was not unusual:

We are in pretty good company here in that [the distinguished economists] Solow, Sen, Keynes, Ramsey and all kinds of people have adopted the approach to pure time discounting that we have adopted. It is not particularly unusual.

We note that some economists would disagree with Sir Nicholas’ view that choosing a higher pure time discount rate was indefensible. Professor Nordhaus of Yale University, writing in the Journal of Economic Literature, listed four possible justifications for a different rate.

27. Professor Ekins thought that, despite the controversy over the discounting assumptions used, Sir Nicholas’ broad conclusion that the damages from unabated climate change would greatly exceed the costs of doing something about it and reducing the level of emissions, was “absolutely right.” Simon Roberts from the Centre for Sustainable Energy argued that the discount rate chosen was irrelevant to the central finding of the Stern Review that the costs of inaction far outweighed the costs of action:

It is very clear that whatever discount rate is used—no matter how low—the costs of inaction far outweigh the costs of action. On that basis, even if one almost entirely ignores future generations or treats them as if they are already alive, you would still conclude that it justifies significant immediate action in relation to climate change, rather than worry too much whether it should be x% or y%. That would be a level of focus on a specific that ignored the broad conclusion that action is needed now rather than later.

28. Sir Nicholas was clearly aware of the significance of the ethical assumptions he made in his Review:

We put the ethical questions at centre stage. If one is talking about making decisions now which have an impact over 50, 100, 150 or 200 years the ethics of how one makes judgments as between changes in investments in the next few years and their implications 150 years down the track raise some quite difficult questions. We felt that the economics of policy could not really be taken on without confronting those things.

29. At the time of publication, the Stern Review offered only one discount rate possibility. Following some criticism from academics, Sir Nicholas later published a Postscript...
containing tables that showed the sensitivity of the Stern Review’s findings to different choices of discount rate. However, no arguments were put forward explaining why other discount rates might be preferred by other economists, which, had they been provided, would have been helpful in facilitating debate about the relative merits of different discount rates.  

30. The Minister supported the assumptions underpinning the Stern Review.  

31. The choice of discount rate used in the Stern Review is critical to its strong policy conclusions, because that choice is an important factor in the calculation of the costs (as valued today) arising from future climate change. We regret that there was not greater discussion of discount rates in the original Stern Review, including explanation and potential justification of alternative rates. We welcome the eventual publication of discount rate sensitivity tables in the Stern Review’s Postscript, but note that the attention that these alternative rates received was substantially lower than might have been the case if acknowledgement of, and arguments for, other discount rates had been provided in the original Review.

Relying on adaptation

32. The most prominent strand of our inquiry was the role of the Treasury in limiting UK carbon emissions. Yet, however successfully this aim is pursued in the future, the UK and the wider world have to begin to adapt to climate change now. Regardless of future action, it is already certain that threats such as rising sea levels and more unpredictable weather patterns will make increasing demands on the Treasury’s purse strings. Some adaptation will be inevitable, but we considered it important to examine where the balance lay between encouraging expenditure on adaptation methods rather than cutting emissions.

33. Lord Lawson told us that, although he had not calculated the monetary sum needed to adapt to climate change, it was “quite clear that it would be substantially less than the cost of going down the route of cutting back [on emissions] drastically”. He argued that an effective response to climate change would involve close monitoring of the consequences of warming, adaptation to those consequences where they were harmful and pocketing of benefits when the consequences were beneficial. He took the view that although the impact of climate change could be severe, all kinds of other eventualities were possible, including the chance that the world might enter a new ice age over the next 100 years. He also argued that there were much more urgent problems to face such as terrorism, nuclear proliferation, and natural disasters, and that the UK could not guard against every possible

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60 Stern Review, Technical annex to postscript, p 11
61 Q 327
62 Q 328
63 Q 207
64 Q 197
contingency because it would be too expensive. He commented that, in the near future at least, the UK should be focused on the dangers arising from nuclear proliferation and international terrorism, saying “we should be careful about future threats and be careful not to spend resources unnecessarily”.

For these reasons, he advocated limiting expenditure on cutting back emissions, instead focusing on monitoring and adaptation to the threat of climate change.

34. A response to the threat of climate change based on adaptation would have the advantage of enabling each nation to deal with the consequences piecemeal as and when they arose, in contrast to the emissions reduction approach, which Lord Lawson described as requiring an “extremely ambitious and implausible international agreement before you can do anything worthwhile”. In Lord Lawson’s strategy, poorer countries unable to adapt to changes such as rising sea levels could receive financial assistance from richer countries, which, in his view, was a “far more practical approach [than mitigation of emissions] as well as being far more cost-effective.” He thought that the financial aid required would be manageable because of the economic growth in the developing countries that the Stern Review predicts:

Although we should help these countries it must be remembered that on the growth assumptions on which the Stern projections of warming are based the living standards of the developing world as a whole … will be higher in 100 years’ time than they are in the developed world today, which is great news if those predictions can be believed. Most of the countries will be able to afford most things themselves.

35. Kate Hampton from Climate Change Capital believed that intelligent debate on adaptation had been slowed down because, historically, “adaptation has tended to be used as a card played by countries like the US and Saudi Arabia as a way to divert attention away from mitigation”. Sir Nicholas argued that the balance between adaptation and mitigation should not be viewed as a horse race and that both adaptation and mitigation would be important. However, he disputed Lord Lawson’s argument that it made sense to see what happened before acting, because of the significant risk that by then it would be too late:

We have to do both. I think that to see adaptation as an answer to a risk of a 5°C or 6°C increase is not realistic given the magnitude of the implications for the political and human geography of the world.

The Stern Review paid attention to the risk of catastrophic climate change, a scenario for which monitoring would simply be inadequate and too late. Professor Ekins agreed that catastrophic climate change risk was a growing theme in the scientific literature:

65 Q 226
66 Q 201
67 Ibid.
68 Q 207
69 Q 126
70 Q 143
The single biggest change in the science over the past 10 years since I have been looking at the issue is the way in which scientists now perceive catastrophic costs to be much more possible in the reasonably short term.  

36. Lord Lawson’s argument that adaptation was cheaper, easier and more flexible than attempting to mitigate emissions has its attractions. However, as Sir Nicholas Stern pointed out in his Review and in evidence to us, relying on monitoring and adaptation alone could prove to be too little, too late. The fact that adaptation will be required in the short to medium term, regardless of mitigation efforts, does not absolve the UK from its responsibility to reduce its carbon emissions. We support Sir Nicholas’ recommendation that the Government pursue a twin-track approach: working to reduce emissions to a sustainable level, while at the same time committing sufficient resources to the monitoring of climate trends and adaptation, both in the UK and abroad.
3 The Government’s approach to reducing emissions

Coordinating climate change policy

37. Climate change is an issue that touches upon many policy areas, spanning several government departments. To name just a few, HM Treasury has responsibility for setting taxation policy, the Department for Transport has responsibility for encouraging the use of green transport, the Department for Business Enterprise and Regulatory Reform (BERR) has responsibility for the energy sector, and the Department for Environment, Food and Rural Affairs (DEFRA) leads on both environmental policy in general and adaptation efforts such as flood defence. The Office of Climate Change (OCC) was established in September 2006 and works across Government supporting analytical work on climate change and the development of climate change policy and strategy. The Minister of State for the Environment, Phil Woolas MP, said that the OCC “is a shared resource for Defra, BERR, DFID, FCO, DfT and CLG. It is jointly funded and governed by these Departments.”

38. DEFRA is the lead department for Public Service Agreement 27, to “lead the global effort to avoid dangerous climate change” and the Minister was very clear that the policy responsibility for the environment rested with the Secretary of State for the Environment. However, he added that he did “not think anybody could argue that the Prime Minister and other leading figures in the Government have not also played a very active part”. He stated that over the last couple of years, the UK had seen an “unprecedented cross-departmental, cross-government effort behind the climate change challenge”. The Minister said it was only right and proper that the Prime Minister, DEFRA, the Department for Trade and Industry (now DBERR), the Department for Transport and the Treasury should all be involved.

39. PricewaterhouseCoopers considered that it was becoming more difficult to establish which Government department was in the lead on climate change issues, in the context of a growing number of initiatives, programmes and associations which have been set up in recent years: “there is now perhaps a perception that the setting of government policy needs to be more focussed”. Nor did the Better Regulation Commission (BRC) see sufficient cohesion, telling us that there needed to be a clear lead department. The BRC was encouraged by the concept of the Office of Climate Change, but insisted that it needed to develop a clear role and hoped that its priority would be establishing:

72 Office of Climate Change website www.occ.gov.uk
73 HC Deb, 26 July 2007, col 463
74 2007 Pre-Budget Report and Comprehensive Spending Review, HM Treasury, p 195
75 Q 265
76 Q 266
77 Ev 110
78 Q 334
the fundamental building blocks of the policy, which is understanding the pros and cons of different methods of carbon pricing, establishing a clear stabilisation goal so that everyone understands it and a carbon-price pathway—a clear methodology for evaluating policies across government—and to make sure that the [BRC’s] seven tests are woven deeply into the policy-making agenda.79

Kate Hampton of Climate Change Capital agreed that there had been a problem with coordination, but she saw some improvement:

Certainly since the EU and G8 presidencies last year government departments have started to work together a lot more effectively on these issues Therefore, I think there is an improving trend, but I do not think it is right to say at this stage that policy is predictable and provides the kind of long-term visibility that investors need. I think policymakers are beginning to realise that it is a problem.80

40. Climate change requires a wide range of responses from departments across Government. The effective coordination of these efforts, and the presentation of a consistent, clear strategy by all departments will be vital if the UK is to show the way in combating climate change, setting a good example for other countries, as well as to individuals. To this end, we welcome the establishment of the Office of Climate Change (OCC). However, we think it is important that there should be a Government minister directly accountable for the cross-governmental work of the OCC, most likely within the Cabinet Office, in order to create an effective champion for climate change issues across Government.

**Seven tests for better regulation**

41. The Better Regulation Commission (BRC) published a report81 in response to the Stern Review in order to address two concerns: first, to ensure cohesion across different departments’ policies and, secondly, to ensure that a framework of tests existed against which policymakers should be judged.82 The BRC suggested seven tests for better climate change regulation, setting “basic but essential standards to policy makers as they meet the complex challenges of climate change”:

- “Ensure climate policy is consistent with a healthy UK economy;
- Government must develop and act consistently with a climate change strategy; avoiding piecemeal announcements;
- Test policy against a carbon price benchmark;
- Carbon policy choices must be efficient; don’t do things twice;

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79 Ibid.
80 Q 109
81 Regulating to mitigate climate change—a response to the Stern Review, Better Regulation Commission
82 Q 331
• Keep administrative costs to a minimum;
• Do not use climate change as a justification for other policy goals; and
• If it isn’t working, change it.”

42. The Government accepted the BRC’s seven tests in May 2007, commenting that it saw “the better regulation recommendations and tests as essential to combating climate change in a proportionate consistent way”. Furthermore, the Government pledged to “keep the overall regulatory burden on climate change under review, looking for ways of streamlining existing regulatory burdens and reducing overlaps”.

43. We welcome the suggestions made by the Better Regulation Commission towards ensuring cohesion in climate change regulations, including the proposed ‘seven tests’. We are pleased to note that the Government has accepted the recommendations of the Better Regulation Commission and has pledged to monitor the overall regulatory burden imposed under the climate change banner.

HM Treasury’s role and the regulatory mix

44. The Stern Review highlighted three key areas for action by the Government:

Climate change is the greatest market failure the world has ever seen, and it interacts with other market imperfections. Three elements of policy are required for an effective global response. The first is the pricing of carbon, implemented through tax, trading or regulation. The second is policy to support innovation and the deployment of low-carbon technologies. And the third is action to remove barriers to energy efficiency, and to inform, educate and persuade individuals about what they can do to respond to climate change.

45. Of the three elements suggested by the Stern Review for action by Government, we believe that the pricing of carbon and the application of economic tools is clearly the area where the Treasury is best placed to take the lead, and the use of such tools by the Treasury was therefore the focus of our inquiry. Our inquiry did not consider Government policy in support of technological innovation, or its action to remove barriers to energy efficiency and influence individuals’ responses to climate change (except via economic tools).

46. One of the key findings of the Stern Review was that establishing a carbon price, through tax, trading or regulation, was an essential foundation for climate-change policy. Environmental taxation is a tax on ‘bads’—that is, some undesirable behaviour, such as emission of carbon dioxide—and works by forcing emitters to pay the environmental costs of their actions. Environmental trading schemes also involve the pricing of economic

83 Regulating to mitigate climate change—a response to the Stern Review, Better Regulation Commission, p 5
84 The Government’s response to the Better Regulation Commission’s report: Regulating to mitigate climate change—a response to the Stern Review, DEFRA, May 2007, p 4, para 9
85 “Publication of the Stern Review on the Economics of Climate change”, HM Treasury press release, 30 October 2006
86 Stern Review, p xviii
‘bads’—this time by setting the maximum level of, in this case, emissions that is tolerable and creating a market through which emitters can buy and sell permits. Regulation covers a broad class of measures that prohibit, limit or enforce a particular behaviour, and carry the threat of punishment for non-compliance. There are disadvantages and advantages to all three approaches. Professor Ekins argued that use of the price mechanism was appropriate in many, but not all, cases:

I think that a complex society such as ours needs both [taxation and regulation]. Regulation sets standards, and there are some areas of life where standards are important. For example, I am very glad that drinking water is subject to regulation and not taxed on the amount of pollution that can be put into it. On the other hand, there are many environmental issues that respond well to price signals where those physical effects are not absolutely critical and perhaps the cost of abatement is relatively high … Once a tax is levied one pays the tax on the full environmental effect, not only on the bit that is above the regulated amount. There has now been a very interesting swing of perceptions against environmental taxes, and certainly governments have found them very difficult to introduce. That means that on the whole we do not have enough of them and in general I would favour the introduction of environmental taxes much more commonly, and in particular for their introduction on an escalating basis. In this country we have had some experiences of tax escalators. The fuel duty escalator and landfill tax escalator are currently in place. In my view they have shown themselves to be remarkably effective.87

47. A variety of policies and tools will be necessary to counter climate change emissions and public policy cannot afford to rely solely on emissions trading schemes, or environmental tax, or regulation. In general, however, we are persuaded that use of a price mechanism, rather than regulation, is an extremely effective way to change people’s behaviour and, as much as is possible, the Government should give primary consideration to the use of economic tools in combating climate change.
4 Emissions Trading Schemes

Theoretical considerations

Introduction

48. Emissions trading is a mechanism designed to produce a market for greenhouse gas (GHG) emissions so that those emissions can be reduced in an economically efficient way. A cap is set for the total amount of emissions permitted and each polluting business is then allocated a proportion of this total. Participants can then either:

- maintain operations so that they remain within their allocated emissions cap;
- reduce their emissions below their allocation and sell or bank the excess emission allowances; or
- let their emissions move above their allocation, and buy emissions allowances from other participants to cover their excess emissions.88

As participants have to pay to emit more GHG than their allocation allows, and can profit from emitting less, emissions trading should create a financial incentive to reduce emissions. An emissions trading scheme therefore provides a framework for achieving a socially-desired level of emissions in an economically efficient manner.

49. The first stage of setting up an emissions trading scheme involves allocating emission permits to participants, either via an auction or, alternatively, by reference to existing levels of emissions. Then, when trading commences, innovative firms should identify ways to reduce their emissions, and thus be able to sell unused permits, via the market, to other firms with a greater need for them. Firms therefore have an incentive to invest in cleaner technology, and the dirtiest firms should struggle to retain a competitive advantage. One applied example of an emissions trading scheme is that established by the European Union. This chapter considers the theoretical case for emission trading schemes, the successes and challenges of the existing European Union Emission Trading Scheme (EU ETS) and how the EU ETS might be extended to other countries and industries, in particular to aviation.

Theory of Trading Schemes

50. The primary benefit of an emissions trading scheme is that, if successful, it limits the quantity of emissions to the level chosen by society, achieving an environmental aim via the use of an economic mechanism. Kate Hampton of Climate Change Capital explained how emissions trading can deliver very large volumes of emissions reductions, “as we are starting to see with the EU Emission Trading Scheme and its impact on investments in the developing world through Kyoto’s Clean Development Mechanism”. She considered that,
in creating a market, emissions trading was “unleashing the private sector’s ability to go out and discover the lowest cost reductions”.\footnote{Q 117}

51. Initially, permit trading would be expected to encourage those forms of mitigation that are relatively easy and cheap to deploy. Emissions trading should therefore allow emissions reductions to be made efficiently, in contrast to a system of regulation whereby emitters are simply told that, if they exceed a specific target, they will be punished by a fine. An emissions trading scheme can ensure a particular level of emissions is achieved, but at an uncertain price. An alternative to emissions trading is environmental taxation, which can give certainty over the price of emissions, but no certainty over the level of emissions. Environmental taxation is discussed in Chapter 5.

52. Sir Nicholas told us that the most important advantage of trading schemes was that they promoted carbon financial flows from developed to developing countries, and did so via a market mechanism, rather than through overseas aid. He explained that countries such as India and China were looking to rich countries for help with moving to low-carbon economies, and that the UK should therefore be “scaling up” activities such as the Clean Development Mechanism, in order to facilitate these financial flows to developing countries.\footnote{Q 117}

\textit{Problems with emissions trading}

53. Most witnesses agreed that the theoretical elegance of emissions trading was hard to recreate in a real-world setting. Professor Ekins, for example, told us that due to political pressures the schemes which actually come into existence bore little relation to the textbook expositions of emissions trading.\footnote{Q 7} The Centre for Sustainable Energy agreed that “there is a political process … which sometimes is missed in the theoretical understanding of how efficient a taxation or trading system is”.\footnote{Q 117} Indeed, Lord Lawson characterised the permit allocation process of trading schemes in general as “highly arbitrary” and subject to a “tremendous amount of horse trading and corruption”.\footnote{Q 224} He argued that the administrative infrastructure required to operate an emission trading scheme was “hugely more expensive” than that required for tax-gathering.\footnote{Q 225} He ranked emissions trading as “better than regulation and direction”, but less efficient than taxation. The biggest failings he cited were the problem of identifying the appropriate cap on emissions and that of selecting the industries which would participate:

\footnotesize{89 Q 117
90 The Clean Development Mechanism, established under the Kyoto Protocol, allows industrialised countries with a greenhouse gas reduction commitment to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries.
91 Q 7
92 Q 117
93 Q 224
94 Q 225}
Will this system apply to the personal sector as well as the power sector and one or two others? Unless you do it across the board the more economic distortions there will be, whereas taxation would apply all over the place.\(^\text{95}\)

54. An emissions trading scheme requires a rigorous measuring system in order to ensure that all emissions are accounted for by permits. This is, generally speaking, easier to achieve with larger industries such as power generation, as opposed to small factories, shops or individuals. Sir Nicholas told us that in cases where emission measurement was difficult, it could be easier to operate a tax on goods rather than a trading scheme.\(^\text{96}\)

55. Professor Ekins acknowledged that there was an opportunity for fraud by participants in trading schemes, but was confident that “a very great deal of effort has been invested in … monitoring and verification mechanisms both in this country and in Europe and to some extent elsewhere in order to try to ensure that [such fraud] does not happen”. He explained that:

   In principle, it is quite easy to calculate how much carbon is released when one burns a certain quantity of fossil fuel because it is known how much carbon is in it and all of it will go into the atmosphere. The difficulty arises when one starts to allocate allowances on the basis of estimated base lines. What would have happened if one had not done certain things? The “what would have happened”—the counter-factual—is always an uncertainty and people have vested interests in arguing that base lines are different from what they would have been. That debate that has dogged the whole issue of how one might take into account reductions in deforestation. Mechanisms to deal with these issues have been evolved and I believe that in the European context they are reasonably robust.\(^\text{97}\)

56. Professor Ekins noted that the Stern Review saw emissions trading as a long-term way to cap emissions. In the short term, he argued, there would probably be a need to make use of a price mechanism such as an environmental tax. Therefore, there would have to be a carbon tax subject to adjustment in order to deliver a long-term quantity of emissions trading.\(^\text{98}\)

**European Union Emission Trading Scheme**

*Background*

57. In 2003 the European Council adopted the Emissions Trading Directive, which laid out the framework for the European Union Emissions Trading Scheme (EU ETS).\(^\text{99}\) The aim of the EU ETS, which officially came into operation on 1 January 2005, is to help EU Member States achieve compliance with their commitments under the Kyoto Protocol. It does not

\(^{95}\) Q 224  
\(^{96}\) Q 145  
\(^{97}\) Q 12  
\(^{98}\) Q 7  
\(^{99}\) EU Directive 2003/87/EC
Climate change and the Stern Review: the implications for Treasury policy

attempt to set new environmental targets, but rather allows for cheaper compliance with existing targets, by letting participants trade emission allowances so that the targets can be achieved at least cost.\textsuperscript{100} The 11,500 energy-intensive installations that are currently covered by the scheme account for close to half of all EU emissions. These installations include combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper.\textsuperscript{101}

58. The Minister confirmed that the EU ETS was the UK’s principal carbon pricing instrument, covering half of the UK’s emissions.\textsuperscript{102} In October 2006, the Government published its vision for the long-term future of international emissions trading, stating that it intended to develop the EU ETS as the basis of a global carbon market. The UK’s key proposals are:

- set a new Europe-wide emissions reduction target of 30 per cent by 2020 and then at least 60 per cent by 2050, providing greater long-term certainty for business;

- foster a deeper, more liquid market by considering expansion of the EU ETS to cover more sectors and gases;

- move towards more auctioning of allowances in future phases to ensure a more efficient allocation; and extend the scheme beyond Europe - first, by guaranteeing that credits from Clean Development Mechanism projects in developing countries will be valid for compliance in the EU ETS beyond 2012, which will enable not only financial flows but technology transfer to the world’s poorest countries; and second, by enabling similar schemes in other countries, such as those being developed in Japan, Australia, the North Eastern American states and California, to trade with the European scheme.\textsuperscript{103}

\textbf{Challenges for the EU ETS}

59. The Better Regulation Commission (BRC) commended the Stern Review’s analysis of the issues that needed to be dealt with by the EU ETS: namely, creating adequate scarcity of allowances to ensure a meaningful carbon price, ensuring that there was appropriate transparency and liquidity, and working towards the inclusion of all sectors. The BRC stated that the UK Government had considerable influence in Europe on these issues.\textsuperscript{104}

60. Simon Bullock from Friends of the Earth told us that the cap on emissions in Phase I was not sufficiently demanding to result in a carbon price that would offer economic incentives or induce any real behaviour change by emitters.\textsuperscript{105} Professor Ekins said that

\begin{flushleft}
\textsuperscript{100} EU website http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/84&format=HTML&aged=1&language=EN\&guiLanguage=en

\textsuperscript{101} The Carbon Trust website http://www.thecarbontrust.co.uk/carbontrust/climate_change/iocc4_2_2_1.html

\textsuperscript{102} Q 262

\textsuperscript{103} “Analysis paper on EU Emissions Trading Scheme Review options”, DEFRA, September 2007, p 3

\textsuperscript{104} Q 347

\textsuperscript{105} Q 348
\end{flushleft}
“easily the biggest problem with the European scheme is that governments are allocating too many emissions allowances.”\textsuperscript{106} He thought that the European Commission was “absolutely right to take a tough stand” on national allocation plans under Phase II.\textsuperscript{107} He also pointed out that, in relation to Phase II, of the 10 to 15 allocation plans that had been submitted by national governments, only the UK’s had been approved so far and nine had been rejected.

61. Sir Nicholas said that the EU was only in the first couple of years of the EU ETS and the lesson of giving away too many permits in the early stages had been learnt. Sir Nicholas added that the EU Commissioner for the Environment with responsibility for the EU ETS, Commissioner Stavros Dimas, had made a strong case in the second round of the national allocation plans for much more stringent allocations, and had taken “very much on board” the criticisms of the overgenerous Phase I permit allocation.\textsuperscript{108}

**Successes of the EU ETS**

62. The Environment Agency pointed out that the mechanism of the EU ETS itself works, and it had been demonstrated to work by the fact that the emissions permit price had been driven down to low levels, indicating that the market was finding the most cost-effective ways of delivering emissions reductions under the (albeit over-generous) cap.\textsuperscript{109} Kate Hampton argued that Phase I of the EU ETS (covering the period 2005–07) was a learning phase, and was entered into “before the EU had adequate data”, and she considered that it was therefore inevitable that there would be a price adjustment when the real data came out. She was optimistic that recent European Commission decisions over Phase II allocations (covering the period 2008–12) would provide a higher price for carbon, noting that emitters are already are investing in technology on the basis of a higher carbon price than before.\textsuperscript{110} Sir Nicholas agreed that we should see the early experiences of emission trading as a learning process:

> these are early days. I think we are learning quite quickly. I have been impressed by how rapidly that learning process has gone ahead given that [the EU ETS] has been going for only a couple of years\textsuperscript{111}

63. Phase I of the European Union Emission Trading Scheme was hamstrung by its initial over-allocation of emissions permits, resulting in a carbon price that was too low to have sufficient influence in changing its participants’ behaviour. The scheme has been successful in showing that the architecture of the trading system works, and provides a foundation from which to develop an effective scheme with a meaningful overall cap, but it is absolutely essential that Phase II features a more rigorous allocation of permits. We recommend that the UK Government work with the
Commission and other Member States to ensure that Phase II involves tough, but achievable, caps across Europe.

Moving to a global emissions trading scheme

64. One of the Government’s three key proposals relating to the EU ETS is that it should be developed in a way that enables “similar schemes in other countries to trade with the EU ETS and to guarantee that credits from Clean Development Mechanism projects in developing countries will be valid for compliance in EU ETS beyond 2012”.112 The Minister assured us that it was realistic for the Government to aim for worldwide carbon trading systems, although he admitted that achieving such systems would be tough. He saw the EU ETS as the cornerstone of international climate change architecture for the future:

- providing the capacity to set emissions’ limits;
- establishing a carbon price;
- encouraging the transfers in investments and technologies that needed to take place into countries like India and China; and
- linking trading schemes that are beginning to be established in other countries.113

65. Professor Ekins agreed that the EU ETS offered the “best hope of some kind of global accommodation with the carbon constraint”. He explained that there were already “straws in the wind”, suggesting how it might develop:

The EU scheme is already linked to the mechanisms of the Kyoto Protocol … and, if other countries and perhaps even individual American states such as California evolved their own robust emissions trading schemes … in principle there would be no reason why those permits should not become tradeable across borders as well.114

66. Simon Roberts was less optimistic that a truly global arrangement could be established soon, but emphasized that this did not mean that the UK should not act prior to such an arrangement being established:

What is important is that one starts to map out what the rules would be for an international system so one build that into it and joins together any more regional systems. One certainly does not need a global system to kick off, as the EU ETS shows.115

67. Whilst the EU moves ahead with Phase II of its Emissions Trading Scheme, we note that other countries and states are developing their own, different schemes. The existence of different schemes offers policymakers the chance to see what works and what does not, but there is a real danger that the international community will be

112 Pre-Budget Report 2007, p 117, para 7.17
113 Q 279
114 Q 11
115 Q 122
unable to join up this patchwork of schemes, if so desired, at a point in the future. Without establishing common principles between schemes, we are not confident that the Government’s ambition of connecting up the European Union Emission Trading Scheme with other schemes can be achieved. We recommend that the Government strengthen relationships with policymakers in other countries and other organisations beyond the EU to discuss the development of trading schemes.

Inclusion of airlines in the EU ETS

Introduction

68. Emissions from aviation are forecast to be the UK’s fastest growing source of greenhouse gas emissions, rising from 5% of UK emissions now, to potentially 25% by 2030. The European Commission plans to broaden the scope of the EU ETS to include civilian aviation emissions. The Minister explained that the Government’s aim was to see aviation included in the EU ETS as soon as possible. Sir Nicholas also regarded aviation’s inclusion as very important.

69. The general view amongst airline industry representatives was that, of all the economic tools available to curb emissions, the first choice would be a global emissions trading scheme, the second choice would be a regional trading system (although they pointed out that several problems would arise about whether to include non-European carriers flying to European airports), and the third choice would be a tax on emissions (which would be very costly to the industry). EasyJet said that aviation’s inclusion in the EU ETS would “incentivise airlines to operate much more efficiently; otherwise, they will be penalised”. It explained that this would not solely mean cleaner planes, but would also influence how those planes were used and how full each plane would be. The British Air Transport Association (BATA), the UK Aviation trade body, believed that the EU ETS was the right way forward, and stated that the UK industry was taking the lead in persuading airlines around the world to that effect.

70. Anthony Concil, the Communications Director of the International Air Transport Association (IATA) was quoted in November 2006 as saying “for Europe to act before a global agreement is putting the cart before the horse”. However, in evidence to us, IATA’s Director of Aviation Environment, Philippe Rochat, gave a cautious welcome to aviation’s inclusion in the EU ETS, whilst admitting that IATA continued to lobby in Brussels for changes to be made to “fit with aviation’s requirements”. IATA noted that a

117 Q 294
118 Q 165
119 Q 59
120 Q 31
121 “Airlines attack Europe’s plans to tackle flight emissions”, Financial Times, 16 November 2006
122 Q 480
123 Q 478
truly global aviation emissions trading scheme would take a long time to coordinate, bearing in mind how long it has taken for the EU States to forge an agreement, but its Chief Economist, Brian Pearce, was optimistic that, in tandem with the EU ETS, a patchwork of similar schemes was gradually gaining ground, and these could ultimately be linked up to a worldwide scheme.

**Problems with including aviation**

71. One of the difficulties faced by the EU ETS in seeking to include aviation will be creating a level playing field between European and non-European airlines. BATA told us that a European Commission working group had been grappling with issues such as deciding which flights should be included in the scope of the scheme, concluding that a two-stage process would be appropriate, whereby intra-Europe flights are included in 2011 and flights arriving in or departing from Europe in 2012. Virgin Atlantic accepted that there was opposition from non-European governments to the introduction of such a scheme, but added that the UK industry had done its best to persuade airlines around the world of the merits of this approach.

72. Philippe Rochat from IATA was convinced that emissions trading was “a far better tool than taxes and charges”. However, he stressed that for a scheme to work in the global aviation industry, it must be of a global nature, and not regional or national:

> We have always supported a global scheme through ICAO [International Civil Aviation Organization] according to what the Kyoto Protocol suggests for aviation and we regret to say that at the last ICAO assembly IATA insisted on the development of a global scheme for aviation and no one state supported that idea … We consider that aviation emissions are global; they take place all over the world. More than half of aviation emissions take place over the high seas where no state is entitled to impose emissions trading, so we think that only a global solution through ICAO will work. ICAO has the mandate to regulate air transport over the high seas in the international air space.

**Eco-labelling**

73. The aviation industry is not scheduled to enter the EU ETS until 2011 at the earliest. Friends of the Earth argued that, in the meantime, interim measures were urgently needed. Besides changes to the aviation taxation regime (see Chapter 5), we also considered the possibility of eco-labelling as a way of encouraging airlines and passengers to make environmentally-conscious decisions.
74. Flybe introduced an eco-labelling scheme for its aircraft in June 2007. The labels are modelled on those used in the sale of white goods and show a range of environmental indicators (such as fuel burn, carbon emissions, noise footprints and total environmental cost) for each aircraft. These labels are presented as part of the on-line ticket booking process, in onboard literature and in advertising.\(^{130}\) The aim of the Flybe scheme is to inform consumers about the environmental impact of their flights. British Airways (BA) acknowledged that it was important that airlines communicated more effectively with their customers about the environmental impact of flying.\(^{131}\) When pushed on why ideas such as the Flybe initiative has not led to a coordinated response from the airlines, Easyjet suggested that the industry had been inhibited in the past by its “competitiveness nature”, saying that their appearance before the Treasury Committee was “the first time we have appeared like this together”.\(^{132}\) Virgin Atlantic indicated that they were “coming up with proposals” on an eco-labelling scheme, although at present no such scheme was in place.\(^{133}\) IATA argued that it was promoting eco-labelling among its members, “but only a limited number of them are today receptive”.\(^{134}\)

75. Other airlines have environmental codes and programmes, and several publish data on emissions, efficiency and fuel consumption. However, typically this information is not readily accessible at the point of sale and is not easily comparable with other airlines’ environmental records. We suggested to IATA that they might get involved in promoting the kind of “eco-competition” made possible by the Flybe scheme. IATA assured us that they were in favour of competition, but thought that it was “up to the individual airlines to promote their environmental performance”.\(^{135}\) At an oral evidence session on 23 January 2007, Virgin Atlantic committed to writing to the Committee with plans of how the aviation industry would cooperate on new environmental initiatives.\(^{136}\) At the time of agreeing this Report, the Committee had not received any such letter.

76. The UK Government has signalled its desire to see aviation included in the European Union Emission Trading Scheme in 2011. If that aim is achieved, the Scheme should be able to ensure that the aviation industry will be offered real incentives to improve the efficiency of its fleet of aircraft, develop cleaner technology and continue to grow in an environmentally-sustainable way.

77. We are concerned that, in the interval before aviation’s inclusion in the European Union Emission Trading Scheme, the aviation industry appears to be dragging its feet in cooperating on environmental schemes. We see the airlines’ failure to write to the Committee, as promised, with details of how the industry would cooperate in future, as symptomatic of this approach. Instead of cooperation, a hotchpotch of company-

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131 Q 83
132 Q 85
133 Q 88
134 Q 457
135 Q 453
136 Q 90
specific initiatives are developing, with a huge variety of responses from different airlines, preventing consumers from comparing the environmental performance of one airline with another. One information improvement to the market for passenger flights would be an industry-wide system of eco-labelling, where each flight’s environmental impact would be independently rated and then publicised to customers at the point of purchase. We urge the Government, the airlines and aviation’s representative bodies to work together to devise and introduce such a scheme at the earliest opportunity.
5 Environmental taxes

The rationale for environmental taxation

78. Where individual polluters fail to take full account of the impact of their actions on the environment, the result may be a level of pollution that society as a whole considers inappropriate. Taxes offer one potential solution: by using taxation to augment the private costs of pollution, polluters can be forced to confront the full social costs of their actions. A report by the Institute of Fiscal Studies highlighted some of the advantages and disadvantages of taxation compared with regulatory approaches:

Taxes and economic instruments may have particular benefits over using regulatory approaches to environmental problems, in particular to do with static efficiency (minimising the costs of achieving a particular level of pollution reduction), dynamic efficiency (providing incentives for ongoing abatement) and revenue-raising. However, there are also possible drawbacks to environmental taxes—in particular, the uncertainty they can create in terms of the final level of emissions. There is a trade-off between meeting a guaranteed target at uncertain total cost using a regulatory approach and meeting an uncertain target at least cost using environmental taxation.\textsuperscript{137}

Problems with environmental taxes

79. One of the biggest problems with environmental taxes is identifying the rate at which to charge the tax. This difficulty is especially relevant with climate change, because the environmental costs of carbon emissions are complex and uncertain, and in some situations, there may even be benefits from climate change. The Institute of Directors told us that:

It is not obvious what level of taxation to impose. Global warming would have costs, but it would also bring benefits, for example because fewer resources would need to be spent on heating or because some areas would become more suitable for habitation. The ideal tax to deal with an externality is one that equals the cost of that externality. If the cost is unknown, the tax level cannot be set reliably.\textsuperscript{138}

This means that any tax set by government would run the risk of significantly under- or over-estimating the cost of carbon, which could undermine the credibility of the tax by sending out an inaccurate price signal. The manufacturers’ association EEF pointed out another problem—that the cost of carbon will vary over time as technology evolves, the concentration of greenhouse gases in the atmosphere changes and understanding of climate change improves. EEF stated therefore that “a carbon price established through taxation would lack the necessary flexibility to respond quickly enough to changing

\textsuperscript{137} The UK Tax System and the Environment Institute for Fiscal Studies, November 2006
\textsuperscript{138} Ev 76
circumstances”, because it would only be likely to be reviewed annually as part of the Budget process.\textsuperscript{139}

80. There are several problems with the application of environmental taxes to real-world scenarios, not least determining the level at which the tax should be set in the first place, and designing a system that is flexible enough to cope with changing circumstances. In the case of climate change, these problems are magnified because the costs (and benefits, if any) of current emissions are uncertain, and will be felt over extremely long time horizons. The Government must take great care in designing environmental taxes, but nevertheless we are firmly of the view that environmental taxes are a useful and valuable tool to combat carbon emissions.

The Government’s Statement of Intent on Environmental Taxation

The Statement

81. The Government has formally stated its broad objectives for environmental taxation twice in the last ten years: first in 1997, then in 2002. In July 1997, the Government issued its Statement of Intent on Environmental Taxation. This set out the Government’s broad policy objectives in relation to environmental taxation:

How and what governments tax sends clear signals about the economic activities they believe should be encouraged or discouraged, and the values they wish to entrench in society. Just as work should be encouraged through the tax system, environmental pollution should be discouraged … But environmental taxation must meet the tests of good taxation. It must be well designed to meet objectives without undesirable side-effects; it must keep deadweight compliance costs to a minimum; distributional impact must be acceptable; and care must be had to implications for international competitiveness.\textsuperscript{140}

In 2002, the then Chancellor of the Exchequer reaffirmed the Government’s commitment to this approach and outlined some examples of Government action taken towards achieving this objective:

Well-designed environmental taxes and other economic instruments can play an important role in ensuring that prices reflect environmental cost—in line with the “polluter pays” principle—and discouraging behaviour that damages the environment. The climate change and aggregates levies, for example, have sent strong environmental signals. Environmental taxes can also be an efficient mechanism for improving the productivity of natural resources, in line with the wider productivity improvements the Government is seeking to make across the economy.\textsuperscript{141}

\textsuperscript{139} Ev 117
\textsuperscript{140} “Statement of Intent on environmental taxation”, HM Treasury, 2 July 1997
\textsuperscript{141} “Tax and the environment: using economic instruments”, H M Treasury, November 2002
82. The Centre for Sustainable Energy (CSE) expressed some reservations about the Government’s Statement of Intent. The CSE saw “a number of inherent dangers” in shifting from taxing ‘goods’ (such as employment) to taxing ‘bads’ (such as carbon emissions). The CSE feared that Government might become so reliant on the revenue raised from taxing ‘bads’ that it would lose impetus for reducing their occurrence because every reduction in emissions would mean a reduction in revenue. The second danger was that the Government might set the tax level on the basis of the amount of revenue it wished to raise “rather than on any reasoned consideration of the external cost it is trying to internalise or any careful assessment of the tax level required to achieve the intended environmental improvement.” In such circumstances, they argued, the purpose of the tax becomes “muddled” and the level difficult to justify on the very environmental grounds upon which it was introduced. CSE also told us that carbon taxes were highly regressive. They argued that “the role best played by fiscal instruments is to demonstrate government approval (and disapproval) for low (and high) carbon goods and services”. However, Professor Ekins described the 1997 Statement of Intent as a “very innovative document and one which, had it been followed through, would have been something of an international first”.

Defining environmental taxes

83. In assessing the Government’s progress against its Statement of Intent on Environmental Taxation, it is important to establish a clear definition of precisely which taxes are environmental, and which taxes are not. Unfortunately, evidence received by us suggests that there is no such clear distinction. Sir Nicholas explained that classifying a tax as “environmental” was not straightforward, because of the existence of several arguments associated with any tax. Indeed, the Treasury and Office of National Statistics use different definitions.

84. The Treasury employs a relatively narrow definition of “environmental taxes”, using the term to refer to only the climate change levy, the aggregates levy and landfill tax. By contrast, the ONS uses a much broader definition, which includes energy taxes and taxes on transport, such as Air Passenger Duty and Vehicle Excise Duty. The Treasury definition is based on the aims behind the introduction of a particular tax, whereas the ONS definition looks more to the effects of a particular tax. The Minister confirmed to us that the Treasury definition was “much more focused” than the ONS one:

Where we are devising taxes for specific environmental policy ends or gains, and, in terms of policy development, if we are concerned with environmental gain then clearly it makes sense to make your policy instrument (in this case, tax) as sharply focused as possible. That is why I would argue that the climate change levy or the

142 See later section on social impact of environmental taxation
143 Ev 144
144 Q 1
145 Q 177
aggregates levy are environmental taxes with specifically an environmental policy purpose in mind and not simply [taxes with] potential environmental impacts which may be associated with their operation—which would be true of fuel duty or air passenger duty.\textsuperscript{147}

85. Professor Ekins agreed that there was an important distinction between taxes designed purely in order to change behaviour and taxes designed to raise revenue:

In environmental taxes it is important to distinguish those which are purely designed to change behaviour, and indeed at the limit might change it to such an extent that they generated no revenues at all. One might think of the plastic bags tax in Ireland in that context. The use of plastic bags has, I understand, fallen by over 90\%. Therefore, that tax is not raising a very great deal of revenue. One distinguishes those taxes from other taxes such as those on fuel where there is certainly a demand effect. People use less fuel than they would otherwise use, but certainly demand does not drop like a stone and it remains an enduring revenue base. Energy is certainly the clearest example of that, but there are others. One can imagine, for example, that however high the aggregates tax one would still want to use some aggregates and the revenues that one gets from such a tax are the price times quantity. If one raised the price, unless the quantity fell by an equivalent amount—in other words, the elasticity is one, but most elasticities are less than one—one would increase the revenue, even if demand fell somewhat.\textsuperscript{148}

86. Sir Nicholas told us that “an important part of taxes, for example on petrol, should be seen as environmental taxes. If one looks at the reasons for taxing petrol, they are: the environment, a partial substitute for congestion and a means of raising revenue as any other tax is. I think that there is an important environmental tax associated with petrol.”\textsuperscript{149} Professor Ekins considered that the Treasury definition was too narrow:

The evolved international consensus as expressed by bodies such as the Organisation for Economic Co-operation and Development, which has done an enormous amount of work on environmental taxes and has in a sense standardised what we mean by those taxes and how they should be thought of … is very much in line with the definition of the Office for National Statistics. That seems to me to be the definition that makes most sense.\textsuperscript{150}

87. The different definitions of environmental taxes used by the Treasury and the Office of National Statistics are a source of confusion. We prefer the Office of National Statistics definition, which, in line with that of the Organisation for Economic Co-operation and Development, is based on examining the effects of a particular tax, to the Treasury’s definition, which examines the intent of a particular tax. The most important measure of the success of an environmental tax is the change in behaviour it

\textsuperscript{147} Q 290
\textsuperscript{148} Q 18
\textsuperscript{149} Q 160
\textsuperscript{150} Q 13
achieves, so it would seem appropriate that the Treasury definition should capture all taxes that have a significant impact on behaviour. We therefore recommend that the Treasury bring its definition of environmental taxation in line with that of the Office of National Statistics.

**Progress against the Statement**

88. According to the Office of National Statistics (ONS), the proportion of total tax revenue collected from environmental taxes has fallen over the period since the *Statement of Intent on Environmental Taxation*. Based on the ONS definition, environmental taxation revenue as a percentage of Gross Domestic Product (GDP) showed a trend of small increases between 1993 and 1999. Since 1999, however, this trend has reversed. In 2006, the receipts from environmental taxation fell to 2.7% of GDP compared with 3.6% in 1999. Environmental taxation accounted for 9.7% of total tax revenue in 1997, but this proportion has since fallen to 7.3% in 2006.\(^{151}\) These findings are based on the definition used by the ONS (which is broader than the Treasury’s definition).

89. As the ONS notes, the interpretation and use of measures of environmental taxes need care. A fall in environmental tax revenues as a proportion of total tax revenues could result either from falling rates of environmental tax or from the tax successfully changing behaviour, so diminishing environmental problems (e.g. carbon emissions), leading to a shrinking tax base.\(^ {152}\)

90. The Minister said that the falling share of environmental tax revenues in total tax revenues did not indicate that the Government was drifting away from its environmental objectives. He told us that the proportion of total tax earned from environmental taxes was a “misleading and imperfect measure”\(^ {153}\) because the most important output of environmental tools was the extent to which behaviour changed:

> The ultimate test of effectiveness of tax in the green territory is not the overall tax revenue take from what are classified as green taxes but surely it is the behaviour changes and the environmental gains that come as a result of the tax policies that are introduced for those ends. For instance, surely the test of the climate change levy is less the £760 million a year that it raises and more the 28 million tonnes of carbon it has saved since it has been introduced, which is more than a quarter of our Kyoto effort. Surely the test of the aggregates levy, another environmental tax that we introduced, is less the £300 million a year that it raises and more the fact that the volume of recycled aggregate stone now is 8 million tonnes a year higher and the amount that is being drawn out of the ground for the first time is 8% less despite the fact that construction during that period has been very buoyant.\(^ {154}\)

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153 Q 321
154 Q 257
91. Professor Ekins was aware of the Treasury’s argument that the proportion of total tax earned from environmental taxation was a bad indicator because of the difficulty in identifying the extent to which behaviour had changed. He accepted that this might be true for some environmental taxes but not in the UK’s case, because the entire fall in the proportion of tax was caused by the abandonment of the fuel duty escalator in 1999 and the failure to uprate fuel duty in line with inflation:

What has driven that indicator over the past five or six years is not the fact that people’s behaviour is changing to such an extent that revenue is falling but the fact that the tax rate has been lowered in real terms and that is why one gets less revenue. [The Minister’s] argument in that particular instance is not the case. One cannot put that forward as a reason why the tax shift does not appear to have taken place.155

Similarly, the Institute of Fiscal Studies concluded that the trend of environmental tax revenue falling as a proportion of total tax revenue was “almost entirely driven by the decision to abandon the annual fuel duty escalator”. According to the ONS, fuel duty accounts for two thirds of total environmental tax revenue, so it is perhaps not surprising that changes to the fuel duty regime would have the most significant impact on environmental tax receipts as a whole:

Duty on hydrocarbon oils such as petrol and diesel accounted for 66.3 per cent of total environmental taxation in 2006. This is a share that has remained broadly unchanged since 2000. Between 2005 and 2006 hydrocarbon revenues increased from 82.8 per cent to 83.0 per cent of total energy taxes. This share was up from 76.8 per cent in 1993.156

92. Several witnesses were of the view that the Government’s commitment to environmental taxation had faltered since the publication of its Statement of Intent. Professor Ekins told us that the Government’s commitment had been vigorous at first, but had since lost impetus:

For the first few years the Government seemed to pursue that agenda quite vigorously, but a combination of events, of which probably the most important was the fuel duty protests in 2000, caused them to lose political heart. Obviously, it was not helped in that what seemed to have been cross-party consensus on that particular tax, namely the fuel duty escalator, broke down at that time … Since then the real tax on fuel has fallen. If one looks at the share of environmental tax in taxation generally one sees that it peaked in about 1999 and since then has declined quite substantially.157

93. Friends of the Earth argued that the Government was “extremely timid, even when—as now—there is increasing public acceptance that climate change must be tackled”.158
Natural England and the Energy Saving Trust (EST) also believed that the Government had made only limited progress against its *Statement of Intent*.\(^{159}\) Natural England commented that:

> There appears to be a growing sense of timidity on environmental tax matters despite their well documented efficiency advantages over alternative approaches. As a result, progress has been limited in recent years over potential new environmental tax instruments to deliver improved environmental outcomes. Equally, there is a sense that existing environmental taxes are not being used to their full potential. For example, rates of fuel duty have been frozen over recent years to compensate for increasing petrol prices, which has contributed to the underlying trend of declining real cost of motoring. In addition, the 2006 Pre-Budget Report announced a revalorisation of the Climate Change Levy for the first time since its introduction almost 5 years ago. In real terms, the tax rates have fallen.\(^ {160}\)

### Conclusions

94. The Government set worthy objectives in its 1997 *Statement of Intent on Environmental Taxation*, and reiterated its commitment to them in 2002. Since then, the Government has introduced specific environmental taxes in certain areas, notably the Climate Change Levy and Aggregates Levy. Whilst we welcome the advent of these taxes with clearly-stated environmental purposes, they are relatively insignificant in financial terms, and in terms of changing behaviour, when compared with the major fuel and energy taxes.

95. We acknowledge the Minister’s argument that behaviour change achieved is a valid measure of an environmental tax’s effectiveness, but do not believe that it is the only relevant measure. The ratio of environmental tax to total tax can be a useful measure, particularly when it can be determined that the reason for changes in the ratio are predicated on falling real tax rates rather than a shrinking tax base.

96. Using the ONS definition of environmental taxation, it is clear that the ratio of environmental tax to total tax has been falling in recent years. In our view, the principal reason for this ratio diminishing is falling real tax rates (particularly on fuel), rather than the tax base shrinking as a result of changing behaviour. The fall in the ratio of environmental tax to total tax, using the Office of National Statistics measure, is disappointing, and shows that the Government has failed to maintain its commitment to the 1997 *Statement of Intent*. We recommend that the Government reverse this reduction in commitment and, in response to this Report, indicate the measures it will deploy to reflect that renewed commitment.
Hypothecation of tax revenues

97. Hypothecation is the earmarking of certain tax revenues for specific areas of public expenditure. Advocates of tax hypothecation argue that by linking revenue from a specific tax to a related area of expenditure that tax might become more palatable to the population being taxed. The Government has experimented with a certain degree of tax hypothecation in the environmental field. Some revenue from the Climate Change Levy is used to support the Carbon Trust, and some revenue from the Aggregates Levy is put towards the Aggregates Sustainability Fund. The Minister told us that

There is clearly a more general case for devoting revenues that may be raised from environmental taxes, if one likes, taxes generally on ‘bads’, on pollution and damaging activity, to offset some other revenue sources that may be ‘goods’, so, for instance, when the Climate Change Levy was introduced, rather than taking that entire revenue into the Consolidated Fund we cut the national insurance contributions for employers by 0.3 percentage point. We did cut it by 0.1 percentage point when we introduced the Aggregates Levy, but it is well established that some taxes that are clearly classed as environmental taxes also help to raise revenue for essential government spending and services, including on the environment and transport. That has been the case, for instance, with the fuel duty virtually since it was introduced in 1928.\(^\text{161}\)

98. Professor Ekins did not believe that hypothecation was desirable:

Governments need revenue and in general it makes sense to raise that revenue from taxing bads rather than goods. In some cases it may be that where there is a case for public expenditure it can make the tax more palatable and politically acceptable to link a particular tax with a particular form of spending, but if that principle became widely established in government all sorts of desirable public expenditure would not find suitable sources of money to finance it. I think that a much better approach is to say that government has a certain revenue requirement and to get it from activities that cause social harm is in general better … than getting it from other sources. Indeed, that was broadly what the Statement of Intent on Environmental Taxation in 1997 said.\(^\text{162}\)

99. We have considered the desirability of an extension of hypothecation in relation to environmental taxes, but do not think that such an approach would be appropriate. Setting taxes is one decision facing a government; spending this revenue is another, separate decision. Any widespread linking of environmental tax receipts to environmental expenditure would become complex, and create a risk of certain worthwhile expenditure failing to find a source of funding, if that expenditure were to lack an obviously related revenue source.
The social impact of environmental taxation

100. An important aspect of our consideration of environmental taxation involved the social impact of such taxes. Some environmental taxes are regressive, being charged against commodities that consume a more significant share of income for the poor than the rich, for example vehicle fuel and heating fuel. The Centre for sustainable Energy argued that a carbon tax was “a highly regressive means to raise funds from the citizenry”. Environmental tax policies need to be carefully designed to avoid unintended distributional consequences.

101. Professor Ekins’ research had modelled the distributional impacts of introducing carbon taxes compared with an individual carbon trading scheme. That research found that carbon taxes were highly regressive, and remained more regressive than individual carbon trading, even if a tax system managed to optimise the recycling of revenues through the welfare system to compensate those on lower incomes. In contrast, Professor Ekins found that a hypothetical individual carbon trading scheme based on an equal per capita allocation of allowances would be fiscally progressive without any compensatory schemes because, in general, the poor emit less carbon dioxide than the rich. The rich would therefore need to buy allowances from the poor if they wished to sustain their more carbon-intensive lifestyles.

102. Sir Nicholas explained that there would inevitably be some “distributional consequences” from environmental taxes, but the same consideration would apply to “any use of a price mechanism wherever one looked, whether it be bananas, externalities, climate change or congestion”. He argued that it was wrong to look at taxes idiosyncratically:

That is why one looks at transfer schemes, pensions and the progressivity or otherwise of every tax. One has to see taxes in their entirety to make judgments about progressivity or not. I do not believe that it is right as an analytical and policy point to pick them off one by one.

103. The Minister indicated that the abandonment of the fuel duty escalator in 1999 was at least partly influenced by the need to balance environmental goals with the potential for undesirable economic impacts. In this specific case, the Treasury had to consider the economic and social consequences for poorer households of increasing duty on top of already rising fuel prices:

I think it would have been a mistake to have an automatic escalator that jacked [fuel duty] up still further. It would have caused problems for the motorist and indeed economic consequences for British business. I use that simply as an illustration of how judgments on tax have to be able to weigh some of the environmental ambitions

163 Ev 141
164 The distributional impacts of economic instruments to limit greenhouse gas emissions from transport, and Economic Instruments for a socially neutral national home energy efficiency programme, Policy Studies Institute, 2004.
165 Cited in Ev 143 CSE
166 Q 180
that are there with the economic consequences, and indeed the social consequences too, because in some cases some taxes will hit poorer people and poorer households harder.\textsuperscript{167}

104. One potential solution to the danger of an environmental tax having unwelcome social impacts could be to compensate those poor households which are adversely affected by the tax through a redistribution scheme. Professor Ekins argued that designing such an effective scheme that compensated every poor household was unrealistic, because of the very high range of energy use within income groups, but he thought that a scheme could be designed that would compensate 80\% of very low income households, “some of whom would be considerably better off than under the status quo”.\textsuperscript{168} This redistribution could occur, he argued, via the existing social welfare mechanisms. A political decision would then have to be made as to whether the deleterious impact of the proposed environmental tax on the 20\% of highly energy-intensive low-income households should be allowed to “thwart” the policy as a whole both on environmental and social grounds. Professor Ekins added that any social impacts could be lessened as a result of various energy efficiency policies that the Government was developing. Low income households did not need to use as much energy as before in order to keep warm, “because the energy efficient commitment and Warm Front policies are very substantially improving the thermal quality of households, especially low income households, on whom these schemes tend to be targeted”.\textsuperscript{169}

\section*{Aviation taxation}

\subsection*{Introduction}

105. The European Commission has stated that the aviation sector’s contribution to global climate change is increasing. While the European Union’s total greenhouse gas emissions fell by 3\% from 1990 to 2002, emissions from international aviation increased by almost 70\%. According to the Commission, a significant improvement in aircraft technology and operational efficiency “has not been enough to neutralise the effect of increased traffic, and the growth in emissions is likely to continue in the decades to come”.\textsuperscript{170} Friends of the Earth agreed:

\begin{quote}
Aviation emissions have risen heavily in recent decades, continue to rise, and are predicted to rise way into the future … This is because demand growth for flights heavily outstrips technological improvements to plane efficiency. Demand growth is in turn heavily influenced by flying falling in price.\textsuperscript{171}
\end{quote}

106. Virgin Atlantic admitted that “no objective observer would dispute that the projected growth of the airline industry will have a significant impact on the environment”, but they

\begin{table}
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167 & Q 322 \\
168 & Q 20 \\
169 & Q 21 \\
170 & European Commission website http://ec.europa.eu/environment/climat/aviation_en.htm \\
171 & Ev 136 \\
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argued that no-one should “ignore the critical importance of aviation in sustaining UK and global economic growth … and enabling people to extend their horizons by undertaking airline travel.”

Flybe argued that it was:

far more effective to reduce the emissions of aircraft [through technological investment, for example] than to seek to put an end to low cost air travel, which … has transformed the industry and brought new opportunities for the UK’s regions … It has brought jobs and investment, and transformed an elitist pursuit into an activity accessible for all social classes. Now is not the time to restrict growth and impose new taxation, but to make sure that future growth is sustainable.

107. IATA believed that the benefits to the wider economy made possible by air travel could justify the industry receiving favourable treatment from the tax system, for the following reason:

I think there is also the impression that air transport is all about cheap holidays. Actually, 35% of people travelling from the UK are on business. It is less than 30% who are travelling on holiday according to the CAA surveys. Air transport plays a critical role in linking British businesses with global markets. It provides a lot of benefits to the economy that go beyond the price that passengers pay. That in my mind is the principal reason.

The Minister told us that it was “surely right that aviation at least covers the environmental cost that its activities impose”.

**Air Passenger Duty**

108. A theoretically attractive aviation tax might tax aviation fuel, much the same way as road fuel is taxed. However, as the Minister pointed out, as a result of international law, the Government was unable to consider duties of any type on the use of fuel in international aviation. The airlines also pointed out that if one country were to act alone in imposing a tax on aviation fuel, airlines would be given an incentive to indulge in “tankering” (planes carrying heavier fuel loads from lower-tax States to avoid paying tax in higher-tax States), and this could therefore result in higher emissions. Instead of a tax on aviation fuel, the Government collects Air Passenger Duty (APD) on each journey made by individual passengers. APD was introduced in 1994 at £5 per passenger per flight, and is now £10 for flights within Europe and £40 for flights elsewhere (£20 and £80 respectively for business or first class).
Is APD an environmental tax?

109. The Minister told us that, when APD was first introduced in 1994, its policy purpose was:

in part, to raise revenue and that remains part of the case for the air passenger duty and its operation. It is a blunt instrument as far as the environment goes. It is not the best policy instrument to try to deal with the environmental impacts of aviation, which is why our priority is to get aviation within the European Union trading scheme. It is not even the best tax instrument to deal with the effects of aviation. But ... the air passenger duty is available. It does have an environmental impact—although in narrow terms it is not specifically a tax that is designed for environmental ends—and clearly the decisions we take on levels of air passenger duty include a consideration about whether or not there is an environmental gain in altering the rate.178

110. The Minister said that APD would have some environmental impact, in that the doubling of APD in the 2006 Pre-Budget Report was forecast to reduce demand by “perhaps five million passengers out of 140 million a year ... by 2010”. He equated this reduction to an environmental gain from that of between 0.2 and 0.5 million tons of carbon a year by 2010.179 Sir Nicholas agreed that some element of APD was an environmental tax, because it would have some impact on behaviours through increasing the price of flights.180 The Minister’s statement that APD does have an environmental impact appears to be at odds with the Government’s response to the Environmental Audit Committee’s Report on Pre-Budget 2005: Tax, Economic Analysis and Climate Change, which stated that “APD does not incentivise improved environmental performance”.181 EasyJet explained how a passenger travelling in economy class from London to Auckland generated more than 15 times the emissions of a passenger travelling from London to Marrakech, yet would be charged the same rate of APD.182 Virgin Atlantic argued that because APD bears “almost no relation to the actual emissions generated by a given flight, and is based on a fixed rate per passenger carried, it does not offer any incentive to operate more efficiently or invest in new technologies”.183 Flybe regarded APD as “an anomaly that serves no purpose other than a revenue raising mechanism for HM Treasury”.184

111. EasyJet argued that any form of environmental taxation had “the potential to reduce the capital available to the airline industry for investment in more environmentally efficient technology and is therefore poor policy”.185 As we have already noted, some in the

178 Q 291
179 Q 292
180 Qq 162–163
182 Ev 86
183 Ev 106
184 Ev 123
185 Ev 85
aviation industry argued that taxation would be more expensive than emissions trading, for
the same environmental impact.

**Changes to the APD regime prior to aviation’s inclusion in the EU ETS**

112. In the 2007 Pre-Budget Report, the Chancellor announced that the Treasury would be
consulting on a successor to the APD regime. The Government’s proposals are that APD
would be replaced by a ‘per plane duty’ (PPD), an idea that we considered during our
inquiry. Such a tax would offer an increased incentive to airlines to fill their planes to
capacity and could also encompass freight flights, which do not incur APD charges. BATA
said that such a tax would be a

small step towards something much more sophisticated like emissions trading.
 Although it perhaps would capture a different range of aircraft [to include freight
planes, for example] it still does not create an incentive for airlines to invest in better
technology. It is really moving around the deckchairs.

113. Freight planes are currently exempt from APD. Virgin Atlantic told us that “with
freighters, as a generalisation, operating older, less fuel-efficient aircraft and more polluting
aircraft, this would appear to be underline the unsuitability of APD as a green tax seeking
to address the environmental impact of aviation”. The Government’s consultation seeks
responses to the question of whether freight planes ought to be included in the new Per
Plane Duty scheme, although the Chancellor of the Exchequer has already announced that
they will be. BATA suggested that a further step towards an emissions trading scheme
would be an aircraft departure tax with differential charges according to the carbon
emissions of the particular aircraft.

114. Several airlines expressed concern that once aviation become included within the EU
ETS scheme, they would still be liable to pay an aviation tax of some kind. In Flybe’s view,
this would mean aviation paying twice for its emissions:

It is unacceptable to increase the level of APD on the basis that it will cover the
external cost of aviation, and then introduce emissions trading with the same
objective. Britain’s airlines face being forced to pay twice for the external cost of
emissions if APD continues when ETS is introduced. ETS is a more efficient option
to achieve this objective and it must replace APD, not be added as a further cost.

British Airways expected that once aviation was included within the EU ETS, APD as an
environmental tax would be eliminated.

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186 2007 Pre-Budget Report and Comprehensive Spending Review, HM Treasury, p 113
187 Q74
188 Ev 106
190 Q 75
191 Ev 123
192 Ev 157
Conclusions

115. When the European Union Emission Trading System (EU ETS) is extended to include aviation, that scheme could be a suitable framework for ensuring that airlines pay the environmental costs of their emissions, at least in Europe. Until that point, however, the Government must ensure that an effective tax structure is in place to ensure that aviation at least covers the cost of its environmental damage. As the Minister told us, Aviation Passenger Duty (APD) is far from ideal, and it offers neither sufficient incentive for airlines to invest in cleaner technologies, nor empowers passengers to take action themselves. APD does not distinguish full flights from half-empty ones, nor does it distinguish between a flight to Morocco and a flight to Australia. We are pleased that the Government is now considering a Per Plane Duty, but strongly regret that it has taken till now to introduce a replacement for APD. We urge the Government to ensure that Per Plane Duty includes cargo flights and private planes, and that it will offer clear incentives for the industry to invest in cleaner fleets, through providing tax differentials for cleaner technologies.

116. The necessity of ensuring aviation pays the full cost of its environmental impact will not cease upon its inclusion in the EU ETS in 2011. We recommend that the Government, in its response to this Report, clarify whether aviation will continue to pay Per Plane Duty (or another form of aviation tax) once aviation is included in the EU ETS.
6 Adaptation

Adaptation in the United Kingdom

117. The Stern Review concluded that even if mankind were able to reverse the growth in global emissions of greenhouse gases, adaptation would still be required to counter the negative impacts caused by time lags in global and local ecosystems. The Environment Agency echoed this conclusion, arguing that “no one disputes that we need to get to grips both domestically and internationally with emissions, but adaptation is also important because, irrespective of what we do, because of the inertia in the system, we are going to see the impacts of climate change over the next 25 years”.193 Professor Ekins pointed out that even if the UK succeeded in achieving a cut in emissions of 60% from current levels, there “will be considerable climate change and we will need to adapt”. By way of example, he pointed to the direct physical effects for the UK:

such as increased flooding and increased cost of home insurance against that risk, if we decide to do it through the private market. I do not think that the public will have a great deal of choice about that. We are already increasing the cost of flood defences against these kinds of events. That is money to be spent by taxpayers which obviously cannot be spent on something else.194

Sir Nicholas explained that, in future, it was likely that the south of England would have much wetter winters and dryer summers. He mentioned a couple of likely pressure points where adaptation would be required: Storm surges up the Thames were likely to be much more severe, which would put a great deal of pressure on the London sewerage system; heat stress in summer was likely to increase, with implications for the London Tube.195

118. The Association of British Insurers (ABI) acknowledged that the Government had shown “considerable international leadership on mitigation issues” and had set out significant plans to address energy use and emissions in the 2006 Pre-Budget Report and its planned legislative programme”.196 However, the ABI believed that Government had so far failed to tackle adequately the social and economic impacts of escalating climate risks: “policy statements consistently fail to address these issues despite the clear warnings set out in the Stern Review”.197

Coordination of adaptation efforts across government

119. The Government has made a commitment to a coordinated approach on adaptation in Public Service Agreement 27:
As a complement to our mitigation efforts, the UK will develop a robust approach to domestic adaptation to climate change, shared across government, and encourage adaptation to climate change internationally.  

120. DEFRA is “leading on the development of a cross-Government Adaptation Policy Framework to be published in the spring [2008]. The Framework aims to provide a consistent approach to building adaptation into policies, and a coherent way to identify cross-cutting risks and opportunities and to assist in prioritisation of action across Government.” The Minister also pointed out that Government spending was only part of the picture:

> What the Government decides it needs to spend is only a part of the picture. Part of what DEFRA does that is important is to support the UK Climate Impacts Programme. This is an independent body which publishes analysis about the potential impact of climate change, the likely requirements for adaptation. It is there doing an important job in trying to help us understand the implications more clearly—and when I say us, not just government: it is there for the public and, importantly, it is there for business as well.

121. The Environment Agency argued that the Government was indeed already collecting information about adaptation efforts across Government. In 2005 the Government published an adaptation strategy, and since then had been gathering information on adaptation measures at a local and national level, with the intention of making that information available through the web. However, making the public aware of adaptation spending, though it may be important, will not necessarily lead to changing behaviour: the Environment Agency mentioned the example of flood risk, where awareness is high amongst floodplain-dwellers, without this awareness necessarily translating into action that enables people to be prepared for a flood.

122. The Stern Review outlines a need for climate-proofing measures that will cost 0.05-0.5% of GDP each year. At present, it is very difficult to make an estimate of the amount currently spent by the Government on such adaptation, let alone by UK businesses and individuals. We recommend that the Treasury track and publish spending on adaptation in order to raise public awareness of the impact of climate change and enable enhanced scrutiny of Government’s progress under PSA 27.
Government expenditure on flood defence

123. The Environment Agency described flood risk management as “probably the most important element of a UK climate change adaptation strategy”. The Stern Review stated that flood damage costs the country 0.1% of GDP and that this could rise to 0.2 to 0.4% if global temperatures rise by 3 to 4°C and no adaptation measures are taken. The Environment Agency believed that 2.3 million of the 25 million homes in England and Wales were in flood risk areas, which equated to land and assets worth £237 billion. The Environment Agency cited research by the University of Dundee, which calculated that the median cost of rectifying flood damage for an average household would be around £28,000. Of the 2.3 million homes currently at risk, 517,000 are at high risk (that is, a greater than 1 in 75 chance of flooding in a given year) and this number has been rising.

124. The UK has unusual flood risk management arrangements, which the Environment Agency described to us:

The UK is pretty unique in that the insurance industry underwrites the cost of flood damage; and the voluntary agreement that they have with government is enshrined in a statement of principle, and the key component part of that is that the insurance industry is prepared to continue with insurance provided that the Government put in adequate investment.

The implication of this arrangement is that, if the insurance industry considers that the Government is providing inadequate funding, the industry might cease to underwrite flood damage. As the Environment Agency put it:

If you have inadequate investment and you get more frequent storm events, more damage, then obviously the insurance industry will make business decisions on the cost of insurance. In the insurance industry at the moment there is a fair degree of cohesion through the Association of British Insurers, but as [flood] risk increases there is more risk of individual companies ploughing their own furrow.

The ABI stressed that flood insurance would be offered in the private market only if there was adequate public risk management:

We also need to look well ahead in planning flood defences. Britain is one of the few countries where flood insurance is widely available from the private market. Insurers want this to continue, but it is dependent on adequate risk management. Some 570,000 homes are now at high flood risk, compared with the estimate of 220,000 when current flood defence spending levels were set in 2002.
Expenditure by the Environment Agency on flood risk management increased from £303 million in 2001–02 to £483 million in 2006–07 (including the local levy), an increase in real terms of 40%. The Minister added that “specifically on planning and coastal defences, in 2002 DEFRA was spending £394 million; in 2005 it was £564 million.” The ABI argued that Government expenditure on flood defence peaked in 2004 and was now falling in real terms, stating that the Government cut the Environment Agency’s flood management budget by £15 million in 2006–07. Commenting on the flood management budget, the Minister said that “clearly, as we would expect and as I think Parliament would expect, DEFRA are managing within the department the financial pressures they have and that is their job to do that”. Dr David King from The Environment Agency argued that the UK had the right policy frameworks in place, but nevertheless questioned the level of investment from the Government:

I think we have got the right policy frameworks in place and the areas of principal vulnerability are around flood risk and, indeed, on water resources. If I take flood risk firstly, the policy frameworks set up by Government in Making Space For Water is a good one and the basket of activities that the Agency deploy to reduce risk are about raising awareness, about warning, about building and retaining defences and are the right activities, but there is a question about the level of investment.

In 2004, the Office of Science and Technology’s Foresight programme published a report which identified that the UK could be facing flood losses of up to £27 billion per year by the 2080s if necessary adaptation measures were not taken. The Environment Agency argued that, in the context of the then-forthcoming 2007 Comprehensive Spending Review, the case for increasing resources to reduce flood risk was compelling. They predicted that their flood defence budget for 2007–08 would be “in the order of £440 million,” and that “any reduction or erosion of that would lead to increased flood risk and we would expect to see an upward trajectory in funding in line with the Foresight Study and the next Spending Review”. The ABI echoed this view. The Environment Agency argued that there was “certainly a need to continue with the level of [existing] investment and, indeed, to grow that level of investment”. Dr David King from the Environment Agency said:

The Foresight Study had two principal points: one that risk will increase and, secondly, there is a need for increasing investment up to the level of about £1 billion.
per year if you are to keep annual damage at the order of two billion pounds. So, I think it is really a question about increasing levels of investment for flood risk management, and certainly we would like to see that in the next Spending Review. If you look at capital rationing, if you look at construction price inflation and if you look at need, we estimate that an additional £150-£200 million extra in the next Spending Review period is required.

127. The Environment Agency pointed out that current investment in flood defence was extremely cost-effective to the economy as a whole:

At the moment the cut off is a benefit of six to one for the economy. That means that a lot of projects which only have a benefit of four to one or five to one do not get built at the moment because we are capital constrained. Also the internal rate of return on that investment is 27%, compared to smaller numbers for road and rail investment, so it is very cost-effective for the economy. If that investment was not made, then the economy would pick up those costs through higher insurance costs in the long run; so it is not money that is wasted, it is money that will be cost-effective in any case, and the risks will increase over the next 20 to 30 years.

128. In the 2007 Comprehensive Spending Review, the Government announced an increase on expenditure on flood and coastal erosion risk management from £600 million in 2007–08 to £800 million in 2010–11. Alongside this, the Government also pledged to introduce an adaptation toolkit of £10 million per year, to “assist communities in adapting to change where constructing defences is not the most appropriate means of managing flood and coastal erosion risk”. In response to the Comprehensive Spending Review, the ABI argued that the increased level of funding was inadequate and that “millions of homeowners and businesses around the country have been let down by the Government’s failure to commit sufficient money to new and improved flood defences”.

In all of the preparation leading up to the CSR and the submissions that the ABI made … there was a repeated reference to the need for £750 million per annum for flood defences by the year 2011. The CSR delivers £800 million per annum in the final year of the CSR. I do not believe it is right to say after the CSR that the commitment that we have given is not enough because we have more than met the ABI’s request.

129. Investment in flood defences is extremely cost-effective, if targeted carefully. The announcement of additional funding in the 2007 Comprehensive Spending Review is

219 Q 367
220 Ibid
221 2007 Pre-Budget & Comprehensive Spending Review, p 123, para 7.58
therefore welcome. We also believe that effective flood risk planning involves long-term investment, so requires long-term financing and advance warning of the funding that will be provided. We therefore recommend that the Government make a public commitment to the level of flood defence spending beyond 2010–11 in advance of the next spending review.

Adaptation in developing countries

130. Sir Nicholas stressed the particular importance of adaptation for developing countries, because they would be hit “hardest and earliest”224. The Stern Review commented that:

Adaptation to climate change—that is, taking steps to build resilience and minimise costs—is essential. It is no longer possible to prevent the climate change that will take place over the next two to three decades, but it is still possible to protect our societies and economies from its impacts to some extent—for example, by providing better information, improved planning and more climate-resilient crops and infrastructure. Adaptation will cost tens of billions of dollars a year in developing countries alone, and will put still further pressure on already scarce resources.225

131. Referring to his meetings with African leaders, Sir Nicholas said that “for them adaptation is a very big issue. They have already seen desertification and conflicts in Darfur, floods in Mozambique in 2000 and the droughts in Kenya in the late 1990s. For them adaptation is a reality; they have to face it and we should do all we can to support them”.226 Sir Nicholas told us that an increase of around 5°C in average global temperatures would transform how and where people lived. That kind of temperature increase “would very likely involve substantial movements of population and potential conflicts”. He commented that one of the drivers behind the Darfur crisis was the movement of pastoralists (because of changing climate) and the difficulties they encountered when encroaching on the land of agriculturists.227

132. Farhana Yamin of the University of Sussex agreed that the threat posed to the UK by climate change “paled into insignificance” when considered against the threat to the developing world:

We [in the UK] have a huge amount of infrastructure, human resources, financial resources and knowledge … to be able to deal with these eventualities and, in general, developing countries, especially the poorest countries, are far more vulnerable to the actual threats of climate change itself and have the least ability to respond. For example, the budget that has just been mentioned in terms of £440 million [for UK flood defence spending] is large compared with Africa where there is a very vast need to improve the weather forecasting systems on the ground.228

224 Q 143
225 Stern Review, page vii
226 Q 144
227 Q 130
228 Q 364
133. Ms Yamin saw encouraging signs that, over the last two years, the development agencies and international financial institutions had begun to take climate change considerations into account and were providing assistance to developing countries where adaptation to climate change was needed. Nevertheless, she was of the opinion that the adaptation funding shortfall was conspicuous even by the standards of other development areas:

In terms of the amount of resources, there is always never enough, but on adaptation it is very significantly disproportionate to the amount that is actually needed. The World Bank calculated last year in the Gleneagles Process something like $9 billion to $41 billion was needed on an annual basis. It is very difficult to track the amount of funding going to adaptation due to the diversity of funds, but in terms of the dedicated climate change funds that we have at the moment, we have about $230 million pledged to date to devote to adaptation activities. Amongst roughly 140 countries this is not very much even to take them forward on the process of the planning side.229

134. According to Ms Yamin, the most pressing concerns facing the developing world included improving their understanding of what would happen to climate risk sectors such as agriculture, fisheries and tourism, because, although they were improving, the current climate change models were too coarse to be of use when designing adaptation policies.230 This view was echoed by Kate Hampton from Climate Change Capital, who highlighted the lack of adequate climate modelling information in the developing world.231 The Government confirmed in October 2007 that it was “actively exploring how to support more effective adaptation [in developing countries], including through better risk management tools, technology and finance.”232 In December 2007, the Government announced a new research study, working alongside the Netherlands and the World Bank, that would help developing countries understand and prepare for the impacts of climate change.233

135. In Chapter 2 we noted the Government’s work in assisting rapidly developing countries, such as China and India, move to low-carbon economies, but the impact of climate change will hit some of the least-developed countries hardest. We recommend that, in response to this Report, the Treasury outlines its policy towards assisting the least-developed countries with their climate change adaptation needs, and the extent and nature of work that has been carried out so far in respect of this policy. We further recommend that, in order to highlight the importance of such assistance, the Treasury specify and ring-fence that part of the Department for International Development’s budget which is given to funding overseas climate change adaptation.

229 Q 386
230 Ibid
231 Q 126
232 Moving to a global low carbon economy: implementing the Stern Review, H M Treasury, October 2007, page 3,
233 “UK announces new study on climate change adaptation at Bali
Conclusions and recommendations

1. We welcome the Stern Review as an impressive document that contributes much to public discussion of climate change. Sir Nicholas Stern deserves credit for bringing into stark relief the problem of risk and uncertainty concerning potentially ruinous environmental catastrophes. We also support Sir Nicholas’ attempts to frame the climate change debate in terms of economic choices, which should serve to assist policymakers in taking the difficult decisions necessary to combat climate change. (Paragraph 12)

2. The Stern Review is a serious contribution to the climate change literature. Although Lord Lawson was concerned that Sir Nicholas was insufficiently independent of Government, we believe that the Review has to be judged by the quality of its evidence and the arguments it puts forward, rather than the issue of its authorship. (Paragraph 21)

3. The choice of discount rate used in the Stern Review is critical to its strong policy conclusions, because that choice is an important factor in the calculation of the costs (as valued today) arising from future climate change. We regret that there was not greater discussion of discount rates in the original Stern Review, including explanation and potential justification of alternative rates. We welcome the eventual publication of discount rate sensitivity tables in the Stern Review’s Postscript, but note that the attention that these alternative rates received was substantially lower than might have been the case if acknowledgement of, and arguments for, other discount rates had been provided in the original Review. (Paragraph 31)

4. Lord Lawson’s argument that adaptation was cheaper, easier and more flexible than attempting to mitigate emissions has its attractions. However, as Sir Nicholas Stern pointed out in his Review and in evidence to us, relying on monitoring and adaptation alone could prove to be too little, too late. The fact that adaptation will be required in the short to medium term, regardless of mitigation efforts, does not absolve the UK from its responsibility to reduce its carbon emissions. We support Sir Nicholas’ recommendation that the Government pursue a twin-track approach: working to reduce emissions to a sustainable level, while at the same time committing sufficient resources to the monitoring of climate trends and adaptation, both in the UK and abroad. (Paragraph 36)

5. Climate change requires a wide range of responses from departments across Government. The effective coordination of these efforts, and the presentation of a consistent, clear strategy by all departments will be vital if the UK is to show the way in combating climate change, setting a good example for other countries, as well as to individuals. To this end, we welcome the establishment of the Office of Climate Change (OCC). However, we think it is important that there should be a Government minister directly accountable for the cross-governmental work of the OCC, most likely within the Cabinet Office, in order to create an effective champion for climate change issues across Government. (Paragraph 40)

6. We welcome the suggestions made by the Better Regulation Commission towards ensuring cohesion in climate change regulations, including the proposed ‘seven...
tests’. We are pleased to note that the Government has accepted the recommendations of the Better Regulation Commission and has pledged to monitor the overall regulatory burden imposed under the climate change banner. (Paragraph 43)

7. A variety of policies and tools will be necessary to counter climate change emissions and public policy cannot afford to rely solely on emissions trading schemes, or environmental tax, or regulation. In general, however, we are persuaded that use of a price mechanism, rather than regulation, is an extremely effective way to change people’s behaviour and, as much as is possible, the Government should give primary consideration to the use of economic tools in combating climate change. (Paragraph 47)

8. Phase I of the European Union Emission Trading Scheme was hamstrung by its initial over-allocation of emissions permits, resulting in a carbon price that was too low to have sufficient influence in changing its participants’ behaviour. The scheme has been successful in showing that the architecture of the trading system works, and provides a foundation from which to develop an effective scheme with a meaningful overall cap, but it is absolutely essential that Phase II features a more rigorous allocation of permits. We recommend that the UK Government work with the Commission and other Member States to ensure that Phase II involves tough, but achievable, caps across Europe. (Paragraph 63)

9. Whilst the EU moves ahead with Phase II of its Emissions Trading Scheme, we note that other countries and states are developing their own, different schemes. The existence of different schemes offers policymakers the chance to see what works and what does not, but there is a real danger that the international community will be unable to join up this patchwork of schemes, if so desired, at a point in the future. Without establishing common principles between schemes, we are not confident that the Government’s ambition of connecting up the European Union Emission Trading Scheme with other schemes can be achieved. We recommend that the Government strengthen relationships with policymakers in other countries and other organisations beyond the EU to discuss the development of trading schemes. (Paragraph 67)

10. The UK Government has signalled its desire to see aviation included in the European Union Emission Trading Scheme in 2011. If that aim is achieved, the Scheme should be able to ensure that the aviation industry will be offered real incentives to improve the efficiency of its fleet of aircraft, develop cleaner technology and continue to grow in an environmentally-sustainable way. (Paragraph 76)

11. We are concerned that, in the interval before aviation’s inclusion in the European Union Emission Trading Scheme, the aviation industry appears to be dragging its feet in cooperating on environmental schemes. We see the airlines’ failure to write to the Committee, as promised, with details of how the industry would cooperate in future, as symptomatic of this approach. Instead of cooperation, a hotchpotch of company-specific initiatives are developing, with a huge variety of responses from different airlines, preventing consumers from comparing the environmental performance of one airline with another. One information improvement to the market for passenger flights would be an industry-wide system of eco-labelling,
where each flight’s environmental impact would be independently rated and then publicised to customers at the point of purchase. We urge the Government, the airlines and aviation’s representative bodies to work together to devise and introduce such a scheme at the earliest opportunity. (Paragraph 77)

12. There are several problems with the application of environmental taxes to real-world scenarios, not least determining the level at which the tax should be set in the first place, and designing a system that is flexible enough to cope with changing circumstances. In the case of climate change, these problems are magnified because the costs (and benefits, if any) of current emissions are uncertain, and will be felt over extremely long time horizons. The Government must take great care in designing environmental taxes, but nevertheless we are firmly of the view that environmental taxes are a useful and valuable tool to combat carbon emissions. (Paragraph 80)

13. The different definitions of environmental taxes used by the Treasury and the Office of National Statistics are a source of confusion. We prefer the Office of National Statistics definition, which, in line with that of the Organisation for Economic Co-operation and Development, is based on examining the effects of a particular tax, to the Treasury’s definition, which examines the intent of a particular tax. The most important measure of the success of an environmental tax is the change in behaviour it achieves, so it would seem appropriate that the Treasury definition should capture all taxes that have a significant impact on behaviour. We therefore recommend that the Treasury bring its definition of environmental taxation in line with that of the Office of National Statistics. (Paragraph 87)

14. Using the ONS definition of environmental taxation, it is clear that the ratio of environmental tax to total tax has been falling in recent years. In our view, the principal reason for this ratio diminishing is falling real tax rates (particularly on fuel), rather than the tax base shrinking as a result of changing behaviour. The fall in the ratio of environmental tax to total tax, using the Office of National Statistics measure, is disappointing, and shows that the Government has failed to maintain its commitment to the 1997 Statement of Intent. We recommend that the Government reverse this reduction in commitment and, in response to this Report, indicate the measures it will deploy to reflect that renewed commitment. (Paragraph 96)

15. We have considered the desirability of an extension of hypothecation in relation to environmental taxes, but do not think that such an approach would be appropriate. Setting taxes is one decision facing a government; spending this revenue is another, separate decision. Any widespread linking of environmental tax receipts to environmental expenditure would become complex, and create a risk of certain worthwhile expenditure failing to find a source of funding, if that expenditure were to lack an obviously related revenue source. (Paragraph 99)

16. When the European Union Emission Trading System (EU ETS) is extended to include aviation, that scheme could be a suitable framework for ensuring that airlines pay the environmental costs of their emissions, at least in Europe. Until that point, however, the Government must ensure that an effective tax structure is in place to ensure that aviation at least covers the cost of its environmental damage. As the Minister told us, Aviation Passenger Duty (APD) is far from ideal, and it offers
neither sufficient incentive for airlines to invest in cleaner technologies, nor empowers passengers to take action themselves. APD does not distinguish full flights from half-empty ones, nor does it distinguish between a flight to Morocco and a flight to Australia. We are pleased that the Government is now considering a Per Plane Duty, but strongly regret that it has taken till now to introduce a replacement for APD. We urge the Government to ensure that Per Plane Duty includes cargo flights and private planes, and that it will offer clear incentives for the industry to invest in cleaner fleets, through providing tax differentials for cleaner technologies. (Paragraph 115)

17. The necessity of ensuring aviation pays the full cost of its environmental impact will not cease upon its inclusion in the EU ETS in 2011. We recommend that the Government, in its response to this Report, clarify whether aviation will continue to pay Per Plane Duty (or another form of aviation tax) once aviation is included in the EU ETS. (Paragraph 116)

18. The Stern Review outlines a need for climate-proofing measures that will cost 0.05-0.5% of GDP each year. At present, it is very difficult to make an estimate of the amount currently spent by the Government on such adaptation, let alone by UK businesses and individuals. We recommend that the Treasury track and publish spending on adaptation in order to raise public awareness of the impact of climate change and enable enhanced scrutiny of Government’s progress under PSA 27. (Paragraph 122)

19. Investment in flood defences is extremely cost-effective, if targeted carefully. The announcement of additional funding in the 2007 Comprehensive Spending Review is therefore welcome. We also believe that effective flood risk planning involves long-term investment, so requires long-term financing and advance warning of the funding that will be provided. We therefore recommend that the Government make a public commitment to the level of flood defence spending beyond 2010–11 in advance of the next spending review. (Paragraph 129)

20. In Chapter 2 we noted the Government’s work in assisting rapidly developing countries, such as China and India, move to low-carbon economies, but the impact of climate change will hit some of the least-developed countries hardest. We recommend that, in response to this Report, the Treasury outlines its policy towards assisting the least-developed countries with their climate change adaptation needs, and the extent and nature of work that has been carried out so far in respect of this policy. We further recommend that, in order to highlight the importance of such assistance, the Treasury specify and ring-fence that part of the Department for International Development’s budget which is given to funding overseas climate change adaptation. (Paragraph 135)
Climate change and the Stern Review: the implications for Treasury policy

Formal Minutes

Tuesday 15 January 2008

Members present:

John McFall, in the Chair

Mr Graham Brady  Mr Andrew Love
Mr Colin Breed  Mr George Mudie
Mr Philip Dunne  Mr Siôn Simon
Mr Michael Fallon  John Thurso
Ms Sally Keeble  Peter Viggers

Climate change and the Stern Review: the implications for Treasury policy

Draft Report (Climate change and the Stern Review: the implications for Treasury policy), proposed by the Chairman, brought up and read.

Ordered, That the Chairman’s draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 35 read and agreed to.

Paragraph 36 read, amended and agreed to.

Paragraphs 37 to 98 read and agreed to.

Paragraph 99 read, amended and agreed to.

Paragraphs 100 to 111 read and agreed to.

Paragraph 112 read, amended and agreed to.

Paragraphs 113 to 114 read and agreed to

Paragraph 115 read, amended and agreed to.

Paragraphs 116 to 121 read and agreed to.

Paragraph 122 read, amended and agreed to.

Paragraphs 123 to 128 read and agreed to.

Paragraph 129 read, amended and agreed to.

Paragraphs 130 to 134 read and agreed to.

Paragraph 135 read, amended and agreed to.

Summary agreed to.
Resolved, That the Report be the Fourth Report of the Committee to the House.

Ordered, That the Chairman make the Report to the House.

Written evidence was ordered to be reported to the House for printing with the Report.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

[Adjourned till Tuesday 22 January at 9.30 am]
Witnesses

Tuesday 23 January 2007

Professor Paul Ekins, Head of Environment Group, Policy Studies Institute (Ev 1)

Mr Roger Wiltshire, Secretary General, British Air Transport Association, Mr Andy Kershaw, Senior Manager for Environmental Affairs, Mr Andrew Barker, Planning Director, easyJet, and Mr Barry Humphreys, Director of External Affairs & Route Development, Virgin Atlantic Airways (Ev 7)

Ms Kate Hampton, Policy Manager (Advisory), Climate Change Capital, and Mr Simon Roberts, Chief Executive, Centre for Sustainable Energy (Ev 16)

Tuesday 6 February 2007

Sir Nicholas Stern, Head of the Government Economic Service, and Ms Lorraine Hamid, member of the Stern review team (Ev 22)

Rt Hon Lord Lawson of Blaby, a member of the House of Lords, and former Chancellor of the Exchequer (Ev 32)

Wednesday 7 February 2007

John Healey MP, Financial Secretary to the Treasury, Ms Beth Russell, Head of Environment and Transport Tax team, and Ms Rebecca Lawrence, Head of Environment, Food and Rural Affairs Team, HM Treasury (Ev 41)

Tuesday 27 February 2007

Mr Rick Haythornthwaite, Chairman, Better Regulation Commission, and Mr Simon Bullock, Economy Campaigner, Friends of the Earth (Ev 54)

Mr David King, Director of Water Management, Mr Chris Hewett, Policy Development Manager, Environment Agency, and Ms Farhana Yamin, Institute of Development Studies, University of Sussex (Ev 59)

Captain Eivind S Vagslid, Technical Officer, Sub-Division for Pollution Prevention, Marine Environment Division, International Maritime Organisation, Mr Mark Brownrigg, Director General, Dr Mel Davies, Director of Development, BMT Ltd, and Mr Stuart Greenfield, Head of Marine & Safety, Carnival UK, Chairman of the Chamber of Shipping Environment Committee, Chamber of Shipping (Ev 65)

Mr Phillippe Rochat, Director, Aviation Environment, International Air Transport Association, and Mr Brian Pearce, Chief Economist, International Air Transport Association (Ev 70)
List of written evidence

1. Institute of Directors
2. Hambleside Danelae Ltd
3. Energy Saving Trust
4. easyJet Airline Company Ltd
5. Forum for Stable Currencies
6. Commission for Integrated Transport
7. Joint Nature Conservation Committee
8. D1 Oils plc
9. Virgin Atlantic Airways
10. Virgin Atlantic Airways, supplementary memorandum
11. PricewaterhouseCoopers LLP
12. Micropower Council
13. CPRE
14. EEF
15. Royal Society for the Protection of Birds
16. Association of British Insurers
17. Flybe
18. Feasta, Foundation for the Economics of Sustainability
19. Beacon dodsworth
20. Natural England
21. Friends of the Earth England, Wales and Northern Ireland
22. Centre for Sustainable Energy
23. British Air Transport Association
24. Dr Andrew Wrigley, Cambridge Zero Carbon Society
25. Freight Transport Association
26. EDF Energy
27. British Airways plc
28. City Remembrance Office
29. Environment Agency
30. Zoom Airlines
31. Chamber of Shipping
32. International Maritime Organisation
33. Heathrow association for the control of aircraft noise
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Oral evidence

Taken before the Treasury Committee

on Tuesday 23 January 2007

Members present:

John McFall, in the Chair

Mr Colin Breed
Mr Andrew Love
Kerry McCarthy
Mr George Mudie

Mr John Thurso
Mr Mark Todd
Peter Viggers

Witness: Professor Paul Ekins, Head of Environment Group, Policy Studies Institute, gave evidence.

Q1 Chairman: Professor Ekins, welcome to the Committee. Thank you for taking the time to come and give evidence to us in the first part of our inquiry into climate change and the Stern Review. To start off with a general question, what are your views on the Stern Review? How far has it taken the debate forward? Given that in July 1997 the Government announced their intention to reform the tax system to increase incentives to reduce environmental damage and shift the burden from good to bad, as they called it, what more could they do to make the fullest possible use of taxation instruments as a mechanism to achieve their environmental targets?

Professor Ekins: Chairman, it is a pleasure to be here and thank you for asking me to come. I think that the Stern Review took matters forward a very great deal, especially in a political sense. Those of us who know the economics literature will probably be aware that most of the arguments rehearsed in the Stern Review have been out there for some time. Some of the novelty of the Stern Review was in his choice of emphasis. He focused first very much on the science of climate change, which does not always happen when economists look at that subject. He then focused in the first two chapters very much on the equity and social justice issues, which again does not always happen. Yet in my view that is the correct way to start because these are very important public social as well as economic issues and it is important to get them on the table. He then worked through the economics in quite a lot of detail. There has been a fair bit of controversy about how he arrived at his overall damage costs, in particular with the use of a discount rate that some perceived to be too small, and he justified that use. There will continue to be debate about the right value of such things. I think that his broad conclusion, which is that the damages from climate change if allowed to proceed unabated will greatly exceed the costs of doing something about it and reducing the level of emissions and therefore the degree of climate change in future, was absolutely right. I think that his argument that there is a strong economic case for serious and determined abatement of emissions internationally is the right one. Broadly, I am in agreement with that. On the subject of the tax shift, in this country since 1997 the proportion of taxes and GDP that comes from environmental matters has fallen which, on the face of it, implies that there has not been a very great movement. Again, I believe that that statistic gives the right impression of the situation. In my view, what happened was that the Government started with very good intentions. The statement of intent on environmental taxation was, though short, a very innovative document and one which, had it been followed thought through, would have been something of an international first. For the first few years the Government seemed to pursue that agenda quite vigorously, but a combination of events, of which probably the most important was the fuel duty protests in 2000, caused them to lose political heart. Obviously, it was not helped in that what seemed to have been cross-party consensus on that particular tax, namely the fuel duty escalator, broke down at that time. As you know, that had been introduced by the Conservatives in 1993. Both parties had broadly backed it until 1999 when the Conservatives changed their policy and it made it very difficult in the face of the fuel duty protests for the Government to hold their nerve. Since then the real tax on fuel has fallen. If one looks at the share of environmental tax in taxation generally one sees that it peaked in about 1999 and since then has declined quite substantially.

Q2 Kerry McCarthy: You say that you broadly agree with Stern’s conclusions. Do you agree with his view that there is about a 1% GDP cost to stabilise greenhouse gases as against the 5% to 10% potential loss in global GDP if climate change is allowed to continue?

Professor Ekins: You probably know that a number like that is derived from fairly complicated—one would say sophisticated—economic modelling. There is enormous uncertainty about the way economic models are constructed, the theoretical bases on which they are founded and the relationships that they are posited to have. There are very different economic models which come up with different results. The Stern Review quoted what is called a meta-analysis of all of these studies to show that there is a wide range of estimates of GDP impacts from reducing emissions by 20%, 60% or 70%. Most of those estimates fall within about 0.5%
to 2% of GDP. If one had to pick a single number that seemed to be representative of those modelling results 1% would be a reasonable choice. Obviously, those economists who are responsible for and believe in the models that have come up with higher estimates will say that that is too low. I have looked at the models and the kinds of modelling of these sorts of issues that I favour suggest to me that 1% is about right. On that basis, I agree that that is a reasonable estimate.

**Q3 Kerry McCarthy:** When one is looking on a global basis at these estimated costs and losses, how easy is it to move from that to doing cost benefit analyses for the UK in terms of bringing in new environmental taxes here?  

**Professor Ekins:** Any kind of cost benefit analysis of an issue of this kind is fraught with difficulty, and I for one am very glad that Stern did not really attempt it. For a country like the UK, the first question one has to ask is: to what extent is this global action and to what extent is it action purely in the UK? If it is the latter obviously global emissions and the damage costs from climate change will fall rather little and the cost to the UK through the effects of competitiveness if the policies are not implemented particularly well could be quite substantial. But if one assumes that there is an international framework in place, that all countries reduce their emissions so that the effects of competitiveness across countries are not pronounced and one looks at the damage costs that Stern projects, particularly the significant risks of catastrophic costs—the single biggest change in the science over the past 10 years since I have been looking at the issue is the way in which scientists now perceive catastrophic costs to be much more possible in the reasonably short term—then it is possible to conclude, as Stern did, that the overall cost of mitigation is much less than the risk of very high damage costs and that the cost benefit analysis, if one could carry it out—Stern did not—would mean a significant return from carbon abatement.

**Q4 Mr Love:** If I may carry on logically from what you have just been saying, you said that Stern had estimated a 20% to 60% reduction, but that leaves considerable ambiguity about the cost of adaptation. Do you believe that in this country there is a supportive environment in government and other circles to recognise the costs of adaptation in future?  

**Professor Ekins:** I think that Stern’s perception about the degree to which we need to reduce emissions is much closer to the 60% than 20%. I was quoting that the studies had looked at reductions of between 20% and 60% and come up with different ranges of mitigation costs. Even at 60% emission reductions globally, or at least in developed countries, there will be considerable climate change and we will need to adapt. These adaptation costs are likely to be very different in kind and the public will perceive them very differently. Some of the effects will be direct physical ones on the UK, such as increased flooding and increased cost of home insurance against that risk, if we decide to do it through the private market. I do not think that the public will have a great deal of choice about that. We are already increasing the cost of flood defences against these kinds of events. That is money to be spent by taxpayers which obviously cannot be spent on something else. There will be other much more difficult kinds of costs if there are very wide international effects from climate change. If, for example, some of the low-lying deltas of the world with very large numbers of poor people living in them were to become uninhabitable those people would have to go somewhere else to live. Countries like the UK might be asked to take very large numbers of migrants from something like climate change. I can imagine that that in a sense is not a financial cost because they may be very hard working and in due course add to GDP, but we know that that would be a difficult political issue. In a sense there would be a perception of cost, and for the people displaced from their homes it would be a very real cost that would be very difficult to value in financial terms.

**Q5 Mr Love:** You rightly highlight the fact that climate change will probably have much greater impact in the third world than it would in either Europe or the United States. Just looking at the United Kingdom, there is already controversy. The insurance companies are saying regularly to government that they are not putting enough aside for flood protection and therefore they will not insure; or they are not doing enough on coastal erosion. Would there be a benefit to the Government in trying to bring together all the current expenditure to show the public just how much is being spent but, projecting into the future, how much is likely to be needed to be spent on some of the things that you have just been talking about?  

**Professor Ekins:** Given the problem of climate change and public perception, the fact that it is a very long-term issue which is well outside most people’s daily thoughts—indeed, the worst effects will not be felt by us but by our children and grandchildren—and that there are lots of other things which have claims on people’s attention, anything that can make these costs real to people, given that they are real costs, is of very great benefit. One of the reasons that the public and people generally are not convinced about climate change is that they do not see it as an immediate issue that is a result of some part of their actions which will impose costs on them and their children in future.

**Q6 Mr Love:** An increase in what the Government term environmental taxes has been criticised because the money raised is not used either on mitigation or adaptation. Should we treat environmental taxes in a different way from the ordinary taxation system to highlight just what we are doing in terms of both mitigation and adaptation?  

**Professor Ekins:** In general, I do not believe that is desirable. A much stronger argument is to say that governments need revenue and in general it makes sense to raise that revenue from taxing goods rather
than goods. In some cases it may be that where there is a case for public expenditure it can make the tax more palatable and politically acceptable to link a particular tax with a particular form of spending, but if that principle became widely established in government all sorts of desirable public expenditure would not find suitable sources of money to finance it. I think that a much better approach is to say that government has a certain revenue requirement and to get it from activities that cause social harm is in general better with other considerations than getting it from other sources. Indeed, that was broadly what the statement of intent on environmental taxation in 1997 said.

Q7 John Thurso: Both Stern and the Government as well as many sectors of industry regard carbon emission trading schemes as the best way forward to tackle climate change. Do you regard these systems as the best way forward, or do you think it is just a way of looking good and kicking it into the long grass?

Professor Ekins: As with practically every policy of which I am aware, its goodness depends almost entirely on the detail. There are lots of theoretical arguments—indeed, the Stern Review rehearses a good number of them—about the relative benefits of tax and trading in particular and regulation in other circumstances, but what one sees is that the schemes introduced because of the political pressures of getting any kind of policy brought in at all often bear very little relation to the textbook expositions of these taxes and trading. In principle, as I understand what the Stern Review said—this is broadly what emerges from the academic literature—with a problem like climate change one wants a long-term stabilisation target in terms of emissions, because it is in the long term that they build up in the atmosphere and cause climate change and therefore one wants to put a cap on it. Therefore, in the long term an emissions trading scheme would seem to be an effective way to do that, but in the short term because of the relative shapes of the marginal abatement and damage costs one probably wants to make use of a price mechanism, i.e. an environmental tax, or in this case ideally a carbon tax. Therefore, one would have a carbon tax adjusted in order to deliver a long-term quantity of emissions trading.

Q8 John Thurso: In other words, you would almost certainly need both?

Professor Ekins: Indeed. It would be desirable to think in terms of both. Whether one would need both would depend on the extent to which one found that the policy was effective given all sorts of imperfections operating in the various markets. For me it is a matter of great regret that the proposal of the European Commission in the early 1990s to introduce an EU-wide carbon tax did not capture support at that time. That would have established the principle of a tax early on in the climate change issue. We would have what people knew was a carbon price which did not go up and down with the short-term vagaries of the permit market, as it does at the moment. You are probably aware that as we speak the carbon price is at its lowest level ever, so the people who made investments on the basis of some carbon price even six months ago would be rather disappointed by the performance of those investments. Had we had that kind of price mechanism in place we could have decided then whether as well we needed an emissions trading scheme in order to give some kind of long-term surety about the overall quantities which would be emitted.

Q9 John Thurso: I want to ask you about the carbon emission scheme in a moment. First, we have received suggestions that carbon trading schemes may be more effective if they are based on the individual; in other words, if individuals have a personal carbon account. They would have either their own carbon allocations which they would sell to business when they did not use it or their own account so that they would purchase carbon every time they took a flight or used something that used energy, or whatever. What do you think of those schemes as a way forward, and what would be the difficulties for government?

Professor Ekins: I think that the main difficulty is the very considerable difference between the theoretical attraction of such a scheme and its practical implications. If we had a general population that understood what carbon was and was prepared for a system that used carbon as money in its purchases, and if there was an evolving market which allowed individuals easily to make those kinds of transactions so that businesses could get access to the carbon emissions they needed to go about their daily business—we may evolve those institutions and general level of information and awareness—I think that personal carbon trading might have something to commend it. But I believe that we have a long way to go before we get there. Businesses are now much more aware of the issue of carbon trading than they used to be thanks to the EU emissions trading scheme, and I think that is a very good start. Were one to proceed down the route of personal carbon allowances it would be desirable to keep businesses and individuals distinct for the time being so that businesses continued to trade among themselves. Personal carbon allowances would cover the personal use of fossil fuels and perhaps transport and aviation while the business trading schemes continued to be developed. Doubtless you will be aware that the Government have a proposal to introduce a trading scheme for large commercial organisations alongside the EU emissions trading scheme. It seems to me right that bit by bit we gain experience in these rather complicated businesses which effectively create new money, which is what carbon trading represents.

Q10 John Thurso: For a carbon trading scheme to work there must be a robust market which means that the market must be sufficiently liquid and regulated so it is real and we are not buying and selling carbon that is not there. It also needs a real price. You have already alluded to the drop in price
which has rather undermined what is sought to be achieved. Do you think that the EU trading scheme offers these criteria?

Professor Ekins: I think that for the 40% to 50% of carbon emissions that are within the scheme it could offer those criteria, and it almost entirely depends on the quantity of emission allowances that are permitted to go into the scheme. I believe that the European Commission is absolutely right to take a tough stand, insofar as it is doing so—it is taking a tougher stand than it might otherwise have taken—on the second phase of the national allocation plans submitted, because as submitted there is a very great danger that those plans would not support a robust carbon price and encourage people to make low carbon investments. Indeed, they might encourage people to go on thinking that they could make high carbon investments which would not prove to be a liability in future. As the whole purpose of that scheme looking to the future is to incentivise low carbon investments so we are in a much better position to reduce emissions in the long term, that seems to me to be the key issue. Of the 10 to 15 allocation plans that have been submitted, only one has been passed so far and nine have been rejected. My numbers may not be bang up to date, but it is of that order. I think the Government deserve some credit that it is the UK’s scheme which has been passed by the Commission. I think that we have an obligation to argue that other countries should be judged by the Commission to be doing as much to reduce their emissions as they have judged us to be doing.

Q11 John Thurso: The Treasury hopes eventually to move to a global emissions trading scheme. Given your comments on some of the problems within the European scheme, would that not be a rather difficult thing to foresee in the medium term?

Professor Ekins: Clearly, it will take time. I think that it easily offers the best hope of some kind of global accommodation with the carbon constraint, and therefore I very much hope that governments everywhere that are convinced of the problems of climate change will pursue it. There are already straws in the wind that suggest how it might develop. The EU scheme is already linked to the mechanisms of the Kyoto protocol that are generating carbon credits. It is obviously very important that the mechanisms for generating carbon credits are robust, and it is probable that those evolved for the clean development mechanism and joint implementation are as robust as they could be. If other countries and perhaps even individual American states such as California evolved their own robust emissions trading schemes that delivered emission reductions in principle there would be no reason why those permits should not become tradable across borders as well. There are all sorts of institutional issues to be resolved, not least what is to be done if states effectively have a kind of money that is internationally tradable but different from that of the federal government as a whole. Those are issues that will still need to be resolved.

Q12 John Thurso: As you have said, effectively one is creating a kind of currency, or tradable commodity, which is very difficult to quantify in real terms. Therefore, is there not a huge opportunity for fraud?

Professor Ekins: There certainly is an opportunity for fraud, and a very great deal of effort has been invested in the kind of monitoring and verification mechanisms both in this country and in Europe and to some extent elsewhere in order to try to ensure that that does not happen. In principle, it is quite easy to calculate how much carbon is released when one burns a certain quantity of fossil fuel because it is known how much carbon is in it and all of it will go into the atmosphere. The difficulty arises when one starts to allocate allowances on the basis of estimated base lines. What would have happened if one had not done certain things? The “what would have happened”—the counter-factual—is always an uncertainty and people have vested interests in arguing that base lines are different from what they would have been. That debate that has dogged the whole issue of how one might take into account reductions in deforestation. Mechanisms to deal with these issues have been evolved and I believe that in the European context they are reasonably robust. Easily, the biggest problem with the European scheme is that governments are allocating too many emissions allowances rather than monitoring and verification.

Q13 Peter Viggers: The Treasury has quite a narrow definition of “environmental taxes” and refers to the climate change levy, the aggregates levy and landfill tax, whereas the Office for National Statistics uses a much broader definition of “environmental taxes” which includes energy taxes and taxes on road vehicles. The Treasury explains this by saying that it is concentrating on the aims behind the introduction of the taxes, whereas the Office for National Statistics is looking more to the effects of taxation. Do you think the Treasury takes too narrow a view of environmental taxes?

Professor Ekins: I was not aware that it was as definite as that in terms of definition, but if it is it certainly is too narrow a view. The evolved international consensus as expressed by bodies such as the OECD, which has done an enormous amount of work on environmental taxes and has in a sense standardised what we mean by those taxes and how they should be thought of—it has created a huge international database for environmental taxes—is very much in line with the definition of the Office for National Statistics. That seems to me to be the definition that makes most sense. Where one has a tax on goods or a service that cause a serious environmental effect irrespective of why that tax was introduced, or the historical genealogy of it—for example, fuel duties were introduced well before anybody was thinking hard about environmental matters—that does not seem to be so relevant as the fact that one can use that tax in order to have an environmental benefit. That seems to me to be the relevant definition.
Q14 Peter Viggers: You refer to the use of the tax for an environmental benefit. Are you implying that there should be hypothecation of the environmental tax?

Professor Ekins: By no means. It is a simple illustration of the law of demand which is that if one puts up the price people will demand a lesser quantity. That is the way in which classically environmental taxes are perceived to work. Therefore, I am of the opinion that we had much less both local and global air pollution because of the fuel duty escalator in the 1990s than we would otherwise have had. Indeed, there is robust modelling to suggest that emissions from road fuels would have been quite a lot higher had we not had that tax instrument. That seems to me to be the environmental benefit from the tax. One may then decide to spend some of the revenues from that tax or from others on ways further to improve the environment, but that seems to me to be a different decision and effect from the effect of the price mechanism itself.

Q15 Peter Viggers: How do you rate taxation against regulation in terms of coercing or encouraging people to take appropriate action? You can regulate so that people will not do things or tax them so they are discouraged from doing things. Do you have a view on that broad issue?

Professor Ekins: I think that a complex society such as ours needs both. Regulation sets standards, and there are some areas of life where standards are important. For example, I am very glad that drinking water is subject to regulation and not taxed and practically anything that it taxes in terms of an input into production, such as labour, may well put up the price people will demand a lesser quantity. that tax instrument. That seems to me to be the environmental benefit from the tax. One may then decide to spend some of the revenues from that tax or from others on ways further to improve the environment, but that seems to me to be a different decision and effect from the effect of the price mechanism itself.

Q16 Peter Viggers: Do these need to have a global or perhaps European element, or are we justified in approaching this on a national basis? To what extent must there be an international ingredient?

Professor Ekins: At the moment there cannot be an international ingredient because even with a body like the European Union tax policy remains very firmly at national level, and any prospect of the 27 countries agreeing that it should be anywhere else is pretty remote. One has to evaluate this at national level. For a problem like global carbon emissions it would be highly desirable to have a global carbon tax. Similarly, if one had a proxy for that it would be highly desirable to tax aviation fuel at a global level, but there are all sorts of international dissents on that and, in the case of aviation fuel, treaties that prevent it from happening. I think that governments must evaluate these things at national level and in doing so they must be aware of factors such as possible effects on competitiveness. But governments must raise revenue from something and practically anything that it taxes in terms of an input into production, such as labour, may well introduce an effect on competitiveness. Indeed, we have very great debate about the cost of social security systems when they are funded by taxes on employers, for example. I believe there is very great scope for a tax shift within that general sector and removing some of the taxes that have competitiveness effects on labour and putting them on bads like pollution. That was something that people like me thought might be happening on quite a wide scale as a result of the statement of intent, and indeed did happen on quite a small scale when the climate change levy was introduced. Generally, I thought that that was a good thing.

Q17 Mr Breed: I take you back to what you said right at the beginning of your evidence about the proportion of environmental taxation as against total tax revenues. We know that there has been a reduction over a period if time. It is currently at the lowest level it has been over the past 10 years. Is that due solely to abandonment of the fuel duty escalator or are there other contributory factors?

Professor Ekins: It is due more or less entirely not only to the abandonment of the fuel duty escalator but the failure to update fuel duties in line with inflation in each year since 2000. I think they have been uprated in line with inflation twice. One was the most recent Pre-Budget Report. That has very largely resulted in that effect because the great majority of environmental taxes currently come from energy and transport-related taxes. That is the major change in taxation.

Q18 Mr Breed: Bearing in mind what you have just said, you seem to indicate that there was a wider spectrum of environmental taxation in other areas
rather than just the fuel duty escalator the effects observed over the past 10 years or so might not have been the same.

Professor Ekins: That would obviously be the case. If one introduced more environmental taxes that had a relatively broad tax base one would expect to get more revenues from them. In environmental taxes it is important to distinguish those which are purely designed to change behaviour, and indeed at the limit might change it to such an extent that they generated no revenues at all. One might think of the plastic bags tax in Ireland in that context. The use of plastic bags has, I understand, fallen by over 90%. Therefore, that tax is not raising a very great deal of revenue. One distinguishes those taxes from other taxes such as those on fuel where there is certainly a demand effect. People use less fuel than they would otherwise use, but certainly demand does not drop like a stone and it remains an enduring revenue base.

Professor Ekins: That is not quite correct, in the sense that the research we did showed that there is a very wide range of energy use even among very low income households and it is therefore very difficult to compensate all of them, even if one redistributes all the revenues from the carbon tax, including revenues from non-poor households. But what it showed was that one could certainly have a redistribution scheme which meant that 80% of those households were no worse off, and many low income households would be much better off under that redistribution scheme than the status quo. It is therefore a political judgment.

Q19 Mr Breed: When we are considering the success or otherwise of the Government’s environmental policies as a whole how legitimate is it to focus almost solely on the proportion of environmental taxation against total revenues rather than widen the whole aspect to a significant extent?

Professor Ekins: I certainly would not want to focus solely on that. I am aware of the Treasury’s argument that this is a bad indicator and should not really be used because if environmental taxes were effective one would have the behaviour changes and one could therefore have a reduction in tax revenues. That is true for some environmental taxes and, therefore, one needs to look behind the indicator and see what is driving it. In the case of the UK, what has driven that indicator over the past five or six years is not the fact that people’s behaviour is changing to such an extent that revenue is falling but the fact that the tax rate has been lowered in real terms and that is why one gets less revenue. That argument in that particular instance is not the case. One cannot put that forward as a reason why the tax shift does not appear to have taken place.

Q20 Chairman: You have written some very good material about the social impact of environmental taxes and the crunch point for the Government. You mentioned that a carbon tax on household energy would be politically problematic at best and probably unfeasible. What is your view on assisting low income households which according to your research would be the losers if there was a carbon tax?

Professor Ekins: Yes, but one can have such compensation through the social welfare mechanisms that currently exist in order to ensure that at least 80% of low income households are not worse off than they currently are, and some would be much better off. It is then an issue as to whether the effects on the 20% of low income households, which currently are very high energy using—each household uses six to 10 times as much energy as others in the same income decile—should be allowed to thwart the policy as a whole both on environmental and social grounds because one could make the other 80% of households that much better off. One of the matters that is changing over time with the various energy efficiency policies that are being put in place is that increasingly low income households do not need to use all this energy in order to keep warm, because the energy efficient commitment and Warm Front policies are very substantially improving the thermal quality of households, especially low income households, on whom these schemes tend to be targeted. Over time the hope is that these potential regressive effects would be easier to remove through compensation schemes and that would make some kind of carbon tax more feasible politically than it currently is.

Q22 Chairman: It seems quite complex, and perhaps that is the reason it has not appeared on the political agenda at the moment. You mentioned a climate change surcharge imposed on households that failed to implement within a year cost-effective energy efficiency measures identified by the audit. How would that scheme effectively abolish fuel poverty?

Professor Ekins: We also recommend that those who are in fuel poverty would have those measures paid for, as indeed they do at the moment through the Warm Front scheme. In a sense one would hope that it would make those households more likely to come forward and ask for assistance to improve the thermal efficiency of their homes than they do now. Most households in fuel poverty qualify for free insulation and household improvements; it is just that lots of them do not ask for it and so do not get it.

Q23 Chairman: In a word, what should government do? Government seems to be timid in this area, does it not?
Professor Ekins: It is certainly timid on the pricing side of it. On the home energy efficiency side it has proved to be much less timid because we have big home energy efficiency schemes that are orders of magnitude greater than anything we saw in previous years. But we need a statement that the entire housing stock will be upgraded overtime and that in due course price instruments will be used in order to ensure that households become more aware of the real cost of energy, but that those who are in fuel poverty will have the necessary cost paid for them in order to bring their houses up to scratch. I emphasise the anomaly that the UK represents internationally in this regard. Other north European countries routinely have 15% to 25% VAT on household use of energy, plus any carbon or energy taxes that they may have decided to introduce. The energy use of households is high here not only because of lower thermal efficiency but also because of the price tends to be rather lower than it is there.

Chairman: Professor Ekins, thank you for your excellent evidence in starting off this inquiry; it has helped us enormously.

Witnesses: Mr Roger Wiltshire, Secretary General, British Air Transport Association, Mr Andy Kershaw, Senior Manager for Environmental Affairs, British Airways, Mr Andrew Barker, Planning Director, easyJet, and Mr Barry Humphreys, Director of External Affairs & Route Development, Virgin Atlantic Airways, gave evidence.

Q24 Chairman: Good morning, and welcome to this evidence session. Starting with Mr Humphreys, perhaps you would introduce yourselves for the record. 

Mr Humphreys: I am Barry Humphreys, director of external affairs and route development at Virgin Atlantic Airways.

Mr Wiltshire: I am Roger Wiltshire, secretary general of the British Air Transport Association.

Mr Kershaw: I am Andy Kershaw, manager of environmental issues at British Airways.

Mr Barker: I am Andrew Barker, director of planning at easyJet.

Q25 Chairman: We sent out invitations to everyone. We are glad that easyJet has come along. Mr Michael O'Leary of Ryanair decided that he did not want to appear with the rest of you. I do not know the reason for that. I sent him a nice letter explaining to him that House of Commons committees had the power to call any witnesses it wished, but considering that easyJet has been keen to come we are delighted to see its representative here. Maybe we will have Michael O'Leary here at another time. This inquiry is about the Stern Review and environmental factors. I know that a number of you have been and are exercised about the passenger duty, but this session is not concerned with that; it is to do with environmental taxes. You will know that in our Pre-Budget Report we questioned the Chancellor on that matter. We shall be releasing that report and our comments on that issue in the next day or two, but it is forward-looking. This matter started with Sir Nicholas Stern's review on climate change. You probably heard from the previous witness that the issue of climate change on the political agenda is one that has to be yet developed. There are pro and anti camps in terms of that review. If I may quote Mr O'Leary, he said recently of Sir Nicholas Stern's review that a lot of lies and misinformation had been put about by eco-nuts on the back of a report by an idiot economist. Do you consider Sir Nicholas Stern to be an idiot economist?

Mr Wiltshire: I will not respond directly to that.

Q26 Chairman: I am asking you to respond to it because it is very important to our debate.

Mr Wiltshire: If you do not mind my introducing our position, that would automatically deal with it.

Q27 Chairman: I am asking you to respond to my question, and then you can put your position.

Mr Wiltshire: The UK aviation industry has a very responsible attitude to environmental matters. We have been leading in that field.

Q28 Chairman: I understand that. I am asking you about Sir Nicholas Stern. If you answer that you can come on to your position. 

Mr Wiltshire: We welcome the Stern Review; we think that it is a very considered view.

Q29 Chairman: Do you think it is a measured report? 

Mr Wiltshire: Yes. A very important point to make is that we are predominantly an international industry. Nine out of every 10 air journeys from the UK are international. We compete in the international industry. The Stern Review put the spotlight on the fact that to address a global issue like climate change one needed to consider economically efficient international measures.

Q30 Chairman: So, is it a measured report by a well-respected economist? 

Mr Barker: Chairman, perhaps I may say that in your introduction you referred to easyJet relative to Ryanair. We endorse that fully. When Sir Nicholas Stern announced and presented his report to the Royal Society before Christmas our chief executive, Andy Harrison, made a presentation alongside him and had a very good discussion with him afterwards. We think that it is an excellent report.

Q31 Chairman: That is a good start. Do you believe that the Stern Review makes a strong enough case for the UK Government to adopt a system of taxation and incentives to combat climate change? If not, what are the major weaknesses of Stern?
Mr Wiltshire: I believe that the Stern Review addresses the issue and the way it should be dealt with structurally, internationally and in an economically efficient way, which means fairly sophisticated instruments. It does not ignore taxation but it does not necessarily recommend it as a way forward internationally. It points to emissions trading as the most efficient way to deal with international issues. As we are an international industry, we believe that this is the right way forward. As the Government are taking a lead internationally in trying to persuade other countries that aviation should be part of an emissions trading scheme, we in the UK industry are taking the lead in persuading our colleagues in the rest of the industry that this is the right way forward.

Q32 Mr Breed: The Stern Review suggests that while aviation CO2 emissions account for 1.6% of global greenhouse gas emissions the impact of that activity is two to four times higher than the impact of CO2 emissions alone. First, do you agree with that analysis? Second, it is undoubtedly true that aviation is a growth industry and therefore Stern’s projections suggest that aviation’s contributions to global greenhouse gas emissions will be 2.5% by 2050. Have the airlines funded or undertaken any research at all into the non-CO2 impacts of aviation?

Mr Kershaw: There is no doubt that there are other effects in addition to CO2 emissions. Those effects are different in nature. They are, for example, over a much shorter lifetime. Equally, the scientific understanding of those impacts is far less than we have for CO2 emissions. In addition, the metric used to generate multiples of CO2 has recently been questioned by the scientific community as an appropriate way to quantify those non-CO2 effects. While undoubtedly there are other effects and the industry takes the view that it needs to address them appropriately, there is a lot of uncertainty surrounding them. What is of prime importance for those effects is to improve the scientific understanding. The industry is involved in programmes to take forward that understanding. For example, there is an EU-funded programme called IAGOS in which British Airways and Airbus look to improve the way we collect information about the atmospheric chemistry and some of the processes that occur in the atmosphere. These issues could be important. We need to understand them better. Once we have understood them better we can assess the most appropriate mechanisms to manage those effects. As to the growth projections you mentioned, certainly aviation is expected to grow in future to meet the demand for international air transport. I do not think we disagree with the projections outlined by Stern, apart from saying that any assumptions about growth in the distant future must have uncertainties associated with them. We will not know precisely what levels of emissions from various sources will be in the future, and I think that does depend hugely on the policy measures put in place and the way the international community deals with the issue of climate change.

Q33 Mr Breed: But it is not an unreasonable assessment at the present time?

Mr Kershaw: I do not think it is unreasonable.

Mr Humphreys: Even if one accepts that there is a double multiplier effect taking it from 2.5% to 5% one is still left with a relatively small proportion of total emissions accounted for by aviation, which is a very different impression that one often gets from press reports in which, to be honest, aviation has become a bit of a whipping boy. We are delighted to see that in the Stern Review there is a more considered approach to that.

Mr Barker: The Stern Review mentions the targets of the Advisory Council for Aeronautics Research in Europe (ACARE) for aviation in 2020 to which we have all signed up. We intend to participate in the development of aircraft that will reduce CO2 emissions by 50% and NOx emissions by 80%, so we are all fully participating in the developments of the new technologies and we are glad that Stern highlights the potential for them.

Q34 Chairman: The UK aviation sector currently accounts for about 5.5% of the UK’s total CO2 output, and it could rise to about 15% by 2030, according to Stern. He also goes on to say—the Government accept this—that the effect of all aviation emissions is at least two to four times greater than the effect of CO2 emissions alone. How seriously does the aviation industry take the problem of climate change given the fact that aviation emissions are at least two to four times greater than others?

Mr Wiltshire: I think the specific response to that is the answer given by my colleague Mr Kershaw when he was referring to multipliers. The industry in this country, the airlines, airports, manufacturers and air traffic control, produced a sustainability strategy in the middle of 2005 called Sustainable Aviation which clearly accepts and describes those effects. Clearly, they are very different from the effects of CO2. We need to understand the science and issues better. We also need to understand the way in which those effects have an impact on the climate. The current metric is not robust enough to enable us to do that.

Q35 Chairman: But the science is that aircraft are responsible for high altitude emissions of NOx and the formation of water vapour, clouds and other things. Therefore, it is that which contributes to the two to four times, so there is in a sense a uniqueness about the aviation industry compared with other industries that emit CO2.

Mr Wiltshire: I think that other land-based industries also have what are called non-CO2 effects. The same metric of radiative forcing that is used to develop the multiplier in aviation is used for land-based industries.

Q36 Chairman: But do you accept that point?

Mr Wiltshire: What we do not accept is that the science points to multiplying the carbon. The nature of the impacts is so different that one cannot readily multiply. I understand that various reports have
Q37 Mr Mudie: In its paper British Airways mentions Sustainable Aviation. Can you say something about that?

Mr Kershaw: The group that produced Sustainable Aviation is a collection of aviation industries in the UK, so it includes the major airlines, airports, manufacturers and the air traffic control provider (NATS). The strategy was produced in June 2005. It aims to outline steps that the industry can take, together with government, with a view to aviation contributing fully to sustainable development objectives. It outlines action that we believe the industry and government should take in the key areas of sustainability as it relates to aviation, so it includes the climate change impacts, noise and air quality, and it also speaks about the social and economic contributions of aviation.

Q38 Mr Mudie: You mention Sustainable Aviation in paragraph 7, but in paragraph 6 you spell out the key objective of climate change policy. That seems to be straightforward. You mention climate change. Tell us in detail how that aspect of Sustainable Aviation meets paragraph 6?

Mr Kershaw: First, it is important to point out that the industry takes climate change extremely seriously as a key issue that needs to be managed. The aviation industry accepts that it must be part of efforts to manage climate change in the long term and needs to find effective mechanisms to allow aviation to play its part. Specifically in relation to the paragraph to which you referred, the text comes from the United Nations Framework Convention on Climate Change (UNFCCC) and refers to the objective that globally we need to stabilise concentrations of greenhouse gases at safe levels. The safe levels are those determined by the scientific community, with stabilisation requiring global effort to limit CO2 emissions and other greenhouse gases. The Sustainable Aviation strategy is that aviation should be incorporated into a framework to achieve that objective. One of the ways that we need to move it forward is to include aviation and the air transport sector in post-Kyoto frameworks to deal with climate change. Currently, aviation is excluded from the Kyoto process and that is not helpful in terms of allowing aviation to play its full part in addressing climate change. One of the principles within Sustainable Aviation is that air transport should be included in a global framework to address climate change. It goes on to point out that emissions trading is by far the most environmentally effective and economically efficient mechanism to deal with air transport CO2 emissions.

Q39 Mr Mudie: A lot of that was words and projecting the future. To be fair, what it comes down to is that you should join with the international body and do emissions trading not within the industry, so the growth of the industry will continue but you will offset it by trading with other industries. Is that a fair reflection? I am sorry to pick on you but your paper was before me. It is the view of the industry that at the moment generally it is doing very little but when it is pushed it will join internationally, not limit its behaviour but trade with other industries globally?

Mr Kershaw: That is the objective of the industry. The UK is leading in bringing aviation into emissions trading and a good solid first step is the inclusion of aviation in the EU emissions trading scheme.

Mr Wiltshire: Referring to our track record, the industry is not doing nothing. It has improved its fuel efficiency over the past 30 years by 50%. As mentioned earlier, it wants to continue that progress in future.

Mr Humphreys: Sustainable Aviation has firm commitments to make substantial further improvements. The report produced in December indicated that the industry as a whole is well on the way to achieving those commitments. They will result in significant improvements.

Q40 Chairman: The EU emissions trading scheme does not come in until 20121, so in a sense you have four years until then. What are you doing in the interim?

Mr Barker: I make two points. First, this industry is an extremely competitive one. It is very unusual for the two of us, for example, to be sitting next to each other. We are each other’s biggest competitors. There is an extremely big commercial and economic incentive in this industry to be as efficient as possible. Fuel costs are, as we put in our paper, 29% of our total operating costs. It is far and away our biggest operating cost. We seek any advantage we can to out-compete other airlines to be more efficient.

Q41 Chairman: What I am asking is what you will be doing in the interim?

Mr Barker: I was going to say that that emissions trading scheme now provides us with a target. The proposals provide us with a target. The benchmark is 2005. Any emissions that the industry produces beyond 2005 levels will have to be paid for. We know that that is going to happen and easyJet and myself as director of planning are already configuring investment decisions to offset that.

Q42 Chairman: Motorists pay tax; they go into petrol stations every day. You do not pay any tax on your fuel. What will you be doing in the next four years? What example will you set?

Mr Barker: Obviously, we pay corporate tax, but APD at current rates is 25% of the value of the tickets that we sell. That is quite a high rate of tax that our consumers have to pay.

1 On 20th December 2006, the European Commission adopted a proposal for legislation to include aviation in the EU Emissions Trading Scheme (ETS). The proposal provides for aviation to be brought into the EU ETS in two steps. From the start of 2011, emissions from all domestic and international flights between EU airports will be covered. One year later, at the start of 2012, the scope will be expanded to cover emissions from all international flights—from or to anywhere in the world—that arrive at or depart from an EU airport.
Chairman: I pass it over to Mr Mudie, but I have no idea of what is happening in the next four years.

Q43 Mr Mudie: Chairman, thank you for making sense of my questions. You did not present a very statesmanlike approach to the DEFRA initiative and the voluntary code. British Airways seemed to be intent on not participating for one excuse or another. Why on earth did you pull out of the launch of this voluntary code simply because of something done in the Budget? It is a bit like throwing your toys out of the pram. Are you reconsidering this, and will you be coming to the table and behave responsibly on this matter, despite, if you wish, the actions of the Chancellor?

Mr Wiltshire: I am sure that British Airways will be coming to the table and behave responsibly out of the pram. Are you reconsidering this, and will you be coming to the table and behave responsibly on this matter, despite, if you wish, the actions of the Chancellor?

Q44 Mr Mudie: I did not say you were not. You are here to represent an industry and I am anxious that you put on record what you are doing. To be helpful to you, British Airways said that the APD would total more than £400 million a year. For the same cost using clean development mechanism offsets British Airways could offset the total annual emissions of its entire worldwide fleet many times over. Tell me what “clean development mechanism offsets” are?

Mr Kershaw: The clean development mechanism is one of the Kyoto flexible mechanisms, so it is related to international emissions trading. Effectively, what it means is that we can make investments in projects in third countries where emissions reductions can take place which would not already have occurred. For example, we can offset emissions from an activity in the UK by purchasing the emissions credits from a project to create a renewable energy programme in, say, India. The clean development mechanism is the functionality provided at international level through the UN to facilitate that process. It facilitates the flows of carbon finance from, if you like, the developed world to the developing world and is a very important element in the emissions trading process. It enables the emissions reductions to take place globally at least cost. That was something to which Stern pointed as one of the critical elements in achieving emissions reductions at least cost to the economy. The clean development mechanism is something that we need to develop further and strengthen and realise its full potential in order to make least cost emissions reductions across the economy.

Q45 Mr Mudie: What is the total profit of the airline industry? I am not referring to the individual airlines.

Mr Humphreys: I think aviation has a very low level of profitability relative to most other sectors. It varies and it is of a highly cyclical business.

Q46 Mr Mudie: We can get a figure from the Treasury, but nobody can put a figure on it at this hearing?

Mr Barker: As a quoted company, we currently make a return of between 10% and 12% on equity shareholders’ funds. An average UK company would make 17%, so we are much less profitable than the average.

Q47 Mr Mudie: For the layman, can you convert that into a figure? I want to compare it with the figure of £400 million.

Mr Barker: As far as we are concerned, as we put in our paper the current rate of APD would be about one and a half times our profit last year.

Q48 Mr Mudie: You still have not told us the figure.

Mr Barker: Last year’s profit was £94 million.

Q49 Mr Mudie: If easyJet made £94 million I presume that the bigger airlines made more than that. You could be doing some of this stuff out of your profit, could you not?
Mr Barker: It is a very capital-intensive industry. We invest in technology. We invest all of our profit back into new technology.

Q50 Mr Mudie: You could be making the Chancellor an offer, for example, “If we trigger this now you can remove the APD?”
Mr Wiltshire: A better option for government when they announced the doubling of APD in December was to have used a portion of that to incentivise the public the use of offsets. That could have been an opportunity to say to the travelling public—over 50% of the UK population take an air trip each year, and some more than that—that they could have a real opportunity to make a difference environmentally. Unfortunately, the Government did not take that opportunity.
Mr Humphreys: It is also important to remember that at present 20% of APD is already hypothecated.

Q51 Chairman: In terms of APD, you are really back to 1997 levels. It was imposed in 1997 and reduced in 2001 and now you are just back to that. There really has not been any debate within the aviation industry up to that point.
Mr Wiltshire: I must correct one point. On long-haul flights that is not correct, whereas it may be so on short-haul flights.
Chairman: But you agree that generally you are back to the 1997 level, so it is pretty minimal.

Q52 Peter Viggers: Please correct me if I am wrong, but you seem to be reconciled to, even intellectually supportive of, the emissions trading scheme as a mechanism. What are the technical problems relating to its introduction? Do you see any of these as being very serious, or even insoluble?
Mr Wiltshire: A number of issues have been debated in Europe within a working group set up by the Commission. The issues range from the scope of the scheme: which flights should be included? That is an ongoing issue. The Commission proposed a two-stage process, intra-Europe in one year and all arrivals and departures in the following year. The second notable difference compared to the existing scheme is the allocation process. We have strongly recommended an international, i.e. at European level, allocation and we see that the Commission has supported that approach, but that is a different type of allocation mechanism from the one under the present scheme.

Q53 Peter Viggers: Stern suggests that it is difficult to assess the effect of aviation CO₂ emissions by way of CO₂ equivalents. Are the airlines undertaking work to clear up that point?
Mr Wiltshire: We are very keen to see the scientific knowledge improved in the non-CO₂ area so that it includes a much better way of measuring those effects. In that way a comparison, if that is desired, can be made with the effect of a long-lived gas with a 100-year life such as CO₂ and other much shorter-lived impacts.

Q54 Peter Viggers: How do you respond to reports that to allowing aviation into the European Union ETS will create windfall profits from the allocation of carbon quotas?
Mr Wiltshire: Quite frankly, when we heard that comment we laughed. The only way that an airline in an overall capped scheme could make a profit in this way would be to close up shop and close the business. The emissions relate to the operations under which one wants to conduct business. If one wants to reduce or close the business in theory one could sell on one’s permits, but there is no other way that that could happen. I do not see anything in it for any airline, or any industry like the airlines, to sell its emissions and close up shop.

Q55 Peter Viggers: Therefore, quotas would be allocated to airlines according to their operations?
Mr Wiltshire: The proposal by the Commission is that there would be an allocation based on the benchmarked efficiency of the industry. That is one detail that is yet to be worked through finally. The benchmarked efficiency would be used to allocate based on the operations of the airlines, and I understand that the years 2004 to 2006 are the baseline from which emissions are to be calculated.

Q56 Peter Viggers: The Treasury is hoping to move eventually to a global emissions trading scheme. What are the obstacles to achieving that?
Mr Humphreys: Clearly, there is some opposition from foreign governments to the introduction of such a scheme. We certainly have done our best to persuade our fellow airlines around the world that this is the best approach, but there is no secret that in particular the United States is opposed to the application of ETS to its own airlines flying into Europe. That is an issue that will have to be sorted out at government level.

Q57 Mr Todd: You do not like APD. Is there any change that you suggest may make it more effective in terms of an environmental tax? You have argued that it is not effective at the moment, setting aside for the moment hypothecation.
Mr Humphreys: That was what I was going to suggest. The trouble with APD—in Virgin’s submission John Healy is quoted to this effect—is that it is a poor environmental tax; it does not achieve any environmental objectives and there must be better ways of achieving them.

Q58 Mr Todd: What are those objectives?
Mr Humphreys: We believe that ETS is far more efficient.

Q59 Mr Todd: Is not another mechanism a tax or charge that is directly related to inefficient technology? For example, in this country if you buy a motor vehicle and it consumes energy in a particular way it is taxed differently.
Mr Barker: We suggest that that is what ETS will do. It is not just the technology that you have but the way you use it, for example the number of seats in the plane and the number of people on the plane.
The ETS scheme as proposed will incentivise airlines to operate much more efficiently; otherwise, they will be penalised.

Q60 Mr Todd: But you could apply a direct tool that imposed differential charges on airport usage for some of the clattering old bangers that run on freight-only activities, for example. We do not have a pure freight operator here to defend its corner, but presumably you may have some sympathy for that view.

Mr Wiltshire: The British Air Transport Association represents one pure freight operator based in the East Midlands, which is DHL. I think that it supports the approach on emissions trading and realises that its operation like that of any other operator would be caught up in that. Therefore, its efficiency in terms of emissions per payload tonne would be an important factor in whether it cost it a lot or a little to be part of the scheme.

Q61 Mr Todd: Or you could simply approach it through regulation by saying that no aircraft of a certain kind would be permitted to fly into airports in this country?

Mr Humphreys: I think it is just a question of efficiency. What is the best way to achieve the objectives that we all have? Overall, ETS seems the best way to do it. Undoubtedly, there are other ways, but in our view the most efficient is ETS.

Q62 Mr Todd: You were about to outline your thoughts on hypothecation.

Mr Humphreys: We have already mentioned that we would be far happier with the APD if the money collected by the Chancellor was used for environmental purposes. The principle of hypothecation on that tax has already been accepted by the Treasury, because 20% of the money goes to support the environment. At the moment there is no element of incentive and the public cannot see any environmental benefit directly from that tax.

Q63 Mr Todd: One of the submissions suggested that additional support should be provided for research into more environmentally friendly aeronautical technologies. Should you not be doing that yourselves?

Mr Barker: We are doing that, and we invest very heavily every year. Over the past six weeks I have spent time with Airbus at Toulouse and Boeing in Seattle, and I am spending the rest of this week with Rolls-Royce in Derby, effectively co-operating with them on the development of their next technologies. Therefore, we are spending management time on this matter and also investing capital every year to buy the latest technology.

Q64 Mr Todd: What is the profile of your industry on R&D in this area? After all, most of the aircraft that you operate are, presumably, leased rather than bought and you do not directly engage with aeronautical manufacturers and engine suppliers, do you?

Mr Barker: We directly engage with and buy our equipment from manufacturers.

Q65 Mr Todd: Do you fund R&D with them?

Mr Barker: Yes.

Q66 Mr Todd: To what extent? You mentioned one activity which involved a visit.

Mr Barker: I do not have the Airbus number in my head, but last year Boeing spent on civil R&D $1.3 billion.

Q67 Mr Todd: I entirely accept your point as far as concerns manufacturers.

Mr Barker: That cost is priced onto the planes. Therefore, if we buy the latest aircraft effectively we are paying for their R&D.

Q68 Mr Todd: But you do not do any yourselves?

Mr Humphreys: It is not a very big number.

Q69 Mr Todd: Should you?

Mr Wiltshire: The matter in which we are interested is the atmospheric research mentioned earlier. One of the solutions to some of the non-CO2 impacts may be an operational one which is directly where airlines would be involved, for example avoidance of the creation of condensation trails which is a fairly straightforward procedure. At the moment that would cost us in fuel which in turn would mean more CO2 emissions. Until we have a much better quantification of that impact it would be wrong to take such an operational measure. But operational measures are important. Research and development of the technology of the aircraft are very much at the heart of what the manufacturer puts before us. It is important that they get the right research and development investment and, where necessary, support for what I may call the further out technologies, that is, technologies that are just about on the horizon now but may be pulled into the industry and need that incentive. I think that is where governments across the world can be more helpful.

Q70 Mr Todd: We are familiar with the difficulties of imposing a global tax on aviation fuel. What steps are you aware of to address some of the issues that currently confront its introduction?

Mr Kershaw: As we said earlier, we believe that emissions trading is a far more effective policy measure to address aviation emissions than taxation. At the international level through the International Civil Aviation Organisation there is a piece of work that looks at emissions trading at international level. The guidance for that has just been developed and hopefully will be adopted in the near future. UK industry is heavily involved in supporting that work and taking forward those steps to build the framework to be able to bring aviation into emissions trading.

Q71 Mr Todd: But we have already heard that there are objections to that concept from major American airlines.
Mr Kershaw: There are difficulties in terms of climate change policy globally, aviation and other sectors included. We believe that the appropriate approach is to demonstrate effective policy and technology measures to the rest of the world and in doing so hopefully those states will accept that such measures are cost-effective, workable and sustainable.

Q72 Mr Todd: Which would be more difficult—to introduce a global ETS or to agree amendments to ICAO rules to create flexibility in the taxation of aviation fuel?

Mr Kershaw: I believe that it would be easier to implement global emissions trading purely on the basis that that would be seen as a far more cost-effective solution. The ICAO analysis of taxation of aviation demonstrated that a tax focused on aviation to meet hypothetical targets related to Kyoto would cost the industry in 1992 US$254 billion a year in 1992 dollars, whereas open emissions trading where aviation would be able to buy and sell outside the aviation sector was estimated to cost between US$1 billion and US$60 billion. The range reflects the fact that one can make different assumptions within emissions trading, but the basic point is that taxation at international level would be hugely more costly. Equally, it would take away from the industry funds that it would be able to invest in new technology. In addition, with emissions trading the money would be flowing to where environmental improvements could best be made globally. At international level the focus is to bring aviation into emissions trading, and the UK and EU have a unique opportunity to demonstrate emissions trading as a practicable solution to address air transport climate change impacts.

Q73 Peter Viggers: Has anyone ever suggested emissions trading for military aircraft?

Mr Kershaw: It has been suggested. I do not know what conclusions have been drawn, but I believe that the current Commission proposal does not include military aviation.

Q74 John Thurso: It has been mooted. When I was a transport spokesman I had the pleasure of meeting many of you in the aviation industry. It seemed that when we discussed these issues you always expressed great concern, and it was always followed up by stressing the market mechanisms, with which perhaps I was broadly sympathetic, and finally the need for anything to be done on an international basis. If one takes market mechanisms and the international basis together it always strikes me that it is a recipe for masterful inactivity because one is unlikely to see anything in the short term. Given that we do need to do something real in the short term, why should we not consider an airplane departure tax which would have the benefit of pulling in freight aircraft, which currently pay absolutely nothing, and putting that tax cost directly onto the industry rather than the passenger and, therefore, the more people one put in the aircraft the less tax per passenger?

Mr Wiltshire: In a way, that is a small step towards something much more sophisticated like emissions trading. Although it perhaps would capture a different range of aircraft it still does not create an incentive for airlines to invest in better technology. It is really moving around the deckchairs.

Q75 John Thurso: It would if one based the tax on the carbon emissions of the particular aircraft, which would be very easy to do?

Mr Wiltshire: That is a further step towards emissions trading; one is getting closer to the fundamental of emissions trading which is that airlines measure and report their emissions and have the price of carbon built into them. That is exactly what the UK airlines have done in their report Sustainable Aviation in the past two months. That is a way of explaining to the rest of the industry the way forward as far as their environmental costs are concerned.

Q76 John Thurso: As an industry would you prefer an airplane departure tax to a passenger departure duty?

Mr Wiltshire: We prefer a mechanism based on the emissions from the aircraft which is dealt with like other emitters of CO₂, which is the same whatever the source.

Q77 John Thurso: I return to the Chairman’s question about radiative forcing. The Royal Commission on Environmental Pollution estimated that radiative forcing was about 2.7. I believe that was the multiplier it used for the impacts of CO₂. In your answer you said that you really needed to study all the other gases, but it also pointed out the fact that all the other gases—methane, NOx, ozone and water vapour—could quite easily be converted to a carbon equivalent. If we in this country are serious about something in the order of a 60% reduction in CO₂ by around 2050, excluding aviation, we are looking at a fall from 168 to 67 metric tonnes of carbon. Over the same period aviation is forecast to rise from 4.6% to 17.4%. If one then puts in the multiplier of radiative forcing one goes from 4.6% to 17.4%. One has a situation where the country as a whole is aiming for 67 metric tonnes of carbon and aviation is responsible for the equivalent of 43.5 which is 80% of the national level of carbon emissions. Does that not put into perspective the current claim that you are responsible for only 0.1% of global emissions?

Mr Wiltshire: The last figure you gave is accurate.

Q78 John Thurso: Does that imply that the other ones are not?

Mr Wiltshire: No. In the global sense we are 0.1% of CO₂ emissions. We recognise the non-CO₂ effects of aviation but not the easy mathematical ability to multiply those to come to some sort of carbon equivalent. They are so different as effects that one needs to understand each of the individual impacts. You mentioned methane. We absorb methane; we are a good thing from a climate change point of view when it comes to methane. Aircraft emissions reduce
methane. Methane has a certain lifespan. Ozone which is the culprit, if you like, for Nitrogen oxides emissions, has a shorter lifespan. How are we to compare and contrast those two effects from the Nitrogen oxides emissions? That science needs to tell us and at the moment it cannot do so. The science tells us that radiative forcing is a very inappropriate and mathematically incorrect way to do that; it is worse than adding together apples, pears and oranges.

Q79 John Thurso: In that case, why would the Royal Commission on Environmental Pollution have made so much of it?

Mr Wiltshire: I think they used the IPCC diagram which implied that these things could be added up and came up with radiative forcing. The important issue is not radiative forcing but the climate change impact. The radiative forcing is not the metric used to describe, for example, the effect of CO₂ on the climate or the temperature of the earth. A different metric is used and as yet no use is made of that for other impacts.

Q80 John Thurso: Even if we go back to the absolute figure projected, which is 17.4 against 67, that still leaves aviation producing an extremely large percentage of carbon emissions. The current projection in the Government’s aviation White Paper is a 4.25% per annum increase in passenger numbers and the exponential curve for freight is generally regarded as being pretty similar. Is not the plain truth that the planet cannot afford your growth aspirations as long as you are using a carbon-based propellant?

Mr Wiltshire: Our position is that the industry like many others is a carbon emitter. It currently represents a small proportion of carbon emissions. We want to play our part in dealing with carbon emission problems and helping to stabilise them. If by pricing carbon into people’s activities they choose to burn it in a certain way then that is up to individual selection. I do not think we will crack the problem of climate change by taking a sectoral and, even worse, national approach and trying to control individual activities at national level. That is where one gets the 0.1% figure which has been quoted.

Q81 John Thurso: At the end of the day, we will not be able to afford that much carbon for the activity of aviation. Therefore, we will have to ration it and the best way is to have a market mechanism to do that, with which you all agree, but the plain fact is that any increase in aviation that is more than 2% a year means that we are in the red zone.

Mr Wiltshire: It means that aviation emissions may be growing overall, but we need to look at it at a global level and consider how we are to bring down carbon overall. We believe that the best way for aviation to play its part is by way of an international scheme that brings carbon down and caps it overall.

Q82 John Thurso: What I am driving at is the fact that there is no viable likely alternative in a 50-year timeframe to the jet engine as the main propellant for commercial passengers. There is some gain to be had from efficiency, but it is not huge. Therefore, in order for you to operate you will remain a constant and increasing emitter as passenger numbers go up. There are many other industries where there are alternatives to carbon. For example, the whisky industry which is a major consumer of carbon through its distilling operations has opportunities to use non-carbon renewable energy sources and so forth. They can give up carbon and that will be used by you. The question is: how much of our carbon do we give you for aviation, and does the industry not have to accept that it cannot grow at the predicted rate?

Mr Barker: We would like to see most of the forecasts build in the potential for technology. You painted a very bleak picture of efficiency gains in future. The Royal Aeronautical Society has shown that the industry has reduced its emissions per passenger by 70% over the past 50 years, so if we look at 2050 it is likely that the technological curve will continue to allow us substantial efficiency gains. The Stern Review highlights the ACARE targets for reducing CO₂ emissions from new aircraft by 50% by 2020 and by 80% for NOₓ, so if there is a radiative forcing coefficient it is likely to narrow over the next 15 years. This industry exists on technology. It is a very capital-intensive industry and has an extremely good track record of investing in the latest technology to improve efficiency. The commercial imperatives are here today and ETS will raise that imperative still further. The problem with taxation of any kind is that it takes money out of the system. We should be forcing ourselves to invest as much as we can in pursuit of that goal.

Q83 Chairman: Everything is a bit complicated. The Royal Commission on Environmental Pollution is adding up mathematically when it should not do so, or whatever else. Why does the industry not take the initiative and have an industry-wide scheme? For example, the submission by flybe says that shortly it will be announcing a new eco-labelling scheme for aircraft. The concept is to establish “a system using a labelling scheme where aircraft are graded based on fuel burn, carbon emission, noise footprint and total environmental cost. In doing so consumers would be informed about each flight they take.” Why does industry not come up with such an initiative? Why does not British Airways, one of the big ones, do that?

Mr Kershaw: There is no question but that it is important that airlines communicate more effectively with customers about the environmental impacts of flying. How does one do that?

Q84 Chairman: There is one example from flybe. Why does not British Airways think of an initiative such as that? I do not hear anything from the industry. I think that in a sense you have been caught in the headlights.

Mr Kershaw: One of the programmes that we introduced in 2005 was the carbon offset scheme which was essentially intended as a way to better inform the public.
Q85 Chairman: What you are saying to me is that you do not really have anything.

Mr Barker: One matter that may have inhibited the industry in the past is its competitive nature. This is the first time we have appeared like this together, and we take that responsibility very seriously.

Q86 Chairman: You can thank the Committee for that!

Mr Barker: We do thank you. EasyJet has a similar scheme to flybe. We are about to announce what we call our environmental code where we publish how efficient we are in the air and on the ground and what we are going to do about it.

Q87 Chairman: Say in six months’ time you write back to us and say, “Look, ahead of 2012 we are taking this initiative so the consumer is informed”, because the previous witness, Professor Ekin, said that the political environmental was not as well advanced as it should be because the consumer is largely ignorant of what is happening in the area. You have a responsibility to educate the consumer, so why not do it ahead of 2012? Why does not Virgin do that? Richard Branson has taken lots of initiatives.

Mr Humphreys: I have already explained that Virgin has taken some initiatives in this area and it is working on others. We would have no problem at all in what you suggest, and maybe the industry should look at that.

Q88 Chairman: Let us take Virgin as an example. I do not see it advertising a new eco-labelling scheme or whatever.

Mr Humphreys: We are in the process of coming up with proposals.

Q89 Chairman: But it is something that all of you could be doing. If you can sit together here for the first time surely you can get together afterwards and come up with something in six months’ time. Would you do that?

Mr Kershaw: I think we need to improve the way we communicate.

Q90 Chairman: Would you all sit together, however painful it might be, and come up with something and perhaps write to us in six months’ time to tell us what you might be doing ahead of 2012? We are all shy here.

Mr Humphreys: Yes.

Mr Wiltshire: And through the Sustainable Aviation strategy we have ourselves committed to do that sort of thing.

Q91 Chairman: Will you write to us in six months’ time?

Mr Wiltshire: Our timescales are a bit longer than that, but we will certainly be doing it and we will be reporting on it.

Q92 Chairman: To refer back my earlier point about doing something in advance of 2012, you stated that there would be a 2004 to 2006 baseline for emissions. Why do you not set a tighter baseline for emissions, say 2002 up to 2012? That is an initiative that you could take ahead of 2012.

Mr Kershaw: That baseline is related to the EU emissions trading scheme and is set by the European Commission.

Q93 Chairman: You are not under any obligation from now until 2012, so perhaps you should take some initiative. Why do you not do that with tighter baselines?

Mr Barker: As individual entities every year commercially we are making huge efforts to reduce emissions.

Q94 Chairman: The answer is no?

Mr Barker: We reduced our emissions per passenger last year by 3%.

Q95 Chairman: But what about a tighter baseline?

Mr Kershaw: The only purpose of a baseline is to operate within emissions trading.

Q96 Chairman: It is to lower emissions.

Mr Kershaw: If you are suggesting that we should create a voluntary emissions trading scheme I am not sure that that would be the best use of our resources.

Q97 Chairman: What I am saying is that you have a free ride up until 2012 and you are doing nothing. You are not obliged to do anything until 2012, so why do you not come up with an initiative and have a tighter baseline?

Mr Barker: Effectively, by 2012 the industry will have grown by then. We will have to pay for any extra emissions that we have produced post-2005. But all of us are trying to reduce emissions as individual airlines every year, and that is a commercial imperative; it is a matter of survival.

Q98 Chairman: Surely, government should maintain some form of taxation up to 2012, and Stern has said it himself. It was repeated in one of your submissions to us. If APD is the wrong tax what is the right tax?

Mr Kershaw: We believe it would be more appropriate to have something in line with emissions trading rather than to base it on taxation which we do not believe is environmentally effective. Equally, we would expect that once emissions trading was in place as a more effective mechanism there would be no purpose in having an APD or other environmental tax.

Q99 Chairman: But up to 2012 it is legitimate?

Mr Barker: The problem with any tax is that it takes money away from us to invest in the new technology that reduces emissions. That is a hard and fast fact.

Q100 Chairman: I understand, but the motorist will tell you that he or she pays tax every day at the petrol station. You do not pay anything.
Mr Barker: If we pay tax it has to be something that forces good behaviour on airlines and achieves the end result of fewer emissions. That must be the case.

Q101 Chairman: Therefore, you do not know what the right tax is but you should be paying some tax up until 2012?
Mr Wiltshire: I think the right tax is one that creates an incentive for the industry on the one hand to improve its technology and on the other an incentive to the consumer to take action himself.

Mr Mudie: Would not a more effective tax be one that hit you rather than the passengers and therefore gave you the incentive to do something? The passenger’s incentive is not to travel, but if the tax is on you as an industry you will be in a negotiating position in which you can say you will do something to save tax. But you are really out of this; it is the passenger who is involved in it?

Mr Kershaw: From our point of view the difficulty is that a tax is not effective in meeting environmental objectives. If what we want to do is reduce climate change impact we need to find effective mechanisms to do that.

Q102 Mr Mudie: One of the suggested ways of doing that, if we accepted it, would mean that you would spend money, not the passengers. But at the moment it is the passengers who are being hit.

Mr Barker: But any kind of tax impacts the money we have to spend ourselves.

Mr Mudie: You made £97 million last year.

Mr Barker: It impacts us straight away.

Q104 Mr Mudie: There are bigger players here and there must be a lot of money in this industry.

Mr Barker: The tax already is one and a half times our profit and the amount of money we spent on new aircraft last year, 70% of which was to reduce emissions. Therefore, that money just goes away from us; it affects us directly.

Q105 Mr Mudie: You are happy to pay tax—or do you not want any tax at all?

Mr Barker: We are responsible entities and we are happy to pay tax, yes.

Chairman: We need to read the evidence to get some idea of what the airline industry is about. I think that you are effective in your message elsewhere; you get people on planes to go here and there, but your message in terms of environmental taxation is pretty dense. I get the feeling that you have been hauled to the table. You have shown no initiative yourselves and anything that you have to do will be very complex. If you could write to us in six months to say what initiatives you were taking that would help us. Thank you for your evidence this morning.

Witnesses: Ms Kate Hampton, Policy Manager (Advisory), Climate Change Capital, and Mr Simon Roberts, Chief Executive, Centre for Sustainable Energy, gave evidence.

Q108 Chairman: Good morning, and thank you for appearing before us. Perhaps you would introduce yourselves for the record.

Ms Hampton: My name is Kate Hampton, vice-president and head of policy at Climate Change Capital.

Mr Roberts: My name is Simon Roberts, chief executive of the Centre for Sustainable Energy.

Q109 Chairman: How would you characterise the Government’s broad environmental strategy? Is it joined up across different government departments? Can business be confident that it is both predictable and effective?

Ms Hampton: I can speak to the climate change and energy piece, not the environment in the round. I think that we are starting to see an improvement in the joined-up nature of the Government’s policy. Certainly since the EU and G8 presidencies last year government departments have started to work together a lot more effectively on these issues. We are also starting to see that within the EU. Various bits of the European Commission are working together a lot better as evidenced by the EU’s energy package. Therefore, I think there is an improving trend, but I do not think it is right to say at this stage that policy is predictable and provides the kind of long-term visibility that investors need. I think that policymakers are beginning to realise that it is a problem.

Q110 Mr Love: I turn to some of the controversies surrounding the Stern Review. I start with the controversy about the so-called discount rate and intergenerational fairness. Mr Roberts, could you start by giving your view on whether or not the very low discount rate that has been set by Stern in his report is appropriate, or is it biased against the current generation?

Mr Roberts: In a way, given the precise details of his calculations, bearing in mind the conclusions to which he came, we could have a very erudite discussion about whether or not he had used the right discount rate. We would end up with a discussion as to whether he had got it exactly right or exactly wrong. I think his conclusion that we need to act now is roughly right; it is economically advantageous to act sooner rather than later. We have 10 years in which to act, not 10 years to get our act together as a number of people seem to believe, as evidenced by the previous witnesses. But one can go into a very detailed assessment as to whether or
not he has got the economics exactly right. The danger is that as a piece of work to persuade other economists it may fall foul of that, but in terms of its overall impact and message I think it is very clear that whatever discount rate is used—no matter how low—the costs of inaction far outweigh the costs of action. On that basis, even if one almost entirely ignores future generations or treats them as if they are already alive, you would still conclude that it justifies significant immediate action in relation to climate change, rather than worry too much whether it should be 3% or 5%. That would be a level of focus on a specific that ignored the broad conclusion that action is needed now rather than later.

Q111 Mr Love: I hear what you say but that is what the Treasury Committee is about, if I may say so. Ms Hampton, Stern set it at 1%. Almost no other economist producing any kind of report about the future would set it that low. While I accept what Mr Roberts says about the need to take action now, do you think that the balance is right between generations? Are we asking this generation to do too much based on Stern?

Ms Hampton: I would say that the present generation is not doing enough and encouraging it to do more is a good thing. I agree to some extent with Mr Roberts that the exact percentages of the interest rate are open to debate. It will always be a value judgment. Ultimately, one has to decide whether or not one wants to err on the side of intergenerational equity. At the moment, effectively the costs to future generations are just not factored into our accounts. Most political decisions are taken on an incredibly short-term basis, even as we have seen in the carbon market. The fact that decisions are taken on a five-year basis does not provide the long-term investment signal. We need some way to provide a long-term decision-making framework. One way of doing that is to provide a low discount rate, but it is not the only way. I believe that that, complemented by a really hard look at turnover rates of capital stock and the time lags involved in introducing a political signal and for that signal to translate into capital moving into different technologies and so forth, in addition the climate system’s inertia, tells us that we need to find ways to encourage decision-makers to take action now. The discount rate is one factor in the cost benefit analysis. There is a broader risk assessment and it should not be looked at in isolation.

Q112 Mr Love: Another concern that has been raised is that Stern does not seem to differentiate between how it will impact on the poor as opposed to the well off and his system is not biased towards redistributing to the poor. How do you respond to that, recognising that as far as most people are concerned the impact of global warming will be much greater on poorer countries than on richer ones?

Ms Hampton: There are two reasons for that. The first is to do with their climate systems and the vulnerability of tropical eco-systems and so on; the other is the vulnerability of communities, in that people who live on the flood plains of Bangladesh do not necessarily have the adaptation opportunities open to somebody who lives in Florida. Everybody recognises that. For example, the IPCC second assessment report went the other way, in that the value of life in poorer countries was put at a fraction of that in rich countries. That was overturned eventually in the final analysis. One can focus a good deal on that kind of information, but what is essential now is to focus on the solutions. It is clear that there are massive equity issues associated with climate change and that the global public good and expenditure that has to be made to address the problem must fall on the shoulders of those who created it. If one has a price for carbon, the price must be met by the biggest polluters, both historically and currently. Potentially, that is the best way to deal with those equity issues.

Mr Roberts: I believe that as an economist he did a reasonable job in highlighting that issue and trying to weight it into his analysis. It is very clear from the study he considers that the fact it impacts on the poor more significantly is something that needs to be weighted in the context of how important it is to take action and how rapidly action is needed.

Q113 Mr Love: But the criticism is that, to take Ms Hampton’s point, since it is the developed countries which have created most of the problem and the poor ones which will be affected by it that means it should be weighted even more towards those less well off?

Mr Roberts: If one looks at the overall analysis, there are all kinds of places where he has got it exactly wrong. But the most important thing is the fundamental direction in which he takes the analysis which is absolutely starting from the fact that the poor will suffer more and therefore it is the responsibility of rich countries to lead. Maybe we will come on to some issues about how that was communicated when the report was launched. I think it gave the sense that there would be no point in doing anything unless everyone acted, in particular China, India and the US. I think that that creates the false impression that there is no value in an individual country doing its own thing and taking a lead. We have characterised elsewhere in the following terms: if one is in an international discotheque that is diplomatic negotiations on climate agreements it is quite important for someone to take to the floor and dance well to show other people how to do it. That is not a question of economics; it is a matter of political science. There are no international agreements that have not been the result of one or a few countries taking a significant lead and bringing others with them, rather than sitting round a table and trying to negotiate something where one party says he will not do anything until someone else does. Even though he has not quite weighted it right and all the rest of it, it is to his credit that he has broadened it in terms of the underlying policy direction that he pushes and the emphasis on the need for immediate action, cooperation and work on technology development, not simply relying on carbon pricing. There is always
a tendency for an economist to resort to the easy, if impractical, option. We should not say that because he has not got it completely right we should not start anything and need exactly the right answer is needed is needed before anything is begun, and the uncertainties far outweigh any certainty that he might have been able to nail down. I believe that irrespective of what number he has chosen he has moved it in roughly the right direction.

Q114 Mr Love: While I accept that comment, he set himself up for that criticism because this was meant to be a comprehensive report that looked at all the issues and went into the sort of detail for which he has now been criticised.

Ms Hampton: At the moment it is the most comprehensive report, and that is the best we can do.

Q115 Mr Love: I should like to pick up one matter that has been written by the Centre for Sustainable Energy. It is almost a criticism of Stern being an economist who looks on everyone as being rational in terms of the way they will act economically. You have made particular criticism of that in relation to ordinary individuals who do not always act as rational economic beings. How valid do you think that is as a criticism of what Stern has said?

Mr Roberts: I think it was the Archbishop of Canterbury who said that the economy was a wholly-owned subsidiary of the environment, which is nice phrasing. I think it can also be said that economics are a wholly-owned subsidiary of the totality of human knowledge. There are lots of other things we understand about why people do what they do and why settlements exist as they do and economics cannot explain all of that. Yet in policy-making circles one tends to resort to economics above and beyond a lot of other disciplines that point in slightly different directions about how behaviour might be changed. I think particularly about the psychology and understanding of social norms, habits, traditions and so forth which need to be affected where economics are only part of the description of the system which causes them and it needs to be broader than that. One ends up with a situation where there is a tendency to rely on economics alone.

Q116 Mr Love: We are limited for time. What are the implications for policy? Does it mean that what Stern has said is only partially relevant and there are other factors that we have to take into account?

Mr Roberts: A very quick answer is that I believe one area which has been swept aside as almost a third issue is education and awareness-raising. I believe that that is more fundamental than some of the other things he has talked about in terms of building up an understanding and creating a carbon consciousness in society. He has not looked at the policy implications of other things he is doing and how effective they are in doing that. One of the points we make is that taxation does not do that particularly well compared with trading systems and other measures.

Q117 Peter Viggers: I want to try to get carbon emission trading schemes in perspective. How important are they in the scheme of things and the weapons we have?

Ms Hampton: They are very important. The carbon emissions trading scheme that we have in the EU at the moment is the first of its kind and it is very ambitious in international terms. Because the EU has stuck to its guns on this other parts of the world are starting to follow. We see emerging action in the United States. I am involved in what is happening in California, for example. Clearly, emissions trading is not the only instrument, as Stern recognised. He talked about taxation, regulation, investment in R&D and so on. I think that that is absolutely right. Even though we as a company are focused very much on economic instruments we realise that there will be areas where market mechanisms just cannot be used to deliver the outcomes desired. For instance, matters like appliance standards have to be done through regulation; one cannot really do it in trading. A lot of the energy efficiency stuff is better done through regulation. Emissions trading can deliver very large volumes of reductions, as we are starting to see with the EU ETS and its impact on investments in the developing world through Kyoto’s Clean Development Mechanism. Those large reductions would not otherwise be happening. Unleashing the private sector’s ability to go out and discover the lowest cost reductions. Therefore, we are really getting the most efficient pieces first. But the emissions trading scheme will always start with the cheaper stuff and if one wants to change long-term investment decisions one will need a whole range of other instruments to underpin the carbon price in terms of energy policy. I could go into particular technologies in more detail.

Mr Roberts: As we have learned from the first phase of EU ETS, a trading system is only as good as the cap that is set and how tight it is. Often, that is a political decision. I am sure that the witnesses in the previous session will be spending a lot of time to make sure that that cap is appropriate and gives them some room to breathe. There is a political process to that which sometimes is missed in the theoretical understanding of how efficient a taxation or trading system is. The other side is: what does it include? I think that we are moving to a phase over the next five to 10 years where we need to start looking not simply at the slight mess with the EU ETS. In part it looks at the demand side, that is, heavy industry that is causing carbon emissions, but also at the electricity industry which is in part about supplying a demand that is not capped in any way. There is slight confusion over that. It may be that at some point we need to flip it round to look at individual trading schemes.

Q118 Peter Viggers: Can you say a word about personal trading schemes?

Mr Roberts: As we concluded in our report to DEFRA published just before Christmas, we think that it is still too early to embrace them as a practical, feasible option, but because of their potential we have to look at them very seriously in terms of what
they can achieve and how they can potentially affect individual decision-making in the market and create a market in which the likes of British Airways and others have to respond to consumer demand. That would be driven by the trading system rather than being controlled by some regulated market somewhere else that they can lobby.

Q119 Peter Viggers: How does the European Union’s emissions trading scheme currently provide a price for carbon?

Ms Hampton: I think you have to differentiate between phases 1 and 2. Phase 1 was a learning phase and it was the price of going first. The EU launched into it before it had adequate data. Countries that come later are currently collecting the data in order to develop their schemes. It is in the nature of businesses to say that they will grow a lot next year even if all the historical evidence points to the contrary; and they also want to negotiate. It was inevitable that there would be a price adjustment when the real data came out. Phase 1 has provided a price incentive certainly for the Clean Development Mechanism but not within the EU. If one looks at phase 2 which covers the period 2008 to 2012, recent Commission decisions provide a stronger price for carbon. We are seeing investment flowing as a result of that.

Q120 Peter Viggers: The Pre-Budget Report in 2006 states that only 7% of allowances will be allocated via auctioning in phase 2. Is this enough, or would you prefer to see more?

Ms Hampton: We believe that you can have 100% auctioning in the power sector because it can pass on the costs to customers and is not exposed to international competition. For other sectors it will depend a good deal on what other countries do and for those one can use a combination of auctioning and efficiency benchmarks. But we need to see a lot more auctioning that is centralised and harmonised across the EU, and the timing and frequency of auctions is quite important to the market. If countries are able to decide how much they want to auction and how they do it that will not be the most efficient way to do it.

Q121 Peter Viggers: It is a global problem. Do we have global institutions which can handle it? There has been reference to the EU. So far in this evidence session there has been no reference to the OECD which has been very active in this field.

Ms Hampton: The OECD does not have the direct regulatory role. I think that it provides very useful input, for example through the Annex 1 Expert Group, on the evolution of carbon trading and international negotiations under the UN Framework Convention. I think that the institution that is worth focusing on is the CDM Executive Board which basically acts as a regulator for project-based reductions which flow into the EU scheme but can also be used by governments in Kyoto compliance. That particular institution started off as quite politicised; it is now being professionalised. However, the movement of projects through that system is still quite slow. That is being sorted out but the process could be accelerated somewhat.

Q122 Peter Viggers: Given the problems with the Doha round, how optimistic are you about international development?

Ms Hampton: Certainly there are parallels. What we see in the emissions trading world at the moment are national schemes which will bubble up like the EU scheme and they will become linked. But one will always need an international regulator to guarantee that a tonne of carbon in China is the same as a tonne of carbon in the UK. Schemes can develop around that and there will be differences between schemes. There is some flexibility for a range of institutions in the emissions trading scheme, but there must be one yardstick. I am quite optimistic that that can continue because Kyoto sets out that framework of monitoring and verification and the CDM Executive Board and other institutions do that job quite well. Those institutions are, however, under-resourced both in terms of staff capacity and finances.

Mr Roberts: I am not quite sure I share the optimism. The picture of the kind of institutions that one needs to build is right, but there is now a tendency to say that we have not quite got the institutional framework right and we should not really do anything yet. We come back to the point made earlier by Ms Hampton that some of these emissions are not moveable; they are not subject to competitive pressures, and the need to set up some international system for trading and management is to deny the fact that a lot can be done at country or regional level which can then be joined together. What is important is that one starts to map out what the rules would be for an international system so one build that into it and joins together any more regional systems. One certainly does not need a global system to kick off, as the EU ETS shows. I think that that could go a lot further before we need to worry about it.

Q123 Peter Viggers: There is a risk that rich countries will lecture poor ones who feel they cannot afford to participate. How does one sell that story to the poorer countries?

Ms Hampton: I think that the carbon pricing story and emissions trading piece fall out of a much broader discussion about energy and climate security. There are a number of emerging economies in between the developing and developed world, for example Mexico and Korea, which have recently become industrialised. They are starting to look at emissions trading very seriously and they can take that on. The next group comprises countries like China and India which will probably engage on a sectoral basis to start with, and that is very much where the international negotiations are focused. One may have a one-way target for a particular sector and it is one of the proposals on the table: if they over-achieve they can sell that carbon into the global market; if they under-achieve they do not face the same kind of compliance and penalties that, say,
the EU would. There is a range of things that developing countries can do on the road to a fully capped system, but I think it is unrealistic to expect most developing countries to accept the cap beyond maybe some sectors that they may want to volunteer, apart from those countries which are in the OECD or are borderline at this point.

Q124 Mr Breed: If we can take a brief look at current environmental taxation, Friends of the Earth has described to us that the climate change levy is the Government’s environmental tax success story. What do you believe are the features that has made it a success, if you believe it is? To what extent can that perhaps be replicated in respect of other environmental taxes?

Mr Roberts: I think I will have to pass on that. I do not have enough information available to say whether or not it is a success story. I think that what it did at the time, even though it is not a huge price signal, was signal intent and a government position which meant that industry could see where things were going. The significance of it lies not so much in the price signal as the fact that it demonstrates a bias towards low carbon behaviour over high carbon behaviour. I do not think that it would fit particularly well the criteria for a logical and transparent system, but it signals to industry that it wants to see carbon emissions coming down and it is prepared to release it from the tax burden if it can show what it is prepared to do. But one would still want to see what came out in the wash at the end of all these voluntary agreements before one could conclude that it was a success in that respect.

Ms Hampton: If one uses taxation in combination with other instruments one could get some quite useful outcomes. The climate change levy of itself would not have achieved what the entire policy package around it did. One matter mooted by colleagues at Climate Change Capital is the idea that in the absence of a long-term signal from the emissions trading scheme the Government would institute something like a price floor through a carbon levy or tax. Basically, if the international or European price of carbon fell below, say, £15 per tonne it would levy a tax to continue to penalise business at that level. That could provide a long-term signal to drive long-term investment decisions in the absence of a longer-term agreement. There are things that national governments can do through their taxation systems that cannot be done internationally. Looking at the complementarity of those different instruments is definitely something worth exploring.

Q125 Mr Breed: In respect of climate change, what do you think is needed now? If one were to recommend just one thing to bring about wholesale behavioural change what would it be?

Mr Roberts: I think that we need to see far more money going into education both within schools and more broadly. If one looks at the Energy Saving Trust budget, it has been static for five years. That is the main vehicle used by the Government for communicating with individuals about these issues and providing support and advice. One could envisage a huge expansion of that and build on it. As to immediate matters, I think that the Government must get their story straight on the message. We all want to get individuals, businesses and national bodies working together. So show what it means in practice and be clear about what different parties are bringing to that, and also why it is important for the UK to lead, not because it massages some political ego on the international stage but because it shows we can lead the dancing in the international process of getting negotiation together and take responsibility in relation to that. I do not think we have yet got that. We saw that with Stern. “There is no point in acting unless China does it”. We saw it with the launch of the Climate Change Programme review. “It would be nice if individuals acted too” (as though somehow they did not need to before). I think we need to find a way to go beyond this confusion so we have a clear framework of communication and a lot more resources going into education and awareness-raising, backed up in the medium term with something that really brings individuals into the carbon trading system, raises their carbon-consciousness and makes it part of their major decision-making in terms of both individual behaviour and purchasing decisions.

Ms Hampton: In terms of imminent action, I think that the Spring Summit in early March where EU heads of government will get together and talk about the EU energy package is potentially a very important political moment. The Commission has put forward an ambitious and coherent package which should be welcomed, but it could be unpicked by individual Member States as they try to undermine the mandatory nature of some of the targets or take an a la carte approach to the instruments on the table. It would be very dangerous if particularly the UK Government on the basis of subsidiarity started to say that there should not be mandatory renewable standards or for carbon capture and storage at EU level. There is now such a level of urgency and scale required to address the problem that some of these issues have to be dealt with at a point beyond national level. The UK Government could make that moment important by working very carefully with other heads of government so there was less in-fighting between industry ministries and environment ministries, which have plagued the implementation of most climate legislation so far, and there was a firm commitment to provide long-term carbon signals up to 2025 which have a real impact, and do something about the demonstration of carbon capture and storage and the commitment to build 12 plants across the EU by 2015. If we do not take the carbon out of coal we do not solve the climate change problem. In addition to the stuff that needs to be done locally, at national level and by individuals some of the big picture stuff is absolutely essential.

Q126 Chairman: The Stern Review says that there will be costs from climate change and preventative measures alone will not make up for that, so there
needs to be adaptation. Is adaptation featured strongly enough in the debate, and could more be done in that area?

**Ms Hampton:** In the history of the negotiations adaptation has tended to be used as a card played by countries like the US and Saudi Arabia as a way to divert attention away from mitigation. I believe that that has slowed down an intelligent debate on adaptation. That is one reason why it has not played a big part. Another matter is that it is quite difficult to differentiate between sensible adaptation and just sensible sustainable development. If one looks at water or forestry policy, to do things that are sensible from the point of view of sustainable development also improves one’s resilience. There has not been enough attention paid to adaptation. As for a lot of the climate impacts, people do not necessarily have the local resolution they need in climate modelling.

**Q127 Chairman:** What could the Treasury do to highlight the required expenditure on adaptation as a way of raising public awareness of the current cost of climate change?

**Ms Hampton:** The UK is doing better than other countries through its Climate Impact Programme, but I think that adaptation really needs to be factored into business decisions and local government decisions to an extent that is just not happening at the moment. The water sector has started to think about it but possibly that is the only sector that has. One needs a much broader approach. On the international side, we are not doing anything to tackle the problem that is increasingly being faced by developing countries. Look at the Horn of Africa and other places. We have not even started with that.

**Mr Roberts:** I agree that there has been to some extent a morally odious use of the idea of adaptation, and in some of the impacts discussion there has almost been a sense that it could be positive. We have heard some discussion in the South West to the effect, “Where are we going to grow the wine?” One can already get some very good wine from Cornwall. In a way, it comes back to communication. The problem is that one already has adaptation costs; one already has to deal with flood defences. Stop building housing in flood plains which planning systems still do not manage to prevent. We also need to communicate those as costs that are already sunk. Some of the environmental groups tend to say that unless we change our behaviour we will have all these costs. That kind of equivalence is not there any more; we have the costs anyway and we need to change our behaviour to stop them rising even further. I still think that we have not managed to get across that point.

**Chairman:** Thank you very much for your evidence which has been very revealing. It has been a worthwhile morning for us.
Tuesday 6 February 2007

Members present:

John McFall, in the Chair

Angela Eagle
Mr Michael Fallon
Ms Sally Keeble
Mr Andrew Love

Kerry McCarthy
Mr George Mudie
Mr Brooks Newmark
John Thurso
Peter Viggers


Q128 Chairman: Sir Nicholas, good morning and welcome to the Committee. Thank you for coming a little earlier. I know that you have other engagements. Perhaps you would introduce yourself and the other witness for the record.

Sir Nicholas Stern: I am Nick Stern, head of the Government Economic Service. I led the Stern review on the economics of climate change. On my left is Lorraine Hamid, a member of the Stern review team. She worked in a number of areas but particularly in emissions trading schemes of various kinds.

Q129 Chairman: You have been called an idiot economist by the chief executive of Ryanair and, more importantly, referring to the evidence session that follows this, Lord Lawson in his CPS speech that the Stern review was scaremongering. He said: “If scaremongering seems a trifle harsh, I should point out that as a good civil servant he was simply doing his master’s bidding.” Lord Lawson goes on to say: “The voluminous Stern Report adds disappointingly little to what was already the conventional wisdom—apart from a battery of essentially spurious statistics based on theoretical models and conjectural worst cases. This is clearly no basis for policy decisions…” First, defend yourself on that; second, why is your review so important particularly in the light of the IPCC report?

Sir Nicholas Stern: Perhaps I may start with the key messages and where I think the review may have added some value. I am not here to say how important my work is; I am here to try to explain it and give an indication of its implications and what may be new. I shall deal with the criticisms you have described in just a moment. I do not believe that any of them has any serious foundation. The Stern review brought three things to the literature that in my view had not been given sufficient prominence in the past. The first was the economics and risk. Climate change is about risk and the appropriate analytical methods to bring to that are the economics of risk which look at the question: what kinds of risks can we avoid by action and what will it cost to avoid them? The economics of risk are an absolutely central question. I think that up to now it is disappointing that whilst the literature gives it some recognition it has not been given sufficient emphasis. The second is the role of international action and how to put it together. What kinds of actions in countries and groups of countries can best promote international action? I think that we had a stronger policy perspective on the international aspects of action than some other studies. The last thing is that we put the ethical questions at centre stage. If one is talking about making decisions now which have an impact over 50, 100, 150 or 200 years the ethics of how one makes judgments as between changes in investments in the next few years and their implications 150 years down the track raise some quite difficult questions. We felt that the economics of policy could not really be taken on without confronting those things. Therefore, in terms of approach there are three matters in the review that I emphasise as being new, at least in terms of emphasis. We are building on literature which is quite strong but in many ways in terms of economics is fairly new relative to the literature on other policy problems. I think it is fair to say that the science has gone ahead of the literature. I have spoken about where I think we have pushed things forward relative to the economics literature. We have not sought to push things forward relative to the science literature. We have been consumers of the science literature, but it has changed in the past five years in a very significant way from the point of view of what I have just described. The science literature is very old one. The greenhouse effect was first recognised by the French mathematician and scientist Joseph Fourier in 1820, so there is a very long history of the understanding that greenhouse gases in the atmosphere will trap energy in the earth and warm it up. But the significant advance in the science in the past five years from the point of view of our work as between the third assessment report and the fourth just published—I was in Paris for its publication in the past few days and had extensive discussions with scientists, particularly with French colleagues and policymakers—has been the probabilities. They can now give us some information on what would be the probabilities of different kinds of temperature increases if we stabilised at 550 ppm. In that case there would be a 50-50 chance eventually of it being above or below 3°C. The science which gives us those probabilities enables us to put to work the economics of risk. We were consumers of the science and the way we used it was absolutely dead centre relative to what the science offered. But we were able to use it in terms of...
the crucial approach to analysis which is the economics of risk. Looking in a constructive way rather than being defensive relative to some of the things that you have described, I believe that the review has added something. That is certainly the view of a number of people in the European Commission, including President Barossa and Commissioner Dimas, and Jacques Chirac and Lionel Jospin who came to the seminars in Paris. It has been presented and appreciated in a number of other contexts, but it is not for me to say how important it is. I want to describe conceptually and analytically what it brought to the table.

Q130 Chairman: I am aware of the extensive visits that you have made worldwide and the impact and interest that has aroused. Since we announced this evidence session the IPCC issued its latest report on Friday. It argues that if CO2 rose to 550 ppm the earth’s temperature would probably rise by about 3°C which many scientists believe is unsustainable by society. What would be the economic implications if we adopted a much more ambitious target than the 550 ppm?

Sir Nicholas Stern: If I may just relate the temperature increases to the economics of risk that I have just emphasised, it is very important how we interpret those. First, the numbers that you quote are for 2100; second, they are at a distance from now, whereas the numbers we use in the Stern review are quite conventional and are relative to pre-industrial times. The difference between their numbers and ours is 0.7°C for that reason. We were talking not only about 2100 but also the eventual temperature increases. I think it is extremely important to look beyond 2100 and ask what the eventual temperature increases would be. They would be higher than that. The third point is that in interpreting the IPCC numbers you have just described, the economics of risk are not concerned just with the middle of the range but with the risks that we run from the higher ends of it. The number that you quoted would involve a substantial risk of being above 5°C eventually into the 22nd century, with the probability of it being still higher than that. An increase of 5°C is earth-transforming; it is the difference between where we are and the last ice age. That transforms how and where you can live. That kind of temperature increase would very likely involve substantial movements of population and potential conflicts. We are already seeing that with a 0.7°C increase in Darfur. There are many reasons for the conflict, but that is due in part to the movement of pastoralists and the difficulties they encounter with agriculturalists. Given those population movements that we see at 0.7°C, an increase of over 5°C, again using the convention adopted in the review which is related to pre-industrial times, is a very serious risk. We said in our review that we recommended that the target range for public discussion should be between 450 ppm and 550 ppm. We argued that 550 ppm given the risks it involved would be the highest level that it would be sensible to contemplate given there was a 50-50 chance of it being 3°C above pre-industrial times and the real risks involved in that. In all this I am talking about CO2 equivalent, that is, CO2 plus the other greenhouse gases. We will be at 450 ppm in less than 10 years. Currently, we are at 430 ppm CO2 equivalent; it is around 380 ppm for CO2 and one adds another 50 ppm or so for the other greenhouse gases. We are adding 2.5 ppm per year and that 2.5 ppm addition is rising. Perhaps in about eight years we will be at 450 ppm. Once the stuff is up there it is very difficult to get it out again. Some of the non-CO2 gases fade quicker than CO2 which can last hundreds of years. It is a ratchet effect. The flow goes into the stock and the stock is difficult to bring down. Therefore, we are almost at 450 ppm. That was how we arrived at the range we proposed; that is, between the 450 ppm which we are already near and the 550 ppm which seems to be the upper limit that we would want to contemplate.

Q131 Chairman: You have said in your report that what we do just now will not affect what happens in 40 or 50 years but what we do now can affect what happens in 80 or 100 years. How can we get that through to the public? To what extent do you think the public is prepared to contribute seriously to tackling climate change, and what language or methods do we use to reinforce that message?

Sir Nicholas Stern: Obviously, it is much easier to understand that one has a problem with congestion in London when one sees cars slowed to a walking pace. One sees it now. This is a different kind of problem as you emphasise. I think that it involves analysis of the kind that we have tried to bring to the table. It involves teaching in schools and communications in the media. People like David Attenborough and Al Gore have been very good at communicating. Nicolas Ullo in France has made an extraordinary contribution. Last Wednesday he called the candidates in the election together and asked them to sign an ecological pact, which they did. It needs communication in the media and also political leadership. There is no magic language.

Q132 Mr Newmark: I want to focus on some of the criticisms of your work that have been made. Some economists have questioned the appropriateness of the rate that you use to discount future costs or benefits of future generations as a result of climate change. Most of these critics argue that the rate is far too low. I think you have taken 0.1% which magnifies the future costs that you estimate we need to mitigate against. How do you defend your use of a 0.1% discount rate?

Sir Nicholas Stern: Most of those studies, and the way you put the question, do not get to grips with the meaning of what discounting does. Basically, there are two things to understand at the beginning. This is a technical question and I have to take a minute to deal with it.

Q133 Mr Newmark: In answering it, can you say why using the Treasury green books with a preference rate of 1.5% is completely inappropriate?
Sir Nicholas Stern: I will give a brief answer. The discussion is in the appendix to chapter 2 of the report. I think that that makes clear the relationship about which you have asked me. In simple form, there are two reasons for discounting. One is that in future people may be better off than we are currently. An extra unit of stuff has lower ethical value for that reason. They will be richer, and that is absolutely dead centre in the review. The review does have discounting for the fundamental reason of growth. What we do in the review is take on the issue of how far we should discriminate between people by date of birth. The number that you are talking about applied to this particular case. If you use 1.0% or 1.5% you will be saying to somebody who is 50 years younger than you in the social analysis we are carrying out, “You have half the weight of me.” I think that is an ethical position that is extremely hard to defend. The way in which we describe the discount rate that we use, which is fairly standard at least among people who have looked carefully at discount rates, is that account must be had of the possibility that what you are studying—it could be a railway project or some other investment project—becomes irrelevant for a number of different reasons, such as a complete change in policy or total redundancy because of technical change. If one is looking at a cost benefit analysis from the point of view of the planet, it is much more difficult to make that case.

Q134 Mr Newmark: I appreciate that it is a complex issue and you have given a long answer, but we are trying to relate it to ordinary people. Future generations in simple terms will be much richer than us. Part of the criticism is that you are asking today’s generation to take on an unduly enormous part of the burden when future generations may be wealthier and the relative cost to them as opposed to us today will be less. There are a number of disaster scenarios in other areas we can look at despite this. There are a number of disasters that are expected to take place because of the kind of information that one needs to have in order to think through what kind of adaptation investments might be necessary. Another area is sea-level rise. If you use 1.0% or 1.5% you will be saying to somebody who is 50 years younger than you in the social analysis we are carrying out, “You have half the weight of me.” I think that is an ethical position that is extremely hard to defend. The way in which we describe the discount rate that we use, which is fairly standard at least among people who have looked carefully at discount rates, is that account must be had of the possibility that what you are studying—it could be a railway project or some other investment project—becomes irrelevant for a number of different reasons, such as a complete change in policy or total redundancy because of technical change. If one is looking at a cost benefit analysis from the point of view of the planet, it is much more difficult to make that case.

Sir Nicholas Stern: That is just wrong.

Q135 Mr Newmark: That is the criticism being made. Sir Nicholas Stern: I am trying to explain why it is wrong. The discounting for growth because people will be better off than we are now is in the review and it takes place in exactly the same way as the Treasury defines it in its standard text. The difference between the way in which we and some others have done it in the past is not for that reason of discounting which is absolutely dead centre there. The way you have described it is just wrong.

Q136 Mr Newmark: That is the way people perceive it. Sir Nicholas Stern: Then you must read the report carefully. There is a clear conceptual difference. The pure time discount rate is a different concept.

Q137 Mr Newmark: I understand that. Sir Nicholas Stern: That discriminates people by date of birth.

Sir Nicholas Stern: First, I cannot accept the logic that a 1.5% discount rate is inappropriate. You keep dismissing the idea of discounting for growth.

Q138 Mr Newmark: I think that you are employing ethical overlays in what you are doing. You have used a 0.1% discount rate. The lower the discount rate used the higher the cost today. Using a 0.1% discount rate by definition creates enormous cost. If you look at your technical annex to the postscript you lay out some sensitivity analyses regarding discount rates. To what extent have these answered your critics that a discount rate of 0.1% is inappropriate?

Sir Nicholas Stern: For discounting seems to me to have little ethical value for that reason. They will be richer, and that is absolutely dead centre in the review. The review does have discounting for the fundamental reason of growth. What we do in the review is take on the issue of how far we should discriminate between people by date of birth. The number that you are talking about applied to this particular case. If you use 1.0% or 1.5% you will be saying to somebody who is 50 years younger than you in the social analysis we are carrying out, “You have half the weight of me.” I think that is an ethical position that is extremely hard to defend. The way in which we describe the discount rate that we use, which is fairly standard at least among people who have looked carefully at discount rates, is that account must be had of the possibility that what you are studying—it could be a railway project or some other investment project—becomes irrelevant for a number of different reasons, such as a complete change in policy or total redundancy because of technical change. If one is looking at a cost benefit analysis from the point of view of the planet, it is much more difficult to make that case.

Q139 Mr Newmark: You keep saying “you”. There are a number of people who make that judgment.

Sir Nicholas Stern: It is just that we are talking to each other. The discount rate that you are talking about is a pure time discount rate that discriminates between people without any regard to wealth and income; it is purely to do with date of birth. If you are doing your cost benefit analysis at a planetary level, which is what we are doing here, that reason for discounting seems to me to have little justification. We are in pretty good company here in that Solo, Sen, Keynes, Ramsey and all kinds of people have adopted the approach to pure time discounting that we have adopted. It is not particularly unusual.

Q140 Mr Mudie: Does the Treasury collect data on the total amount of government expenditure, both current and future, on measures to enable climate change adaptation?

Sir Nicholas Stern: I really cannot speak for the Treasury on this. I believe that John Healey is coming tomorrow.

Q141 Mr Mudie: Were they doing it when you were there?

Sir Nicholas Stern: I do not have detailed information on that.

Q142 Mr Mudie: What more might the Government do to ensure there is a supportive environment for adaptation to climate change within the UK?

Sir Nicholas Stern: As to adaptation, the basic information is of enormous importance. Quite a lot of work is going on in that respect. For example, Sir David King’s group at the Hadley Centre in Exeter, which is a world-class centre for the analysis of climate change, has been looking at the kinds of impacts that might take place in the UK. The information that these people are putting out about consequences for the UK is absolutely fundamental. For example, it is likely that the south of England will have much wetter winters and dryer summers which would put a great deal of pressure on the London sewerage system. The storm surges up the Thames are likely to be much more severe. Heat stress in the summer with implications for the London Tube is likely to be much more severe. That is the kind of information that one needs to have in order to think through what kind of adaptation investments might be necessary. Another area is sea...
defences. One needs strong local information to do that. I believe that that is being built up, but it is not something in which I have specialised.

Q143 Mr Mudie: How far would you allow adaptation to be used as a proactive choice in combating climate change as opposed to mitigating emissions?

Sir Nicholas Stern: I would not put it as a horse race. I think that both of them will be important. As I said at the beginning, some significant temperature increases are on the way because of what we have done in the past. We have seen 0.7°C relative to pre-industrial times. In all likelihood even if we act very strongly we are likely to see somewhere between 2°C and 3°C. One hopes to keep it lower than that, but that is the kind of thing one must envisage. That means it is three or four times what we have seen. That is coming because of past action, even if we act strongly now. Adaptation is very important, particularly for developing countries. That is why we laid such stress in the review on the importance of rich countries meeting the commitments that they made in 2002 in Monterrey and 2005 in the EU Gleneagles meeting on support for developing countries because they will be hit the hardest and earliest. But adaptation as already referred to in the London examples will be important round the world. We have to do both. I think that to see adaptation as an answer to a risk of a 5°C or 6°C increase is not realistic given the magnitude of the implications for the political and human geography of the world.

Q144 Mr Mudie: One of our witnesses, Kate Hampton, said that adaptation tended to be used as a card played by countries like the US and Saudi Arabia as a way to divert attention away from mitigation and she believed that that had slowed down intelligent debate on adaptation. Without regard to the criticism of the two countries involved, do you think that has happened?

Sir Nicholas Stern: One can talk about the importance of adaptation without casting aspersions on the motives of players who talk about it. I spoke to the heads of state of the African Union in Addis Ababa last week. For them adaptation is a very big issue. They have already seen desertification and conflicts in Darfur, floods in Mozambique in 2000 and the droughts in Kenya in the late 1990s. For them adaptation is a reality; they have to face it and we should do all we can to support them. Therefore, adaptation is of fundamental importance. I also think that mitigation is of fundamental importance. I do not see one as a conspiracy against the other.

Q145 Peter Viggers: Weapons available to government include regulation and tax, but one weapon that is much discussed in your review is carbon emission trading. Can you say a word about the advantages of this and the prospective dangers and difficulties of it?

Sir Nicholas Stern: I think that all three have a role to play. One has to look at the circumstances of the industries, goods, activities and countries. There are some countries which find taxation less easy than regulation. The US is probably such a country. There are cultural and political backgrounds in different countries which lead to different areas. If one looks at the European Union emissions trading scheme which is the biggest and most important example and is probably the right vehicle to start to answer your question, that covers about half the emissions in Europe. It is clear that if one goes for the big industries in terms of putting trading schemes together one can get quite big coverage. For me, the most important advantage of trading schemes is that it is a way of promoting carbon financial flows to developing countries. For a lot of my life I have worked in development; I have spent more than 30 years in India and nearly 20 years in China. The intensity of their feeling about the inequity of this problem must be recognised and understood. They see the rich countries as being responsible for sticking the lion’s share of the greenhouse gases up in the atmosphere and themselves as being hit earliest and hardest. They look to the rich countries for help not only with adaptation but with finance for the extra costs of moving to low-carbon economies. An advantage of trading is that it can help generate those private flows of finance. We already have the beginnings of that in the clean development mechanism and we argue in the review that we should move to a scaling up of those kinds of activities. The advantage of tax is that where you do not have a collection of big industries with easily measurable emissions it is easier to tax goods and so on, and it is a decision that can be taken in just one country. There are advantages to tax in that context, but there are disadvantages in trading. I particularly emphasise the international nature of it. It allows the European Union, for example, to collaborate well in a way that may otherwise be difficult and it allows flows to developing countries. One has to look at different parts of the economy and different groups of countries. I have not said anything about regulation, but I also believe that that is an important part of the story.

Q146 Peter Viggers: The Institute of Fiscal Studies has said that emissions trading may not work properly if there are imperfections in the market for permits to pollute. Do you believe it is possible to design a scheme that iron out those imperfections at this point, or is it something that will need to evolve, and who will supervise it?

Sir Nicholas Stern: I think we are learning fairly quickly. These are early days. Emissions trading in Europe has been going for only a couple of years. I think that we are moving into a good discussion of the third phase of the emissions trading scheme from 2012 to 2020, so we are learning quite quickly about how to make it work. It must have scarcity if it is to work. If one dishes out far too many permits one will drive down the price and it will not work. One must have reasonably strong ambitions, and one must also have ways to verify emissions which is
also an important part of that story. One needs an institutional structure to support the market, just as one needs an institutional structure to support trading with developing countries. Currently, that is the clean development mechanism which is a rather cumbersome institutional structure. But these are early days. I think we are learning quite quickly. I have been impressed by how rapidly that learning process has gone ahead given that it has been going for only a couple of years.

**Q147 Peter Viggers:** Is the system socially neutral? Does it disadvantage poorer households and, if so, what can be done about it?

**Sir Nicholas Stern:** Any scheme that relies on price—it is the same as tax—can be seen to bear more heavily on poor households, but that is true of the price mechanism wherever one looks. The efficient way to deal with those kinds of problems is not necessarily or usually to vary the prices that people pay in this context but to look at income tax and other systems for the right way to distribute income. For example, we give old people heating allowances as a way to try to deal with the cost of heat rather than necessarily lowering the price of heat for them. The question you ask is a very general one and in terms of public policy we have a general approach to it. A final point to make on trading schemes is that over time we should start to look at auctioning the permits, not simply giving them away. There is a process of transition; one has to get there. One can understand why one would do that at the beginning. That is a feature that we must discuss.

**Q148 Angela Eagle:** Although the European Union emissions trading scheme is the most advanced in the world, it has not created scarcity, has it? It is only the UK that has issued stringent permits, whereas in Europe they have just issued permits that equal the emissions already being made, so there is no downward pressure. We are the only country that has looked at creating scarcity, the net result of which has been a transfer of hundreds of thousands of pounds in funds from the UK to the EU as our industries have sought to purchase the permits, not simply giving them away. There is a process of transition; one has to get there. One can understand why one would do that at the beginning. That is a feature that we must discuss.

**Q149 Angela Eagle:** But that means two years have been wasted in a sense. It is good that an infrastructure is being created, but we do not have that many years if the reports we are reading are accurate to try to get an emissions trading system that is global and works. What sort of infrastructure do you see having to be put in place globally to make a carbon emissions trading system robust and able to create scarcity as you put it?

**Sir Nicholas Stern:** If we look at the length of time it has been in place we are learning quite quickly. In the spring council of the EU the ambitions for the period 2012 to 2020 will be discussed. There have been strong proposals by Commissioner Dimas and the Commission as a whole, strongly supported by President Barossa, for a reduction of at least 20% by 2020.

**Q150 Angela Eagle:** But in essence the EU has an infrastructure that is political even if it is controversial in some areas. The rest of the world does not have an infrastructure of governance that is robust enough to create a global emissions trading system. How do you envisage that being set up in the time we have left to deal with this effectively?

**Sir Nicholas Stern:** The challenge is to build that. This is not the only policy framework that we are talking about.

**Q151 Angela Eagle:** But it is an important one, as you highlight in your review?

**Sir Nicholas Stern:** It is a very important part of the story. I believe that we can move quite quickly on developing a much stronger infrastructure in the clean development mechanism which would support exchange through the markets between rich and poor countries. You identify a challenge. I think that is a challenge, but we can respond to it. If you say it is hopeless than you need to find some other way. I am not all that confident that if we throw away the tools we have we can use the other ones to the right kind of effect. If you look at the way the discussion is moving, the discussion on how to link up with California has begun. A real development in the past few months is Australia’s discussion of emissions trading schemes. As those build up in different countries it is very important to look very closely at the nuts and bolts and design of these things—often the devil is in the detail—to see how they can link up one with the other. But I am confident that we can move forward on the CDM which is a big part of the story.

**Q152 Angela Eagle:** You have described the issue of climate change as the greatest market failure that the world has ever seen. You say that some market mechanisms can be introduced to help to deal with it, but Lord Lawson who is to give evidence later today described your report as “a battery of essentially spurious statistics based on theoretical models and conjectural worst cases. This is clearly no basis for policy decisions which could have the most profound adverse effect on people’s lives, and at a cost which Stern almost certainly underestimates.” What do you say to him?

**Sir Nicholas Stern:** I think that is name-calling without substance. I can go through all the criticisms one by one, if you want me to.
Sir Nicholas Stern: It is not a very analytical use of language and I do not think it bears scrutiny, frankly. The emissions trading scheme works in the EU, if you look at its two-year history. We are learning from the process as I have just described. I think we can do it better, and we are starting to do that. We are looking at the clean development mechanism process. We are beginning discussions with developing countries on lots of ways to improve that process, not just as a matter of correcting them through tax, regulation and the trading schemes that we have been discussing. That is not capricious; it is serious market analysis.

Sir Nicholas Stern: It is the biggest challenge in persuading the US or global emissions trading scheme, what do you think?

Q154 Kerry McCarthy: In terms of establishing a market analysis. That is not capricious; it is serious in involving correcting them through tax, regulation and the trading schemes that we have been discussing. That is not capricious; it is serious market analysis.

Sir Nicholas Stern: They are both big challenges. The clean development mechanism has been the initial step for developing countries becoming involved in trading. I do not believe that at this stage in the discussions—I have worked closely with many of the key developing countries involved—it is reasonable to expect those countries to take on national caps. But we can have a discussion—I think it is beginning—on developing sectoral and technological benchmarks against which reductions can be recognised. I believe that that is a way forward in amplifying the trading that already exists with developing countries. In the United States in the next two years the north eastern states will be introducing a trading scheme. There are discussions in California—I shall be there at the end of March—about how to link up trading schemes there. We have to work with countries which are putting individual trading schemes in place. Australia is studying them, to see how we can best link up. If you look at the United States, there has been an extraordinary movement in the past six months or so: for example, the re-election of Governor Schwarzenegger, which in large part was on a climate change platform; the 10 big firms that wrote to President Bush ahead of the election; the State of the Union Address asking for a cap and trade scheme; the ambitions of individual US firms and cities; and the new chair of the Energy and Environment Committees, Geoff Bingham and Barbara Boxer who both take this issue seriously. Next week I shall be giving evidence to Senator Bingeman’s Committee in Washington. I believe that discussion in the United States is moving strongly. It is quite possible that in the next presidential election there will be two candidates representing the major parties both of whom are committed to taking this issue seriously. The US will make up its own mind. It is not for us to tell the United States, India or China what to do; it is up to us to try to engage intelligently on issues, and I trust that is taking place.

Sir Nicholas Stern: I do not particularly like language that is about winning and losing. I think that the challenge is one of building consensus and co-operation. Next week there will be global parliamentary event in Washington hosted in part by John McCain. A number of parliamentarians from the UK will be there. I am participating in that event. These are the kinds of events involving parliamentarians as well as academics that can push forward the argument. Next week I shall be taking part in an extended seminar at the University of Yale and sharing these issues with academics. If we share information as parliamentarians, academics and communicators that is the way to take forward these arguments. If you consider the movement around the world—India, China, the United States, Australia, Japan and Europe—wherever you look the argument is moving strongly. Whether it will move fast and effectively enough I do not know, but it is moving strongly in the right direction.

Q155 Kerry McCarthy: What steps can the UK take? What mechanisms and forums should we be using to try to win the argument on a global basis?

Sir Nicholas Stern: I think it is a matter of making the case rather than any other mechanisms that may force people or give them financial incentives to act differently. In particular, when you look at our trade with developing countries you do not believe that conditionality in terms of the environment or anything like that should be built into it, and it is more a matter of discussing with them the scale of the issue?

Sir Nicholas Stern: I think it is a matter of making the case. I have already emphasised the importance of overseas aid to adaptation, which is a big part of the conclusion of the review, building incentive structures through trading systems and sharing technology. It comprises all these things beyond simply discussion, although discussion is an important part of the process. If one looks at aid, sharing technology and trading mechanisms all of them are direct practical methods to take forward the whole case.

Sir Nicholas Stern: International sticks are quite difficult to operate. For example, I would be wary of green protectionism. I have seen some of the costs of protectionism around the world. At some point one could think of sanctions of various kinds, but they would be difficult to make stick and would run the risk of being divisive. At this stage of the discussion I would prefer to try to look to incentives and the building of co-operation.

Sir Nicholas Stern: But you see the way forward as carrots rather than sticks?

Sir Nicholas Stern: Evidence Ev 27

6 February 2007 Sir Nicholas Stern and and Ms Lorraine Hamid
Q158 Mr Fallon: Why does the Treasury define environmental taxes as only the climate change levy, the aggregates levy and landfill taxes but not taxes on energy and road vehicles?

Sir Nicholas Stern: I am not here to speak for the Treasury.

Q159 Mr Fallon: I thought you were head of the Treasury.

Sir Nicholas Stern: Yes, but the Government Economic Service cuts across the whole of government; it is not a Treasury service.

Q160 Mr Fallon: What is the answer?

Sir Nicholas Stern: My own view is that an important part of taxes, for example on petrol, should be seen as environmental taxes. If one looks at the reasons for taxing petrol, they are: the environment, a partial substitute for congestion and a means of raising revenue as any other tax is. I think that there is an important environmental tax associated with petrol.

Q161 Mr Fallon: You do not agree with the Treasury on that. Is air passenger duty an environmental tax?

Sir Nicholas Stern: I have said there are a number of reasons for taxation: externalities, the environment and congestion. Are they good or bad ways to raise revenue more generally?

Q162 Mr Fallon: I understand that. Is it an environmental tax, or not?

Sir Nicholas Stern: Some elements of it, yes, but one cannot necessarily say that this particular proportion is for the environment. As an economist I would regard some element of it as an environmental tax.

Q163 Mr Fallon: Would it affect consumer behaviour?

Sir Nicholas Stern: If you believe that prices affect behaviour, as I do as an economist and as I believe you do as a consumer, it will have some effect on behaviour. The price goes up and demand goes down.

Q164 Mr Fallon: Do you expect fewer people to fly as a result of the increase in air passenger duty?

Sir Nicholas Stern: Compared with what would otherwise have been the case, yes. If one put up the price of bananas one would expect demand for them to go down relative to what would otherwise have been the case.

Q165 Mr Fallon: Do you believe that air passenger duty is the best way to influence airlines’ emissions practices?

Sir Nicholas Stern: It is one way. At the same time, there is very intensive discussion, rightly in my view, about bringing air travel into the EU emissions trading scheme. I think that is a very important idea.

Q166 Mr Fallon: If air passenger duty is only partially an environmental tax can we assume that the rest of it is designed simply to raise revenue?

Sir Nicholas Stern: Any tax has a revenue element. After all, this is the Treasury Select Committee.

Q167 Mr Gauke: Your worst case estimate for mitigation policy packages adequate to cap CO2 at 450 ppm is 3.4% of global output, and in table 10.1 you set out a number of best case assumptions that reduce the figure, the largest of which is active revenue recycling. What does “active revenue recycling” mean?

Sir Nicholas Stern: First, we are quite cautious about assumptions about the cost of achieving 450 ppm. Whilst it is still difficult it is easier to get estimates on 550 ppm than 450 ppm for the reasons I gave right at the beginning of my evidence. Various people—this story is discussed in the report—look at recycling of revenue in terms of advantages from reducing taxes elsewhere, so if one raises more revenue in one place one has revenue to spend on schools, roads, hospitals or whatever it may be, or one can reduce taxes elsewhere. The language of revenue recycling has been used by a number of authors. I believe that at that point we were referring to the analysis of other authors. I approach the idea of revenue recycling with some caution because its benefits rather depend on what kind of tax structure there is and whether there is a move from a tax which has some real problems to another tax which has more or fewer problems. How one sets that up can make quite a big difference to what it means. We counsel some caution on the use of revenue recycling.

Q168 Mr Gauke: Are you referring to the tax integration effects and so on? There has been some criticism that your review does not take that into account. Is that a fair point?

Sir Nicholas Stern: The words “revenue recycling” usually mean reducing taxes elsewhere and counting some benefits for that. In the report we are quite cautious about it, although we note that some estimates in the literature have leaned on that. It is not something that we emphasise very strongly.

Q169 Mr Gauke: But you refer to it at 1.9.

Sir Nicholas Stern: That is because we are quoting other people’s results at that point. This is a review and we are trying to look at what others have contributed.

Q170 Mr Gauke: Is there a concern that if one takes air passenger duty one can ask: where is the revenue recycling there? It is simply a cover for increased taxes. Do you recognise that concern?

Sir Nicholas Stern: Any tax raises revenue and when that happens there are the usual political choices that any government at any time faces. For example, do you use that revenue for extra expenditure? Do you use it to reduce borrowing? Do you use it to reduce taxes elsewhere? Any tax produces that set of questions, and this is no different.

Q171 Mr Gauke: Looking at mitigation as a whole, in your analysis to what extent have you looked at the costs and benefits of past and current policies as far as global warming is concerned?
Sir Nicholas Stern: Referring to the two sources of our estimate of the cost of mitigation, which like all these things has big pluses or minuses attached to them, one is the work of recently retired Dennis Anderson, professor of economic energy policy at Imperial College London. He did a bottom-up study based on the kinds of costs associated with different kinds of technical change, including past experience in terms of what the costs of activities were then and some emphasis on past experience as described in learning curves and how people learn over time. That was one source of views based heavily on past experience in those two senses. Second, we asked Terry Barker of the University of Cambridge to review all the relevant literature. There have been lots of studies by others. Those were the two sources that we used for that purpose. In terms of Terry Barker’s work, the answer to your question will depend on how far that myriad of individual studies to which he referred is based on past evidence. Normally, if one conducts econometric work and fits cost estimates to data it will comprises past costs of various forms of activity and so one has to lean on that to a large extent.

Q172 Mr Gauke: How and when did you learn that you would be working with Colin Challen on climate change issues?

Sir Nicholas Stern: In what sense do you mean?

Q173 Mr Gauke: I understand that Colin Challen will be working closely with you on climate change issues, so I am just interested to know when you learned of that appointment and precisely what you will be doing together?

Sir Nicholas Stern: My understanding is that we are looking at some ideas on how economists and parliamentarians can talk to each other. Maybe this morning’s meeting is a good example. Colin and I have not had an opportunity to get together and work out the details, but I am very happy to do it. Colin and I will get together to think through how we can best construct a gathering of parliamentarians and economists some time in the autumn. I hope that those parliamentarians will come from different parts of the world and will be associated in some way with the Commonwealth.

Q174 Mr Gauke: I know that he has as long-standing interest and expertise in this area. Was it the Chancellor’s appointment?

Sir Nicholas Stern: The Chancellor asked me if I would be interested in doing this and I said that I was.

Q175 Mr Gauke: But was Colin Challen his appointment?

Sir Nicholas Stern: Yes. I learned about it from the Chancellor and I thought it a good idea. I shall be back at the LSE from June. I said that I would be very happy to take part in something like that in the autumn.

Q176 Chairman: Colin Challen is the chair of the All-Party Parliamentary Climate Change Group.

Sir Nicholas Stern: Yes. I do not know him well but I know him, and I am looking forward to this collaborative work.

Q177 Ms Keeble: According to the ONS the proportion of total tax revenues made up of environmental taxes has fallen almost every year since 1999, and it is now down to 7.7%. What does that data tell you? In particular, what does it tell you about the ability of government to mitigate climate change by taxation?

Sir Nicholas Stern: First, I have not studied those ONS calculations. I think I made clear in my answer to a previous question that classifying an element of a tax as “environmental” is quite a difficult thing to do given there are several arguments associated with any given tax. Identifying the environmental tax element is not straightforward. I cannot really comment on the trend without looking carefully at the definitions. Tax is just one tool.

Q178 Ms Keeble: You identified three ways to mitigate climate change: trading schemes, which we have discussed at some length, taxation and regulation.

Sir Nicholas Stern: That is on the price side. In the report we also identified a number of other ways: the promotion of research, development and deployment; deepening people’s understanding of the problem; looking at the way in which other markets work, for example property markets and so on; encouraging energy efficiency in various ways; and deforestation. In referring to those three things I was focusing on the market failure price element.

Q179 Ms Keeble: If one looks in particular at taxation, how do you believe governments can use that tool? Taxation can affect a number of the other issues that you mentioned, for example deforestation. How do you see government being able to use taxation given what is seen as the general unpopularity of green taxes?

Sir Nicholas Stern: Nobody likes taxes for understandable reasons. There are many different reasons for taxing. One can talk about externalities, the damage and bad side of the story; one can talk about taxes that are easier to bear, or are more equitable or easier to administer. All of those involved in public finance must look very carefully at all these different reasons. That is why I have said that identifying a tax as an environmental tax is not easy. To come back to the question of discussion of ideas, I do not see why people would be more opposed to a green tax than any other tax. I would have thought that on balance if we talked it through well and there was an additional special reason associated with the environment, added to all the other reasons for choosing the real balance of taxation, over time people would be more persuaded by green taxes than by others, but the case has to be made in the context that people do not like taxes.

Q180 Ms Keeble: I should like to put two questions. First, do you accept that a green tax is a tax on consumption that can be seen to be regressive?
Second, to pick up your point on Darfur, do you accept that although there may be climate change factors in the movement of people that is a bit of an easy cop-out for some disgraceful behaviour by government? This was wholly preventable and it is not wholly accurate to put it under the heading of climate change. My main interest lies in the first question.

Sir Nicholas Stern: I can answer the second one very quickly. I was very careful to say that it was one of the factors. Last week I was with the heads of state of the African Union in Addis Ababa and these were the kinds of discussions that we had then. People in Darfur much closer to the ground than either you or I had the view that this was an element in the story. I do not put it under that heading. On the green tax side, I come back to the point that I made right at the beginning. This one element in the armoury. I believe that if we had discussions with people they would understand it. Any use of a price mechanism wherever one looked, whether it be bananas, externalities, climate change or congestion, would have some distributional consequences. The Treasury Select Committee or public finance economists normally take that into account in the whole range of tools. That is why one looks at transfer schemes, pensions and the progressivity or otherwise of every tax. One has to see taxes in their entirety to make judgments about progressivity or not. I do not believe that it is right as an analytical and policy point to pick them off one by one.

Q182 John Thurso: They get an incentive now; they are fined if they do not do certain things.

Sir Nicholas Stern: I was looking backwards. For the most part of the story, there has not been a direct financial incentive. People’s view of what constitutes responsible behaviour is part of the story and it should be part of the public discussion.

Q183 John Thurso: There is quite good polling evidence to suggest that the vast bulk of people accept the danger of climate change; they believe it is happening and want to do something about it. About 70% of people accept that there should be taxation on the bads, as it were. That breaks down when it is directly applicable to them, one obvious example being petrol duty. For a tax to work in changing behaviour, as opposed simply to raise revenue, there must be an alternative place for them to go to acquire the goods. Therefore, whether one looks at APD and transfers it to the airplane rather than the passenger, or road tax and transfers it to road user charging, one has to structure something that people can move to. Do you concur with the view that we need to change the mechanisms to make it easy for people to change their behaviour and that the current structures are not geared to changing behaviour?

Sir Nicholas Stern: I think we have to look at ways to help people change their behaviour. Obviously, in the recycling story it is rather simple: you make the bins available and collect them in a convenient way. In this case we have to take a long view. These are changes in the pattern of behaviour that will take some time to have an effect and the technologies that are likely to be available to support it will take some time to come through. For example, if we take a 20 or 30-year view of the future of road transport, electricity—of course, there must be electricity from non-carbon sources—and hydrogen are likely to be important sources. We will see as the technologies develop. But that is why in the review we have placed strong emphasis on encouraging technological development. That is part of the story of making available to people alternative technologies. People can do quite a lot right now in terms of energy efficiency, for example insulation, light bulbs and so on. But those light bulbs need to be available. I talked to Terry Leahy and people from Tesco on the challenge of how to make these new technologies more easily available to people and how quickly those kinds of light bulbs can be brought to the shops in a convenient and attractive way. One has to do the promotion not simply through price systems or trading mechanisms. In some areas regulation and standards will be important in pushing that story ahead. I believe that regulation and standards, promoting technology and encouraging the easier availability through retail outlets and so on, are all ways to pick up the very fair question you put, namely how to make it easier for people to change.

Q184 John Thurso: We agree that taxation is not the whole answer by any stretch of the imagination but it is part of it. If there is a financial incentive to change and there is somewhere to go one is more likely to change. For example, what would be the
consequences of a fairly substantial cut in income tax and an equivalent rise in taxation on the consumption of pollutants, to put it in shorthand?

Sir Nicholas Stern: Consequences for what?

Q185 John Thurso: To help people shift towards less polluting behaviour?

Sir Nicholas Stern: It is not clear to me how much a cut in income tax would contribute to that. I know that we have been discussing the role of price.

Q186 John Thurso: The cut in tax would be allied to an equal rise in the taxing of bads, to use shorthand.

Sir Nicholas Stern: I think that the key factor in that context is what happens to the cost of the bads. I do not see much reason why adding income tax to it will make a change.

Q187 John Thurso: You believe that we should concentrate on taxing the cost and not worry too much about the other side?

Sir Nicholas Stern: The other side is a matter that you should be worrying about all the time as the Treasury Select Committee. What do you do with revenue? What do you do with expenditure? You look at it and allocate it.

Q188 John Thurso: I was thinking about this context.

Sir Nicholas Stern: I was engaging in discussion, not wrist-slappping.

Q189 Mr Love: One of the complaints made about your review is that it should have been more egalitarian between the rich and poor, effectively that you have underestimated the value of extra money to the poor. How do you respond to that criticism?

Sir Nicholas Stern: I spent most of my life working on the economics of developing countries and I believe that that shows in the review. I do not accept that criticism as a reasonable one. If one looks at the way in which the review is written, it places very strong emphasis on the damage that will be suffered by the poor countries earliest and strongest; it places very strong emphasis on the importance of the rich countries stepping up to the commitments to overseas aid that they have made because of the extra pressure that challenge of climate change will exert on development. The later chapters of the review also place great stress on the importance of rich countries in the context of the world reduction of 30% of greenhouse gases by 2050 and the rich countries taking responsibility for cuts of 28%. In the analysis in chapter 6 we do not build into the formal analysis the explicit welfare wage between rich and poor, but the reason we move from the highest estimate of 14% in the model to the 20% that is often quoted is precisely because we argue that this is the kind of increase that one would have if one took into account—

Q190 Mr Love: I apologise for interrupting you, but I had in mind specifically the criticism that Partha Dasgupta has made in terms of the eta value of one that you place on it. He suggested that perhaps two might be more appropriate. How would a value of two change your review?

Sir Nicholas Stern: This is a very narrow question about one particular part, chapter 6, of the review. In making our case for strong action on climate change in chapters 3 to 5 we lean very heavily on the argument that it is the rich countries that have caused the problem, looking backwards anyway, but in particular it is the poor countries that will be hit hardest and earliest. Therefore, that part of the story in chapters 3 to 5 is absolutely dead centre. The discussion of eta in chapter 6 is a very technical one.

Q191 Mr Love: Can you explain it in a non-technical way for me and the public and how a different value would impact on your review?

Sir Nicholas Stern: I shall try. If we think about the distribution of value judgments they can be considered in many ways. One way to look at them—it is associated with the analogy of the leaky bucket, for reasons you will appreciate in a moment—is to ask the question: if as a hypothetical, ethical redistributor one takes £1 from person A who is five times richer than person B and give it to person B, under what circumstances can that be regarded as an improvement? If eta equals one then one says that one does not mind losing 80% of that £1 along the way; one will still think it is a good idea. If one lost only 79% one would definitely think it a good idea; if it was 80% it would just about be okay. That is the leaky bucket. The bucket has £1 in it and it does not matter if one is moving it from somebody who is five times richer than somebody else; it does not matter if up to 80% of the contents of the bucket leaks along the way; it is still worthwhile. That is the one-fifth rule. They are five times richer and each is equal to one. If each equals two one retells the story: the one fifth that one does not mind just being left and the 80% one does not mind leaking away becomes one fifth squared. That would be one twenty-fifth. One says that if one takes £1 from somebody who has five times the amount of somebody else one does not mind if 95% goes along the way; it is still a good idea. That is one way that economists and others think about these kinds of value judgments. There is a reason for considering higher values of eta. If one looks at the way in which redistribution schemes work within generations it is quite difficult in practice to pick up etas of that magnitude. I have no trouble with eta equalling two, but if you think through the example just given I suspect that some people would. If you raise eta in the model—there is a sensitivity analysis in the postscript on exactly this issue—you bring down certain of the distributions of outcomes associated with temperature outcomes in their relation to concentrations. You bring down the estimates of damage because you are putting more weight on the current generation relative to a richer
generation. This is the key argument for discounting in the review on which we focused earlier. Some people argue that it should be weaker; some people say it should be stronger. Partha is one of those who argue that it should be stronger. But those are the kinds of ethical distributional discussions that we should have. I have had such discussions with Partha who is a graduate student friend. He and I would have very similar views on the delta which is the pure time discount rate. Partha is on record in that respect.

Q192 Mr Love: The criticism that is made is that you are being egalitarian between the past and future but not between the rich and poor?  
Sir Nicholas Stern: Partha’s comment was mostly in the context of now versus the future. I have already answered the question. If you read through the report I would be astonished if a balanced view was that it was not egalitarian. A lot of the comment I have received has been the other way.

Q193 Chairman: What emphasis should there be on adaptation and mitigation, and what is the relative importance of each?  
Sir Nicholas Stern: I tried to deal with that question earlier. I think that both are very important. The story of mitigation should be one that tries to bring us below 550 ppm as the stabilisation goal because of the risks that that runs. That is a strong mitigation objective; it is a tough task. We have discussed the costs, but we believe it is possible. If that were achieved, which would require strong effort at mitigation, it would still leave a lot of adaptation to do. There would be a 50–50 chance eventually of being above or below 3°C. Given that we are already seeing the effects of 0.7°C, that means there is a lot of adaptation to do. I think that we have to move strongly on both fronts.

Q194 Chairman: You referred to the next 40 or 50 years. You said that what we do now will not affect the position in 40 or 50 years but in 100 years. Just to give a simple message to the public, how much time do we have in which to do something about climate change?  
Sir Nicholas Stern: I should say that it will have some effect 40 or 50 years from now, but the much bigger effects will be after that. The effect is not zero at that time; it is much bigger later on. The notion of how much time we have comes from the idea of the stock and flow. We are at 430 ppm CO₂ equivalent and adding 2.5 ppm a year, and the latter figure is rising. If we did not do very much we would probably average an extra 3 ppm a year over the next 30 years or so. That would take us close to 530 ppm—fairly close to the 550 ppm which many people regard as quite risky. That gives you a feel for how much time we have. To do nothing for 30 years will make it very difficult to achieve stabilisation of 550 ppm. If we are to get there it means that total emissions must peak 20 to 25 years from now and decisions and action must be taken in the next few years.

Q195 Chairman: Your report is voluminous. If our staff require any extra information or elaboration as a result of this morning’s evidence I should be happy if you could send it.  
Sir Nicholas Stern: We will try to be as helpful as we can. Bear in mind that the team will unwind six weeks from now. We have already unwound to about four or five people and spend a fair amount of time in public discussion and so on, but we shall do our best.

Chairman: We have finished bang on time. Thank you for your time, in particular for coming here early for us. This has been a fascinating evidence session. We wish you well in your discussions with many governments and organisations worldwide.
Q197 Chairman: Those are not my words but the words of the vice-chairman.

Lord Lawson of Blaby: Perhaps I may spend a little time talking about the IPCC process. These are not views but facts. It is a very curious process. Dealing first with the scientific side—they have a different working group of economists but that comes later—it has a whole lot of scientists. To some extent it is a selected group because those who are very sceptical tend not to be invited to take part. But it is a broad measure of scientists, many highly reputable. They have produced a report. A different document is then produced by the bureaucrats, not by them, appointed by the various governments and the United Nations mainly from environment ministries and that sort of thing (one of them incidentally come from finance ministries). These bureaucrats then produce what they call a summary for policymakers which they do in their own words and which differs from what the scientists have done. The scientists do not have the opportunity to make their own summary; it is done by the bureaucrats, and that hardens it up. The chairman Dr Pachauri and his people then give a press conference which goes much further in hardening it than even the summary for policymakers. You can read that document yourselves. At the press conference they say that this is what the scientists are saying. It is two removes from what the scientists are saying. The next stage in the process is that they will now change the report made by the scientists. This is well known to those who follow the process; it is not a new allegation but that is how the process is that they will now change the report made by the scientists. For example, the Stern review, which I suppose the 20th century a 0.7°C increase. It is highly likely that carbon dioxide emissions played a considerable part in that. How large a part is very uncertain. If one reads the science it is extremely uncertain how large a part it played. But it is highly likely that it played a significant part in that. How large a part is very uncertain. If one reads the science it is extremely uncertain how large a part it played. But it is highly likely that it played a significant part in it. As to how much temperatures will rise in future because of it requires a lot of assumptions based on, to begin with, how much of the warming is due to emissions. Almost certainly some of it was, but one can never be certain in this field. Nor do we know how much economic growth there will be; what the population increase will be; how energy-intensive the growth over the next 100 to 200 years will be. Different assumptions produce totally different results. One then asks: what are the likely consequences of that? It is difficult to say. For example, the Stern review, which I suppose is a call for action, focuses very heavily on what it sees as the disadvantages and ramps them up to an extraordinary degree. This is all set out in the World Economics article. It says nothing about the beneficial consequences. It is partly for that reason, but also for a number of others, that I believe what we need to do apart from monitoring what is happening all the time is focus more on the consequences of warming, mitigate those consequences where they are harmful—where they are beneficial, pocket the benefits—rather than attempt at huge cost to cut back drastically as the Stern report recommends on carbon dioxide emissions.

Q198 Chairman: I think that what you are saying about the UN is that it is spinning par excellence and professionals in the UK could learn a lot from them?

Lord Lawson of Blaby: Some of the professionals in the UK are not bad at that, but certainly UN organisations like the IPCC are pretty good at it.

Q199 Mr Gauke: You just referred to the huge cost required to mitigate the effects of climate change caused by humans. The Stern review refers to the cost of stabilising greenhouse gas as being 1% of GDP. How do you explain the difference between 1% and “huge cost” as you put it?

Lord Lawson of Blaby: 1% of world GDP is quite a big cost, but nobody else, apart from Stern, believes that it is as little as 1%. It is terribly difficult to know. The only way one could try to find out the cost would be to introduce—I know that this is one of the matters at which the Committee is looking—a carbon tax and see what the consequences would be. How high a carbon tax would be needed in order to cut back the amount that it is said should be cut back? I suspect that you would need a very high carbon tax, and people would put a stop and say it had gone too far long before that happened. The cost of 1% of GDP is highly implausible. There is another aspect to it which we have to bear in mind all the time. Sir Nicholas Stern referred to it during the latter part of his evidence, which was the only bit I heard. That is the curious thing that the sacrifices that you would be asking people of this generation to make in cutting back emissions are quite considerable. The emissions scenarios are based on the Stern projections; they are based on projections of steady growth over the next 100 to 200 years. Let us confine ourselves to 100 years. One of the oddities of the whole field is that one applies weather forecasting to economic forecasting to demographic forecasting. One piles uncertainty on uncertainty and apparently come to a certain conclusion of what should be done. I think that is highly implausible if anybody stops to think about it. In any event, the growth which generates the emissions means that, based on Stern’s figures, people in 100 years’ time will in terms of GDP per head be a little over seven times as well off as they are today. If one takes his worst case for the damage done by business as usual one finds that they are a little under six times as well off as they are today. That should cheer up people who are gloomy about the future of the planet.
are, poor things, just under six times as well off as they are today. The proposition is that we should ask the people of this generation all round the world—this is meant to be a global thing with international agreements and so on, which is most unlikely to be productive—to make considerable sacrifices now in order that their great-grandchildren or great-great-grandchildren, or whatever, will be seven times as well off as they are today rather than six times as well off. It is as if at the time of the industrial revolution just under 200 hundred years ago people were told that they should not embark on that process and burn coal but use wind and water, which were well known technologies at that time, so that we in this generation would not be as well off as we are today. I do not think they would support that.

Q200 Mr Gauke: I stray slightly from what I intended to cover, but Sir Nicholas told us a little earlier that he had taken into account the fact that people would be richer, and that had been included in his calculations. I know there is a lot of talk about the discount rate of 0.1%, but he said that the point you make about people in the future being richer had been taken into account in his assessment. Do you disagree?

Lord Lawson of Blaby: He made an hypothesis. Welfare economics is, as you all know, not only one of the more arcane but a totally subjective form of economics and different people come to different conclusions. He put in an eta of one. Because all of this is about ethical preferences and so on—anybody can have his own preferences and put in his own figure—this is not a form of economics where there is any objectivity at all; it is totally subjective. They use all these mathematics and Greek symbols in order to pretend that it is objective; it is not. That part of Stern is not only highly contestable but highly contested. Professor Dasgupta says it is ridiculous and he has pointed out that if you accept Stern’s eta it means that the people of this generation should be saving 75% of their income for future generations. As he says, that is absurd. That part of Stern is, I believe, widely believed to be absurd. There is also an inconsistency because he is extremely concerned about less fortunate people in poorer countries at a particular point of time. Therefore, he thinks there must be equity between those, whereas in the case of equity as between a much richer and a relatively speaking much poorer generation he feels that they should be treated equally and there should be virtually no concern about that.

But for practical reasons I think we would do better to devote our energies to trying to establish the specific adverse consequences of warming and take measures, only a few of which governments would need to take, to mitigate them. For example, when one looks at the effects on agriculture and food production it is quite clear that the agro-chemical industry will invest quite a lot in developing strains which will thrive in slightly warmer climates where there is less water, although overall there will be more water. The curious thing is that Stern says having more water flowing down rivers, which in effect would happen, will not help because there are not the storage facilities. Obviously, the storage facilities would be built. A lot of the problems will be solved by the markets and by industry seeing this as an opportunity, the development of different strains and so on. But there are other things where there are public goods and governments have to intervene, such as sea defences. It should be the case that the sea level rises then obviously we should build the necessary sea defences. Incidentally, the latest studies show that the rise in sea level over the second half of the 20th century was slightly less than in the first half, so the position is extremely uncertain, but we should watch it. A lot of the problems exist at the present time; there are problems of flooding in low-lying areas at the present time. One will be dealing with that problem, even if there is no warming or the warming is not as much due to manmade influences as was thought. Still, whatever its cause one gets the benefits. One also does not need an extremely ambitious and implausible international agreement before you can do anything worthwhile, because you can go ahead and deal with the consequences piecemeal as and where they arise, and you can help the poorer countries by giving them financial assistance to build sea defences if they cannot build them themselves. I think that it is a far more practical approach as well as being far more cost-effective.

Q202 Mr Fallon: I should like to press you slightly on the second transfer from rich to poor. Do you think that the entire methodology of the eta is bogus or do you believe that Stern has simply attributed the wrong value to it?

Lord Lawson of Blaby: I think that used in that way it produces absurd and counter-intuitive and mistaken results, but welfare economics is like that. Different people make different assumptions and reach totally different conclusions.

Q203 Mr Love: To try to sum up what has been said so far, is it wrong to say that you believe the science is imprecise and the economics too subjective?

Lord Lawson of Blaby: That would be part of it.

Q204 Mr Love: In relation to the economics—that was primarily what Stern looked at—are there other criticisms that you would make of what is in the review?

Lord Lawson of Blaby: The Stern review has turned out to be basically a work of advocacy. There is nothing wrong with advocacy; we all engage in it at
various times, but I believe that a more objective, analytical approach would have been helpful. It is very clear—again, I refer you to the *World Economics* analysis that is already published—that he ramps up the alleged costs of warming to an inordinate degree and the benefits of warming are scarcely mentioned. The costs of mitigation are grossly understated in my view and the whole thing is very biased. One way in which the bias comes out very clearly is the treatment of technological advance. One of the reasons he comes to his relatively low cost of 1% of GDP is that he assumes there will be a huge technological advance in renewable and non-carbon-based energy and also things like carbon capture and storage. None of these things is remotely economic at the present time but he believes that there will be a huge technological advance. He assumes it and allows for it. When one comes to the mitigation of consequences—adaptation—he assumes that there is virtually no technological advance at all. Technology advances where he wants it to but not where he does not want it to. I think that is implausible.

Q205 Mr Love: I think you would accept that some assumptions have to be made and there are questions on the basis of those assumptions and the justification for them. In your article *The Economics and Politics of Climate Change* you say in relation to Stern: “If scaremongering seems a trifle harsh, I should point out that as a civil servant he was simply doing his master’s bidding.” Do you suggest that the Chancellor was dictating his assumptions in the review?

Lord Lawson of Blaby: I think that the Government had taken a policy stance on this issue. As a highly intelligent man, he knew Mr Blair had said that this was the greatest danger facing the planet and all that. Obviously, he knew he had to come up with something which conformed to the position that ministers had already taken. He did not need to have a diktat to know that.

Q206 Mr Love: When Sir Nicholas had quoted to him some of the comments in your article he said that it was name-calling without substance. How do you respond to that?

Lord Lawson of Blaby: That seems to me to be name-calling without substance.

Q207 Kerry McCarthy: I want to pursue the question of adaptation, in particular the impact on developing countries. Have you carried out any calculation of the monetary value of any international assistance that rich countries would have to give to developing countries to enable them to adapt?

Lord Lawson of Blaby: No, I have not, but it is quite clear that it would be substantially less than the cost of going down the route of cutting back drastically. Drastic measures are being called for on carbon dioxide emissions. As to developing countries, I make three points which are very important. First, although we should help these countries it must be remembered that on the growth assumptions on which the Stern projections of warming are based the living standards of the developing world as a whole—obviously, it will not apply to every country because some do better than others—will be higher in 100 years’ time than they are in the developed world today, which is great news if those predictions can be believed. Most of the countries will be able to afford most things themselves, but things will need to be done. Second, for a lot of these things they need help now when they are not so well off. If you take the problem of malaria it is extremely doubtful whether warming makes it any worse. Malaria was a serious problem in Europe in the past even during the little ice age in the 17th century. There is no great correlation between malaria and temperature. Nevertheless, some people believe that the increase in temperature may make it a little worse, but we need to stamp out malaria now. There should be aid projects for that now. Third, the developing countries that are developing fast—China, India and so on—are doing it on the basis of cheap carbon-based energy, and they will not stop doing that. They say that we did that and that was how the people of the west were taken out of poverty. They are now getting their people out of poverty and they are going to do that. They say that we caused all the emissions in the atmosphere and it is our job to deal with it. Of course, if you pay the Chinese to do it—in other words, if you say you will equip at your cost all their vast number of coal-fired power stations with carbon capture and storage—no doubt they will say “Thank you very much”, but that will not happen. One has a real problem. One will not have the common price of carbon in the world which Stern wants to see. What happens if you do not have a common price for carbon? It means that the energy-intensive industries will gradually close down, if one is to make carbon energy much more expensive, in Europe and the west generally and they will grow in China, India and so on. Perhaps that does not matter; we are rich enough to be able to afford that, but it makes a nonsense of cutting back on emissions because global emissions will not be greatly affected; they will just be somewhere else. There are so many practical difficulties with this approach, which is why we want to monitor what is happening. If we are not certain we should watch it very carefully and take action to mitigate the adverse consequences. There will be some very beneficial consequences for northern Europe. This country will benefit over the next 100 years, even on Stern’s projections. Nevertheless, there are disadvantages. There is another problem which I believe as an economic committee you should seriously think about, if I may say so. It is quite clear that the Chinese, maybe the United States too, will not cut back on their carbon emissions. There is already a move to introduce protection and trade sanctions against those countries that are not prepared to cut back their carbon emissions. M de Villepin, the French Prime Minister, has come out in favour of that. Mr Verheugen, the European Union’s Industry Commissioner, has said that this is what we must do. A number of lesser people have said the same. If one looks at the Stern review, it says that many people...
have said this should be done: that there should be trade sanctions against countries that do not cut back their carbon emissions. He says that there is a clear logic in that. He goes on to say that maybe it would not be such a good idea, but we must be aware that industry will be increasingly pressuring us. The implication is that at some time we will not be able to withstand the pressure from industry. I think that is enormously dangerous. One of the most important benefits that the whole world, particularly the developing countries, has enjoyed over the past 20 years is globalisation. Free trade and free capital movements have allowed enormous economic growth and enormous numbers of people are relieved of poverty. Countries like India and China are powering ahead. To go down the protectionist route, or to give houseroom to protectionism, is extremely dangerous and is one of the biggest dangers that I see in the route which Stern charts.

Q208 Kerry McCarthy: To be fair to Sir Nicholas, in his evidence to us he very much advocated the carrot rather than the stick and said that sanctions should perhaps be considered as a last resort.

Lord Lawson of Blaby: I do not think they should be considered at all. . . .

Q209 Kerry McCarthy: But you say that the carrot approach to countries like the US, China and India in order for them to take action is futile?

Lord Lawson of Blaby: I think that in the real world where we all live it is hard enough to persuade government or public opinion to give free entry to Chinese competition as it is. I do not believe it is realistic politics to pay the Chinese large sums of money as a carrot to get them to cut back on their carbon dioxide emissions.

Q210 Kerry McCarthy: You focus on India and China where growth is predicted to occur.

Lord Lawson of Blaby: They are the fastest growing.

Q211 Kerry McCarthy: But the countries that are likely to be left behind are more susceptible to climate change, particularly those in sub-Saharan Africa. In your speech to the Centre for Policy Studies you said that the market would mean that farmers would simply adapt; they would grow new crops better suited to warmer climates. Is that at all realistic in some countries that are already struggling with infertile conditions and extreme weather?

Lord Lawson of Blaby: It is certainly realistic. If one looks at the statistics and reports of the Food and Agricultural Organisation one finds an enormous improvement in agricultural productivity worldwide. For example, if one looks at India which is a big and important country located in a tropical zone that is thought to be the most vulnerable, despite the warming that has occurred agricultural productivity in that country has improved considerably. There are problems in Africa, as we all know; which stem largely from poor governance, which is why it is so difficult to deal with them. That is why in those countries there is obviously a humanitarian and moral case for aid and assistance, which we give. Maybe it should be more specifically directed to deal with any problems that might arise from warming. I do not believe that the present way where do-gooders try to persuade Africans that they should not use carbon energy but solar power or wind power is the best way to help them.

Q212 Angela Eagle: Therefore, do you believe there is no point in trying to control CO2 emissions, even though just looking at the size of the new economies coming into more modern production and using carbon-based energy implies a huge increase? Do you believe there is no point whatever in trying to stop that happening and we just have to accept as a kind of externality to economic growth that CO2 emissions will soar with all the consequences that may flow from that?

Lord Lawson of Blaby: The rate of growth of carbon dioxide emissions is likely to decline as people become more energy efficient, and they become more energy efficient for the same reason they want to be more labour efficient: to reduce costs.

Q213 Angela Eagle: But in China there are two power stations burning heavy sulphurous coal coming on stream every month?

Lord Lawson of Blaby: Yes—and you will persuade them that they should stop that? Of course not.

Q214 Angela Eagle: They are quite interested in clean coal technology and having cleaner ways to produce energy.

Lord Lawson of Blaby: There is often a misunderstanding about that, if I may say so. What the Chinese are very concerned about is the pollution coming from their power stations. That is nothing to do with carbon dioxide which is not a pollutant. Carbon dioxide is a life force. Plants grow better with it and it has a fertilising effect. But they are concerned about sulphur dioxide and other pollutants; indeed, there is great pressure from the Chinese people about all the nasty things in the atmosphere. They are certainly concerned about that and will do something, but in my judgment they will not cut back on their carbon dioxide emissions unless somebody else pays for carbon capture and storage. Nobody has indicated that they are prepared to do that. It is very interesting that at the press conference in Paris held at the launch of the summary for policymakers one of the UN people—I cannot remember which one—complained that the Chinese delegation had been extremely obstructive. That is an indication that the Chinese view is a different one, and I understand where they are coming from. I do not think we will change it.

Q215 Angela Eagle: Therefore, do you accept as some kind of given that it cannot be mitigated at all and CO2 levels will rise. You suggest in your lecture that what you call geo-engineering, which is the idea of blasting aerosols into the stratosphere, is a more acceptable way of proceeding?
Lord Lawson of Blaby: I think that a lot of things can be done on that front. The main point is to address the adverse consequences of any warming that may occur, whatever the reason, and mitigate them. I think that that is a rational way to address the problem. Whenever there is a problem one must decide the most rational way to address it. Geo-engineering is interesting, and research is already going on.

Q216 Angela Eagle: Mirrors in space and little silver balloons in the atmosphere?

Lord Lawson of Blaby: The people who have been proposing this are those who have been concerned about global warming. They are scientists, not economists, and believe that cutting back on carbon emissions is the most sensible thing to do. They think it likely that the world will not do that and, therefore, research ought to be conducted into alternatives.

Q217 Angela Eagle: I understand the plan B line.

Lord Lawson of Blaby: There is also nuclear power. I remember looking at this closely when I was Secretary of State for Energy. I set up the Sizewell B inquiry, which holds the record—it is not a particularly good one—as the longest planning inquiry that this country has ever had. I have some familiarity with all the issues involved.

Q218 Angela Eagle: It is true that even James Lovelock who developed the Gya theory is now in favour of nuclear power. But at the end of your lecture you come to the nub of it. You say that eco-fundamentalism is a new religion and it has formed a kind of global salvationist, almost an end-of-the-world millenarian movement, and this is profoundly hostile to capitalism. Your problem is that it is profoundly hostile to capitalism?

Lord Lawson of Blaby: My main problem is that it is profoundly hostile to reason.

Q219 Angela Eagle: You also mention that too. But what if there are aspects of capitalism when it has gone global with huge industrialising societies that are so hostile that the planet cannot sustain it?

Lord Lawson of Blaby: There is no sign of that whatever. If by “the planet” you mean the people they have benefited enormously from the capitalist market economy, and that is accepted even by the Labour Party.

Q220 Angela Eagle: But do you also accept that climate change is the greatest market failure?

Lord Lawson of Blaby: I do not know how you compare market failures.

Q221 Angela Eagle: Externalities, pollution and all the things that economics does not always price?

Lord Lawson of Blaby: If one goes down the Stern route one will find government failure in economic terms which is far more costly than what you refer to as market failure. Nevertheless, it is well known that there are externalities and that there are public goods which governments must supply. I gave one example of that: sea defences.

Q222 Peter Viggers: There is not very much confluence of view this morning. How would you wish to see the argument develop so that greater objectivity is brought to bear on it?

Lord Lawson of Blaby: I think that the economic approach in which this Committee is engaged is a great help. Too often this is spoken about, as Ms Eagle has reminded us, in eco-fundamentalist terms. I do not think that that helps the discussion. An economic analysis is very important, but my criticism is that it is an extremely biased and selective economic analysis, not an objective one. The idea of an economic analysis of the issue with no preconceptions on either side is the best way to get sensible policy decisions.

Q223 Peter Viggers: Under what auspices would this be created?

Lord Lawson of Blaby: I proposed some time ago that perhaps it should be taken over by the Bretton Woods Institutions. Perhaps a joint body of the World Bank and International Monetary Fund could deal with this. These are recognised international economic bodies with considerable economic expertise, and they can call upon more. I believe that that would be much better than the IPCC approach, for the very reason that their very existence does not depend on magnifying the importance of this issue. The IPCC does nothing else, and therefore the more important the issue the more important the IPCC is and the more important the people on it are. Naturally, there is what the French call a déformation professionnelle. If one gave it to the Bretton Woods Institutions, which have much less to do in the world of globalisation than before—if you like, they are looking for a new role to some extent—it would be a much better approach, because I accept that there needs to be an international analysis of this.

Q224 Peter Viggers: If you accept the premise that we have a problem—you may not accept it—both you and I will instinctively oppose regulation and tax for their own sake. But does a carbon emissions trading scheme which has an element of market force about it attract you?

Lord Lawson of Blaby: Not particularly. It is better than regulation and direction, but it is not as economically as efficient a route as taxation. There are many problems with emissions trading. The biggest one is how much you will permit and which industries you will allow to do it. Will this system apply to the personal sector as well as the power sector and one or two others? Unless you do it across the board the more economic distortions there will be, whereas taxation would apply all over the place. How will one allocate the permits to the various countries and, within the countries, to the various emitters? It is highly arbitrary. A tremendous amount of horse trading and corruption go on. It is a very poor attempt at a market solution, whereas
taxation just rides on the energy market that is already there. I give a good analogy though not a precise parallel. When I think back to my time as Chancellor, people were concerned about the health risks of smoking. These were used to justify high taxation on tobacco. If anybody had suggested that a much better way would be to give tobacco rations and allow people to trade them and that it would be a much better market solution it would have been absurd, but that is the relative merits of taxation and rationing and then trading the rations, which is what the emissions permit system is.

Q225 Peter Viggers: The Treasury hope to move eventually to a global emissions trading scheme bringing in India, the United States and China. Have you any further comment on the likelihood of that being successful?

Lord Lawson of Blaby: It will be successful only if they think they can get something out of it. At the moment the Chinese are doing very well from the Kyoto clean development mechanism, and that is an object lesson as to how these things work in practice. What has happened is that the market has grown up. Incidentally, another problem with emissions trading compared with taxation is that the administrative infrastructure which has to be put in place, whether by the public or private sector, is hugely more expensive than that required for tax-gathering. There is a huge deadweight cost. Under the clean development mechanism what happens is that the Chinese are allegedly cutting back on their production of chlorofluorocarbons (CFCs). There is some evidence that they are slowing down on the cut back in order to qualify for these credits. When they cut back the credits are then sold to western countries that are not meeting their Kyoto targets and are worried about it. Many western countries are not worried at all; clearly, they do not bother at all because they are way above their Kyoto targets. But there are some countries like The Netherlands that worry about this. Therefore, they buy credits from the Chinese under the clean development mechanism. Companies in China are making so much money that the Chinese Government is taxing that at about 65% which helps it to finance its coal-fired power station programme. Under the Montreal protocol these chlorofluorocarbon-emitting plants in China should have been wound down anyway with nothing in return. Everybody in the west has done it but the Chinese hang on and they are doing a good business out of the clean development mechanism of Kyoto. That is an example of what happens. As to the EU emissions trading scheme, you will know that the UK is about the only country that gave such a niggardly ration that the system has actually bitten. The cost of energy here is greater than it is in continental countries where they gave out the permits so lavishly that there is no cut-back required at all. It is likely to happen like that in the real world. If one is seriously concerned to cut back on carbon dioxide emissions the tax route is the only rational one to pursue.

Q226 John Thurso: Your central argument, if I have understood it correctly, is that the scientific data if regarded impartially is highly inconclusive and the conclusion you draw is that global warming may not be in man’s ability to deal with. Therefore, the cost of action outweighs the perceived benefits. On the other hand, by that analysis it is also true that the opposite could be possible, that the consequences could be very extreme. Is there not a greater risk of doing nothing?

Lord Lawson of Blaby: One must bear in mind that of the total carbon dioxide emissions only about 5% are manmade; the other 95% are natural. Nevertheless, the great growth in carbon dioxide emissions is highly likely to be due to man and industrialisation and this has played a part in the modest amount of warming that has occurred through the greenhouse effect which is well known. There is no doubt about it. The question is: how big a part has it played? This science is extremely tricky. The interaction between carbon dioxide emissions and clouds is critical. Clouds and other forms of water vapour are much more important than carbon dioxide. There is a dispute among climate scientists about how they interact, so it is very uncertain. It has played a part and we do not know how big it is. Suppose that in the worst case scenario everything goes really badly and the planet warms up at the upper end of the Stern range and the adverse consequences are at the upper end. Under some kind of precautionary principle let us assume that will happen and take action now. If one does that one gets oneself into a very difficult position. There are all sorts of other things that are possible. Over the next 100 years the world may enter a new ice age. A lot of climate scientists expect that to happen. Is one to guard against that as well? How does one do both at the same time? There are also much more urgent problems to be faced such as terrorism and nuclear proliferation, leaving aside the natural disasters that may occur. Nobody can say that an asteroid will not hit the planet. One cannot do everything. If one tried to do so one would impoverish the present generation by taking out all of these insurance policies against every possible future development. One must decide rationally what is the most likely danger to be faced. I would say that over the next 50 years, let alone further, the dangers arise from nuclear proliferation, international terrorism and the fact that sophisticated weapons are now in relative terms much cheaper than they used to be. That gives terrorists greater capacity to do harm. I believe that those are the things on which we should be focusing far more. We should be careful not to spend money foolishly. We should be careful about future threats and be careful not to spend resources unnecessarily.

Q227 John Thurso: You feel that the worst case risk is one that we should not be too bothered about?

Lord Lawson of Blaby: No. We should monitor what is happening. There has been no further perceived warming in the 21st century and that is why the formulation has changed. We hear from the IPCC now that 10 of the past 12 years have been the
warriest on record. That is a sign that the trend has stopped going up. If a country’s population was rising and it stopped rising people could still say, “Well, in 10 out of the past 12 years have produced the highest population we have had.” But we should monitor what is happening very seriously. After all, this is happening very gradually; it is not a sudden event like a tsunami. Stern looks at the next 200 to 300 years. Indeed, at one point he looks at it over the next 1,000 years. We have time to monitor it and decide what to do.

Q233 Mr Mudie: You did initially; now you say that you want to move it to the World Bank, but it is not global? It is under the United Nations, so why is it not global?

Lord Lawson of Blaby: I believe in looking at things as they are. The IPCC process has proved to be a very flawed one, for reasons set out partly in the report of the Economic Affairs Committee of the House of Lords.

Q234 Mr Mudie: You called it “political”. Is it not just a smear against it? Why is it political?

Lord Lawson of Blaby: It is.

Q235 Mr Mudie: Tell us why it is political. Is it a socialist plot?

Lord Lawson of Blaby: If you read the report of the House of Lords Economic Affairs Committee you will see that what is wrong with the IPCC process is carefully documented. Other people have done that, too. I indicated that one of the problems was the curious nature of the IPCC process. I just said in answer to a question that I thought you would get a better economic analysis—the economic dimension as the Committee knows is very important—if it was given to the World Bank and the IMF.

Q236 Mr Mudie: I am happy to give some consideration to your views on the economic side where you have a distinguished history, but you are attacking the scientists. You admitted in your evidence to the American Environment Committee that you were not a scientists and that the world was warming. What is so political about the scientists that you want to abolish them?

Lord Lawson of Blaby: The scientists are not political, and I do not want to abolish them.

Q237 Mr Mudie: I will tell you what you did say. The politics was that they were giving all this information to scare the world so they could continue to get research funds. Do you not think that is appalling?

That was what you said to the American Environment Committee.

Lord Lawson of Blaby: I do not call that politics, but it is very clear that in a world in which governments are largely responsible for allocating research funds where they think there is a practical result, and therefore one has to establish that there is a problem that needs to be solved, that is how one gets one’s research funds. I am not saying that scientists are any worse than anybody else; I am just saying that they are human. We all respond to the incentives in the world around us.

Q238 Mr Mudie: These scientists at the weekend indicated that 40 million people in one country, Bangladesh, would be finished; their land would go.

Lord Lawson of Blaby: No, they did not; they said nothing of the sort.

Q239 Mr Mudie: They said that the delta would be flooded.
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Lord Lawson of Blaby: They said nothing of the sort.

Q240 Mr Mudie: But that is the scale of it. You attack these scientists and say that we should not be taking action on it because we have terrorism and nuclear proliferation. We see the evidence with our own eyes with the Arctic ice cap, but this is imagination. You do not see this as serious enough and so you slander them and want to close them down.

Lord Lawson of Blaby: Mr Mudie, you are perfectly entitled to express your own views. You should not attribute to me views that I have never expressed.

Q241 Mr Mudie: Which one is that, Lord Lawson?

Lord Lawson of Blaby: That I have attacked the scientists for saying that 40 million people will die in Bangladesh.

Q242 Mr Mudie: I did not say that. I said that you attacked the scientists by saying they were exaggerating the threat to get research funds, which you did. You said it to the American Environment Committee, and I can give you the date of that.

Lord Lawson of Blaby: I never accused them of exaggerating. It is very hard for scientists who take a different view to get research funds. There is a range of views.

Q243 Mr Mudie: There may be, but you suggested that the IPCC did that, which is appalling.

Lord Lawson of Blaby: The IPCC is not the scientists; it is a bureaucracy which produced the summary for policymakers. There is no doubt that the scientists do a lot of very good work.

Q244 Mr Mudie: That is a bit patronising.

Lord Lawson of Blaby: But it is then changed when the summary for policymakers is written and it is changed again when the chairman of the IPCC and his head honchos give their press conference. You can read the different documents and see that that is nothing less than a statement of the fact.

Q245 Chairman: Lord Lawson, what would it take for you to accept that climate change cannot be adapted for? What if we do not have time to act? Surely, prevention is better than cure.

Lord Lawson of Blaby: Acting on the consequences of any warming that occurs is much quicker and easier, in the sense of being quicker and not as expensive as cutting back on carbon dioxide emissions. What I am suggesting is something that we can do in much shorter order.

Q246 Chairman: That conflicts with Stern’s evidence this morning. If you were sitting round the cabinet table with the Prime Minister and giving advice—I am mindful that he was at the Liaison Committee this morning and said that Britain had done quite well but more needed to be done regarding carbon emissions—in a few words what would you say to him?

Lord Lawson of Blaby: I will tell you what I would say to you. If you look around objectively you will see that there is an enormous amount of posturing on this issue in this country, in Europe and many others elsewhere. Everybody says that this is the most terrible thing and we have to do this and that and have international agreements. It is said that this country will lead the world. What is actually happening? Very little is happening, for the very good reason that words are cheap. What I suggest is a practical route where things will be done. A lot of them will be done through the market adapting to whatever the conditions are and meeting the demands, for example in food and agricultural production. But there are ways in which governments can help. There is a clear case for particular kinds of international assistance.

Q247 Chairman: Your advice to the Prime Minister would be to sit back and see what happens and not become engaged?

Lord Lawson of Blaby: I think that the Government should look very seriously at what needs to be done to mitigate any adverse consequences of global warming that might manifest themselves. I believe that that is a real and genuine issue. But there is a great deal of posturing. If you think about all the people who say how marvellous Kyoto is, how many countries will hit their targets? There is a huge mismatch between what governments say and do. It sounds good and responsible, and that is why they say it. They are saving the planet and all that, but actions are not taken. Purely as an aesthetic judgment, all this empty posturing is not my style of politics.

Q248 Chairman: But if we get rid of the posturing there is still the real issue of climate change?

Lord Lawson of Blaby: It is a real issue. The climate has become warmer by 0.7°C over the past 100 years. It is likely that manmade emissions of carbon dioxide have played a significant part in it, but we do not know how much. This is likely to continue to some extent, but we do not know by how much, and therefore we address what the consequences are likely to be. This is how man throughout his long history has dealt with climatic changes. There have been climatic changes and man has always adapted. The world has many and varied climates and different people in different parts of the world have adapted to the climates in which they have found themselves. That is the way history tells us that we should approach these things. The idea that somehow the best way to help the poorer countries of the world is to make it a colder place is bizarre.

Chairman: On that frozen note we shall cease. Thank you very much for your evidence, Lord Lawson.
Wednesday 7 February 2007

Members present:
John McFall, in the Chair

Mr Colin Breed
Mr Michael Fallon
Mr David Gauke
Ms Sally Keeble
Mr Andrew Love
Kerry McCarthy

Mr George Mudie
Mr Brooks Newmark
John Thurso
Mr Mark Todd
Peter Viggers

Witnesses: John Healey, a Member of the House, Financial Secretary to the Treasury, Ms Beth Russell, Head of Environment and Transport Tax team, Ms Rebecca Lawrence, Head of Environment, Food and Rural Affairs team, gave evidence.

Q249 Chairman: Minister, welcome to the public inquiry on climate change and the Stern review. Can you introduce your colleagues for the shorthand writer, please.

John Healey: Mr McFall, I am delighted to do that and delighted that the Committee has taken such an interest in this area which is of increasing importance to us all. I do not think the Committee will have come across either of my colleagues here: Beth Russell heads our environmental and transport tax policy team in the Treasury and Rebecca Lawrence heads the team in the Treasury that looks after the spending side, particularly of the Defra department and policy areas.

Q250 Chairman: Minister, we are hoping to finish this session at four o’clock because there is a vote. My colleagues will be sharp and precise in their questions and I am sure you will be the same with your answers. Yesterday when I asked Sir Nicholas Stern how long we had to take decisive action on climate change, he indicated that we have 30 years in which to stabilise emissions. But the IPCC report suggests we have only 10 years. What is the Government’s view on how long we have to act?

John Healey: I think the important message out of both Stern and the IPCC on that is twofold: one, that urgent policy action and particularly on international agreements and action is necessary to put in place now, not in 10 years’ time or in 30 years’ time. What Stern did was to try to assess the scientific evidence of the likely impacts on the global climate from that and make suggestions over a period about different rates of stabilising emissions from that. The second important message, in particular, from Stern that is consistent with the IPCC studies and report is that, in a sense, the argument now has moved on. It has moved from questions about how strong is the scientific basis for the imperative to take action on climate change and on to the economic arguments about the need to take, first of all, early action because it is significant in its potential costs and implications but manageable and not to take that action would lead to much more severe consequences and severe costs. Both I think are accepting; and, thirdly, the economics point, so the importance of action taken on an international level and agreements as the basis for that to be put in place as early as possible.

Q251 Chairman: You are of the view that the Treasury fully accepts the science unequivocally.

John Healey: We accept the analysis. We accept the thrust of the conclusions and the policy direction that the Stern report gives us. Not just in government and in the UK but increasingly, we can see that its impact and the debate that it has sparked will help some of the discussions that must lead to the international agreements that we have to secure as well.

Q252 Chairman: What steps are the Treasury taking to demonstrate effective leadership across government on climate change?

John Healey: You can see that in two ways if you want to look at the particular role of the Treasury. The first is that we have been very clear, right from 1997 when we first came into government, with our statement of intent on environmental taxation, that we would look to tax specifically, as well as other economic instruments, to play a part in dealing with some of the environmental policy challenges we face. That is the first thing—and you could look at the long list of environmental taxes we have introduced since 1997, many of which have been opposed inside and outside Parliament. Secondly, I think you could look to some of the arguments which the Treasury, particularly consistent with Stern—and the Chancellor in particular—has been leading internationally to argue that the environment is a mainstream economic and finance minister’s concern. Alongside the Prime Minister, the priority we gave it during our UK Presidency of the European Union and of the G8, and, latterly, the pressure that the Chancellor has been exerting, both through the ECOFIN European ministers and in wider discussions, to try to put in place something of the vision for the future of the European trading scheme that we published alongside the Stern report when he reported in October. There are a number of specific areas which are clearly for the Treasury but
we have been playing our part both in the UK and internationally in trying to lead the debate and the development of more effective policies.

Q253 Chairman: Lord Lawson gave us evidence yesterday. His views on the Stern report are that Nicholas Stern was just doing his master’s bidding, which implies that the report was less than independent. How did the Government ensure that that review was independent?

John Healey: I think that diminishes the academic international independent status that Sir Nicholas Stern has had throughout his working career. You would need to have put that to Sir Nicholas Stern.

Q254 Chairman: He came first yesterday.

John Healey: Quite clearly this was a serious piece of work, carried out independently, with all the resources that he needed from inside the Treasury and from outside as well in order for him to do that. Frankly, the authority, the credibility and the integrity of the report depends on the fact that he conducted that report independently and I do not see any serious evidence or argument other than what you heard yesterday from Lord Lawson that somehow this was a compromised exercise that was not academically robust and not independently carried out.

Q255 Chairman: On the UN report which came out on Friday, Lord Lawson told us that that was characterised by starting with the scientific advice which was hardened by the bureaucrats into a summary for policy makers. They hardened it again at the press conference and, in Lord Lawson’s view, that led to a biased public perception of the scientific findings. What are your views on that?

John Healey: I would profoundly disagree with Lord Lawson. I think it is inconsistent with the increasing weight and range of independent academic and other opinion. I think it was a blast from the past you heard yesterday. I think it was very broad-brush. The Committee will make up its own mind—

Q256 Mr Love: We will.

John Healey:—on the nature of the evidence and how well supported it was. The challenge for us all here, particularly for leaders and for parties, is that to look to tackle climate change you cannot claim to be environmentalist if you are Euro-sceptic, because clearly the solution and our ability to try to prevent further climate change depends on being able to get international action and agreements in place.

Chairman: Okay. It was quite a convivial occasion yesterday, so do not worry about that.

Q257 Peter Viggers: Your own Treasury Public Service Agreement, objective VIII, says that the Treasury has an objective to “Protect and improve the environment by using instruments that will deliver efficient and sustainable outcomes through evidence-based policies.” How do you measure success in this field?

John Healey: If we look at the narrow policy area of tax, although the range of economic and other instruments in which the Treasury and the rest of government has an interest are not confined obviously to fiscal instruments, the ultimate test of effectiveness of tax in the green territory is not the overall tax revenue take from what are classified as green taxes but surely it is the behaviour changes and the environmental gains that come as a result of the tax policies that are introduced for those ends. For instance, surely the test of the climate change levy is less the £760 million a year that it raises and more the 28 million tonnes of carbon it has saved since it has been introduced, which is more than a quarter of our Kyoto effort. Surely the test of the aggregates levy, another environmental tax that we introduced, is less the £300 million a year that it raises and more the fact that the volume of recycled aggregate stone now is 8 million tonnes a year higher and the amount that is being drawn out of the ground for the first time is 8% less despite the fact that construction during that period has been very buoyant. I would say the principal test of the effectiveness of environmental taxation, in particular, is the degree to which it has the environmental impact for which it was designed and, as part of that, often it encourages the sort of behaviour change that is necessary to underpin that.

Q258 Peter Viggers: Have you set targets in the field you have just mentioned: success in environmental improvement?

John Healey: We have targets in the climate change field as a government and the climate change levy was introduced to contribute towards trying to achieve those targets. We had a policy commitment in relation to the aggregates levy to try to reflect what were the external environmental and other costs involved in taking stone out of the ground and quarrying, and to capture those in this instance by the aggregates levy. They play a part in much broader policy goals and targets.

Q259 Peter Viggers: Have you set yourself specific targets in relation to the environmental improvements to which you have referred? If you have not set targets yet, would you plan to do so in the comprehensive spending review process?

John Healey: We do have targets. We have an internationally agreed Kyoto target to see the greenhouse gas emissions for which the UK is responsible cut by 2010 but over the 1990 levels by 12.5%. As things stand, we are on track nearly to double that.

Q260 Peter Viggers: Have the tax measures that you have taken themselves individual special targets?

John Healey: No, I do not think you could say they have specific targets but clearly part of our assessment of whether or not there is a strong case for introducing them involves a modelling of the likely impact they are going to have. For instance, the independent analysis that has been conducted and the climate change levy and its associated climate change agreements show that the climate
change impact they are having is in excess of what we estimated before we introduced the climate change levy with the agreements they were likely to have.

Q261 Peter Viggers: Defra, the DTI and the Department of Transport hold a joint Public Service Agreement target to reduce greenhouse gas emissions. They are tasked to reduce greenhouse gas emissions. How much does that cost the Treasury in money?

John Healey: In a sense, they are identified as the lead department for what is a government aspiration to reduce climate change emissions in the UK and from the UK. The costs variously are carried, as with most environmental policies, in part by government, in part by consumers and in part by business. I think it is very difficult to distinguish precisely the sort of figures you are looking for.

Q262 Peter Viggers: In looking at the weapons available to you in reducing greenhouse gas emissions, what part does tax play and what part does regulation play?

John Healey: This may sound slightly unsatisfactory to start with, but perhaps you will bear with me. It depends on the particular problem or challenge you are trying to deal with. There is clearly a role for taxation in four identifiable areas. Where you have a carbon trading system already in place (as we have for 50% of our emissions in the UK through the European Union trading scheme, a system which sets prices and controls emissions) then clearly tax has a supportive role in helping deliver the aims for the trading system. For instance, we have the European Union emissions trading scheme in place but our climate change levy encourages energy efficiency in businesses to support that. In sectors of the economy which are not covered by a trading scheme (in this case the European scheme) then clearly tax can play a role in helping to price carbon, deal with the environmental and social costs and help to control emissions. Fuel duty plays, to some extent, a role like that. Thirdly, I think you can see a role for taxation alongside, in some cases, regulation. There is a role for taxation to provide a strong signal or in some cases support to other measures that are taken. For instance, with biofuels, the 20 pence per litre discount that we have on bio-diesel and bio-ethanol has played a part last year in doubling the level of bio-fuels’ sales, the year before quadrupling that, but, in the end, it will be the new regulation and the obligation that we are introducing in 2008 that is going to deliver the real increase in the bio-fuels’ market. The same could be said for the stamp duty exemption announced in the Pre-Budget Report on zero carbon homes—a useful signal, useful support, but actually zero carbon homes for new homes from 2016 will be delivered primarily by the planning and regulation system, so it has a supportive role as part of the package there. Fourthly, I think there is a role for taxation which I think is well established in that some taxes that are classified as environmental taxes also help raise resources for essential spending, including on environment and transport policies as well. That is the role of taxation specifically, a role it can play alongside regulation.

Q263 Mr Todd: Which government department leads on addressing the Government’s response to climate change?

John Healey: I am going to ask Rebecca Lawrence to come in on this because clearly the policy lead in terms of departmental responsibility is rightly held by Defra but I need to be clear with the Committee that that does not mean that every other department, including the Treasury, does not have a very important and active role to play in helping to deal with our environmental policy challenges, in particular climate change.

Ms Lawrence: As the earlier question mentioned, the three departments have shared responsibility for the PSA on climate change. The resource accounts of those departments will set out the spend of those departments associated with achieving that PSA target.

Q264 Mr Todd: The lead minister in this is David Miliband. Is that a clear position that is understood and recognised in government?

John Healey: The clear policy responsibility for the environment rests with the Secretary of State and the Defra department but I do not think anybody could argue that the Prime Minister and other leading figures in the Government have not also played a very active part in—

Q265 Mr Todd: But you understand the reason for asking the question, John, which is that government tends to operate in silos and therefore engaging the participation and support of other departments outside a minister’s executive responsibility can often be quite difficult. Is that clear leadership one which has some degree of authority at a broader governmental level? Is there a clear cross-cutting budget, for example, which is agreed corporately?

John Healey: There can indeed be that problem but if you look at the last couple of years, at some of the major policy review and development work that has gone on, from the climate change programme review to the energy review to the work that is now going on in the preparation of the Energy White Paper, what you see. I would argue, is really an unprecedented cross-departmental, cross-government effort behind the climate change challenge. The approach that the Government is taking—which is really confirmed, I think, by Stern—that it is entirely inadequate simply to see the environment as a classified environmental problem and that without seeing the climate change challenges alongside some of the energy challenges that we face, without seeing the environment as an essential economic concern now in the way that we do and Stern confirmed, is really missing both the proper analysis and missing the potential—

Q266 Mr Todd: I do not think you need to persuade me on that. I am looking for where the executive leadership lies. You are right in saying that it engages most departments of government in some
way or another but obviously by dispersing leadership, both in policy terms and in financial accountability terms, you risk loss of focus and sometimes contradiction.

**John Healey:** The Prime Minister himself would argue that he has given a lead from the very top of government and I would entirely expect that to continue, and you can see—I think I would strongly argue that he has given a lead from the very top of government and I would entirely expect that to continue, and you can see—I think I would strongly argue that you have seen—other figures, not necessarily the Secretary of State for Defra, giving similar attention, whether that is in the DTI or the Treasury as well or, indeed, in the Department for Transport.

**Q267 Mr Todd:** How does one strike the balance in relationship to the European Union and their responsibilities? You will have noted the initiatives in the last few days on motor vehicle emissions, for example, which has been to use a regulatory framework rather than a fiscal framework to address the problem. How well coordinated do you think we are with what is happening within Europe? Is there a clear understanding of the division of responsibilities between regulation and fiscal initiatives?

**John Healey:** I think it is improving. Just as within a domestic government, you have within the Commission different directorates general looking at the role they need to play. That demonstrates, I think, that in the end we need to be looking to tackle climate change on a number of fronts. Within our own Government, almost every department has a role to play. Within Europe, to answer your question specifically, we have this month an Environmental Council of environmental ministers that will be looking at the whole question of climate change in the environment; we have an Energy Council of energy ministers that will consider some of the same questions; we have a Competitiveness Council that will consider some of the same questions, particularly in relation to internal market reform. But it has brought together, and will bring together on 8 and 9 March, the Heads of Government spring summit, which is obviously the proper place where we are working hard to see a European-Union-wide agreement to fresh targets and fresh priority given to this area. In the end, it has to be taken at that level.

**Q268 Mr Todd:** The EU initiative on car emissions highlights some of the policy difficulties in this because obviously that is a decision to establish, by regulation, limits on emissions which will have some effect on the competitiveness and cost base of the European car industry. Clearly there are some dilemmas there which have to be played out in policy terms at national level to feed into the EU process. How does that happen?

**John Healey:** Clearly any policy decision, particularly on the use of what might be termed economic instruments, whether those are fiscal or regulatory, has potential implications that just have to be considered in the round. Part of the work that will now follow the announcement today will look at, in order to achieve the 130 grams per kilometre target which the Commissioner wants to see by 2012:

What are the potential costs and consequences?—and it is right that work goes on—What are the mechanisms by which this could most effectively be done? Those are, I think self-evidently, the sort of detailed questions that now need to follow what, in a sense, is a declaration of intent that we have had from the Commission announced this morning.

**Q269 Mr Todd:** You refer to Defra’s lead in environmental policy. How comfortable are you with the fact that one of the key areas that Stern identified was that we would need to adapt to climate change as well as find measures to mitigate it. Defra has had a particularly tough year on its Environment Agency budget in dealing, for example, with flood defences. It has reduced in revenue terms its flood defence expenditure, which would appear to be directly counter to the kinds of things we are going to have to spend more money on according to Stern.

**John Healey:** Forgive me, I am not quite clear which question Mr Todd is asking. He will know the figures for the increase over the last five years in what Defra is spending.

**Q270 Mr Todd:** I am talking about this year’s cut.

**John Healey:** Clearly, as we would expect and as I think Parliament would expect, Defra are managing within the department the financial pressures they have and that is their job to do that.

**Q271 Mr Breed:** Following on from that, the Committee is trying to ascertain how much the Treasury is now spending in terms of adaptation rather than mitigation. Mr Todd was talking about floods occurring on rivers, but in my part of the world floods regularly occur. In some fishing ports, fishing villages and such, that already happens now. With rising sea levels and unpredictable weather patterns, that is predicted to get worse. In terms of now and in a few decades’ time, what is the spending proposal of the Government to try to undertake these adaptations rather than the mitigation?

**John Healey:** I will ask Rebecca Lawrence in a moment to talk about some work that has started in government now which is a policy framework across government on adaptation. Specifically on planning and coastal defences, in 2002 Defra was spending £394 million; in 2005 it was £564 million. Specifically, those are the figures, to answer your question. In future years, you will be aware, Mr Breed, we are examining decisions on that now across government as part of the comprehensive spending review and we will take those in due course.

**Q272 Mr Todd:** On the basis that Stern was saying in the review that some aspects of climate change are now unavoidable, clearly in order to meet some of those, if the Government accepts the review, that spending will have to rise significantly if it is going to mean anything in terms of the adaptation policy in terms of its effect on the ground.

**John Healey:** You may or may not have read the publication that we released in the autumn which was an analysis of what the Chancellor has called the
five long-term challenges facing this country and facing the Government. One of those was clearly the challenge particularly of climate change. In our analysis we recognised, if you like, the cost of adaptation pressures that are there as a result of climate change and they will be recognised and taken into account as we consider the decisions we have to take as part of the comprehensive spending round.

Q273 Mr Breed: Do you think it would be a good idea to publish those and make much more of them, as a means of advising the public how important this work is and, in terms perhaps of their own activity, if they see the Government specifically publishing spending figures in respect of adaptation and such, so that they can see that the Government is taking this very seriously and that they themselves have a part to play?

John Healey: I think you are right about the importance of good information but what the Government decides it needs to spend is only a part of the picture. Part of what Defra does that is important is to support the UK Climate Impact Programme. This is an independent body which publishes analysis about the potential impact of climate change, the likely requirements for adaptation. It is there doing an important job in trying to help us understand the implications more clearly—and when I say us, not just government: it is there for the public and, importantly, it is there for business as well. If one considers the insurance industry then clearly the implications for the consequences of climate change and the requirements to adapt and to cover some of the costs there are profound for the insurance industry. So the better analysis, the better information and the quality of what we are able to assess for the future is an important part not just for government but more widely in helping us put in place the adaptation that we will obviously need.

Q274 Mr Breed: The Government recognises that some sort of social safety net might be necessary because there will be some people who just will not be able to obtain flooding insurance because it will have happened too often and, equally, they have no opportunity to move out of the way, as such. How is the Government going to deal with the inevitable social consequences of some people who are basically unable to get insurance any more for these very real problems of flooding that they are going to experience?

John Healey: In general terms, clearly the social consequence of any environmental impact or policies is part of what we need to weigh when making government policy decisions. On the specifics of the risks of flood management and insurance, I think you will be aware that that is one of the things Defra is looking at at the moment.

Q275 Mr Newmark: In answering the Chairman’s questions you said we cannot have these policies in isolation, that it is a global problem. Therefore, how is the Government going to go about encouraging countries such as the USA, which is a 25% polluter in the world, or China, which is potentially an enormous polluter, given the amount of coal-fired plants and so on that are being built in China, as well as India? How can we influence change in those countries, rather than just focusing in on what is going on here? At the end of the day, we could completely reduce 100% but in a year’s time it would make no difference to the global CO₂ emissions.

John Healey: That is precisely right, Mr Newmark. UK emissions are only 2% of the global total. That is not an argument for the UK not doing more, which we must, because in part our ability to exert the sort of influence that we need to exert internationally depends both on us demonstrating that we can have an economy which grows but that we can deal with the emissions challenge at the same time. We are playing a part in trying to encourage Europe to take a lead. Clearly, to the extent that we can get the European Union, as we are trying to do, to sign up to the target of a 30% reduction in greenhouse gases by 2020, we can get Europe to sign up to the sort of 60% reduction that we want to see as a minimum by 2050. That will help to create some momentum that I think is essential. Some of the international forums in which these other countries which you mention play a part, through the IMF, through the World Bank, have an important institutional role to play, just as they have played in the drive to improve debt development aid over the last 10 years. In addition, we have to look specifically, as Stern encourages us to do, at arrangements that can allow proper carbon pricing and trading to be set—and here, again, this is the importance of the European Union because the European Union’s emissions trading scheme—

Q276 Mr Newmark: I am sorry to interrupt you there, but I am going to ask you a European Union question in a minute. I specifically asked about the US, China and India, which are the major polluters today. The largest economic power today, which is the US, how are you going to change their behaviour? They do not sign up to Kyoto. How are we going to change India and China? How can we influence change in those countries, rather than just focusing in on what is going on in the US? How are you going to change India and China? They are saying, “You have benefited from all this growth for the past 200 years and now you are telling us we have to slow down in what we are doing.” How are you going to go about changing the behaviour of specifically those three countries? Because it is a problem.

John Healey: It is a huge challenge. Stern helps us. Here we have a body of evidence which is increasingly examined and recognised internationally. It also sets out a broad policy framework which, again, I think gives us the direction that we need to follow. Beyond that, we have to do what we can through the established bodies of the G8, the European Union, the other international forums, to raise and press the arguments. Beyond that, we can do certain very practical things, as we are doing on carbon capture and storage, working with the Chinese on how we might develop and deploy technologies to try to deal with that.
Q277 Mr Newmark: Would we give them that technology or would we sell it to them? It is a great technology, by the way, but in order to put carbon sequestration into all these coal-fire plants in China is expensive. Would we, as a government, say we are going to pay for them to do that or not?

John Healey: Part of the consequence of the situation we are in is that we in the developed countries, who have seen our economies go from the pre-industrial through the industrial and essentially are largely responsible for the emissions that are currently creating the climate change problems, have to accept that we will have a greater responsibility and a greater share of the cost to bear if we are going to encourage the developing countries to move from what are rapidly developing and rapidly high carbon economies at the moment to nevertheless rapidly developing but increasingly low carbon economies. We have to accept that we have the responsibility and we will have to pick up a significant share of the costs of that. Now the question is: How best do we do that? Here our trading scheme—through the Clean Development Mechanism, some of the inevitable transfers of investment from the developed countries into the developing countries—is absolutely essential and needs to be developed further.

Q278 Mr Newmark: Our friends in France are opposing a European carbon tax on imports for those who do not join the international efforts to cut greenhouse gases. Do you think that is a sensible strategy?

John Healey: I think the most sensible strategy is that which we are trying to pursue, which is to say that the cornerstone for the future has to be in the trading scheme and that we should concentrate our efforts on strengthening the current phase two and getting in place a sensible set of agreements for how we develop that beyond 2012.

Q279 Mr Mudie: Just following on the question in terms of China and India, one of Lord Lawson’s lines yesterday was that really we should not bother all that much because if China and India do not do it what is the point? One of the areas we have pushed is carbon emission trading schemes. This will only work if the major countries come on board. Bearing in mind that last week we were thinking we had 30 years and the IPCC changed it to 10 years when they released their report, how realistic is it to envisage getting carbon trading emission agreements globally in that sort of time scale to make some difference to that time scale?

John Healey: I think it is realistic. I think it is achievable but it will be tough and it requires the European Union to give stronger backing to its own trading scheme. It provides us with the capacity to set emissions’ limits; harden a carbon price; see the sort of transfers in investments and technologies that need to take place into countries like India and China. It also gives us the arrangement that allows other trading schemes which are beginning to be established in other countries in other parts of the world to link in with what we have, as I described earlier, which needs to be the cornerstone of international climate change architecture for the future.

Q280 Mr Mudie: You have said it is tough but it can be done. What are we doing to encourage the setting up of such a trading scheme? What are we doing now? In 10 years, in terms of getting an agreement across major countries, takes some doing.

John Healey: We are doing what we have done from the outset. We, in the UK, were the first country to have an economy wide trading scheme ourselves. We were prepared in this current first phase of the European trading scheme to set the toughest cap. As we have seen in recent weeks, we again have been ready to set the toughest cap for the second phase. It is the only one that has essentially been agreed unchanged so far by the Commission. We have reasonable credentials to make our arguments for how we develop it further. An important document was the one the Chancellor released alongside the Stern report, which was to set out what is our vision for how we need to develop the European Union trading scheme further. It essentially has three elements. Basically, it requires us to see the trading scheme established on a much more stable basis, with clearer and tougher emissions limits, so that it creates a scarcity that will determine a stronger carbon price. Secondly, it means—

Q281 Mr Mudie: If I could just cut in, I understand that—and I do not mean to be rude or anything. That is fine. That is within the European context. I think there can be a criticism of our role, how we start it, how we are pushing it. This is global. We are looking more at China, India, Mexico, Brazil. Globally, what are we doing, as a government, to bring them together, to get this body set up and this agreement?

John Healey: We are making precisely the arguments I am trying to outline for you now. I was going to say the second element is that we need to build the scheme as the centre of a global carbon market. In other words, it needs to cover more sectors; it needs to cover more areas; it needs to link those trading schemes that are already being established in Norway, Sweden and Japan and some of the states in the US; and, finally, it needs to be a scheme that can encourage the sort of investments in those countries which do not have the scheme but where, in terms of developing economies, the escalating trajectory of emissions causes the greatest concern over the next 10, 20, 30 years.

Ms Lawrence: Might I add to that. A lot of this has traditionally been the area of environment secretaries and heads of state, so we have the Gleneagles dialogue and the UNFCC processes, but the Stern review gives us a powerful new evidence base which allows economics and finance ministries to talk to each other. In the Treasury we have been quite actively engaged since then. For example, the Blair-Schwarzenegger initiative with California on exchanging best practice means that we in the Treasury have spoken to officials in California about our experience of working with emissions trading
and how that could work with the Californian scheme. Similarly, Prime Minister Howard in Australia recently set up a taskforce on emissions trading. That taskforce is coming to visit different players within the UK, but including the Treasury, so, again, we can exchange our experiences about what we think of emissions trading as a tool for emissions reductions.

Q282 Mr Mudie: I am grateful for that because it enlarges on something my colleague Mark said in terms of leading by Defra on these issues. You are saying the Stern report allows the Treasury and Number 10 to make a more leading role and realise they have to take a more leading role—yes?

John Healey: No, I think it confirms, if I may say so, precisely what has been happening, perhaps in the UK ahead of some others. It confirms that it is right and necessary to happen.

Ms Lawrence: ECOFIN will be one example in Brussels which now regularly looks at climate change alongside energy issues. We have ensured that the Stern review has been discussed by the feeder committees; for example, the Economic Policy Committee, which then advises ECOFIN.

Q283 Mr Mudie: In the Pre-Budget Report we talked about bringing together “the leading market makers in the City with the key international institutions in countries” to discuss such a global scheme. When will this meeting take place?

John Healey: We are working on that at the moment. I would hope it takes place this year.

Q284 Mr Mudie: This year. We have only got 10 years, John! Do you see a need to create an international body to implement and monitor such a scheme? Has any work been undertaken to set it up or is this too early in the stage? Are you going to do it through any existing international body?

Ms Lawrence: At the moment the verification and monitoring for the EU ETS goes on through the European institutions and, then, for the Clean Development Mechanism through the Kyoto institutions. That is the framework within which we are operating at the moment.

John Healey: I think the short answer is that we have a number of bodies and institutions, none of which are currently as well suited or giving sufficient priority to these things as necessary. In some areas it requires us to do new things. The Chancellor has taken the lead in trying to set up an international partnership on dealing with bio-fuels, for instance, that draws on Mozambique, South Africa and Brazil, because there was not a way of being able to explore how we develop a much stronger but environmentally sustainable bio-fuels market.

Q285 Ms Keeble: I wanted to ask a bit about extending emissions trading schemes to households. Some of the evidence that we have had has suggested that, instead of using the EU’s ETS model, there should be personal carbon trading schemes, which might be a more effective way of achieving the right level of emissions, and that this could either be by individuals selling their entitlements to businesses, or people drawing off an individual carbon account, as it were. Have you looked at that model? What did you think of it? Why perhaps did the Treasury decide not to go for it?

John Healey: It is an interesting idea. It is a relatively new idea. We are looking in government at the merits of it. I think there are some profound practical questions inherent in the approach but we are prepared to look at it and we are doing that.

Q286 Ms Keeble: One of the advantages it has, perhaps, is, by providing incentives for individuals, raising the awareness of people as well. Had you looked at that as an advantage? How else do you see that you engage with the public in a much more direct way about emissions?

John Healey: In a sense there is no single and simple solution to this. Much of the work that Defra is leading is beginning to do a good job in this field. Part of it is supporting organisations like the Energy Savings Trust; part of it is encouraging programmes that local authorities can sponsor (for instance, through energy efficiency measures or the promotion of micro-generation); and part of it sometimes is a supportive role, as I suggested earlier on, for taxation. In the Pre-Budget Report, for instance, we made clear that we will legislate in the Finance Bill to ensure that anybody who has surplus energy through their own domestic micro-generation will not pay income tax if they sell it back to the grid. That can all contribute to helping create the circumstances in which individual households can do more and individual householders can consider more carefully what they can do.

Q287 Ms Keeble: I would like to ask a question about offsetting. What do you think are the prospects for people, if they are offsetting, to be able to have their local community derive some benefit rather than having that entirely benefiting developing countries? Had you looked at that or not?

John Healey: This is also a relatively new idea which we would certainly be prepared to look at, particularly if it is put to us either by this Committee or by other sources.

Q288 Ms Keeble: Some of the local environmental groups have put that forward as being, again, a way to incentivise behaviour and also to demonstrate more clearly the local benefits that can derive from offsetting. But that has not been put to you at all.

John Healey: I have not considered it in any detail. It is an interesting idea. It is a relatively new idea which requires us to do new things. The Chancellor has taken the lead in trying to set up an international partnership on dealing with bio-fuels, for instance, that draws on Mozambique, South Africa and Brazil, because there was not a way of being able to explore how we develop a much stronger but environmentally sustainable bio-fuels market.

Q289 Mr Fallon: Minister, you told the Environmental Audit Committee last year that you define the Treasury environmental taxes as simply “the climate change levy, aggregates levy and landfill tax” whereas the ONS uses a much broader definition, including taxes on energy and road vehicles. Professor Ekins told this Committee two
weeks ago that the “international consensus as expressed by bodies such as OECD . . . is very much in line with the definition of the Office for National Statistics. That seems to me to be the definition that makes most sense.” Why are you so out of step?

**John Healey:** We are not out of step at all, Mr Fallon, if I may say so. The definition of the Office of National Statistics is consistent. One of the features is that it is consistent with international definitions.

Q290 Mr Fallon: But yours is not.

**John Healey:** No, we accept, because clearly the Office of National Statistics categorises taxes which may have an environmental impact as environmental taxes. In the Treasury we have a much more focused definition, where we are devising taxes for specific environmental policy ends or gains, and, in terms of policy development, if we are concerned with environmental gain then clearly it makes sense to make your policy instrument (in this case, tax) as sharply focused as possible. That is why I would argue that the climate change levy or the aggregates levy are environmental taxes with specifically an environmental policy purpose in mind and not simply potential environmental impacts which may be associated with their operation—which would be true of fuel duty or air passenger duty.

Q291 Mr Fallon: It is policy purpose rather than impact. A year ago, you told the same Committee that “the air passenger duty is not an environmental tax; it is not related to a concern about emissions, it is not related to more efficient aircraft, it is not related at all to more efficient use of the aircraft which are flying.” What is the policy purpose of air passenger duty?

**John Healey:** The policy purpose when it was first introduced in 1994 was clearly, in part, to raise revenue and that remains part of the case for the air passenger duty and its operation. It is a blunt instrument as far as the environment goes. It is not the best policy instrument to try to deal with the environmental impacts of aviation, which is why our priority is to get the aviation with the European Union trading scheme. It is not even the best tax instrument as far as the environment goes. It is not related to a concern about emissions, it is not related to a concern about efficiency, it is not related to a concern about the aircraft which are flying.” What is the policy purpose of air passenger duty?

**John Healey:** The policy purpose when it was first introduced in 1994 was clearly, in part, to raise revenue and that remains part of the case for the air passenger duty and its operation. It is a blunt instrument as far as the environment goes. It is not the best policy instrument to try to deal with the environmental impacts of aviation, which is why our priority is to get the aviation with the European Union trading scheme. It is not even the best tax instrument to deal with the effects of aviation. But you will know better than anyone, Mr Fallon, we are entirely boxed in by a complex set of legal constraints over our ability, for instance, to raise duty on aircraft fuel. The air passenger duty is available. It does have an environmental impact—although in narrow terms it is not specifically a tax that is designed for environmental ends—and clearly the decisions we take on levels of air passenger duty include a consideration about whether or not there is an environmental gain in altering the rate.

Q292 Mr Fallon: Sir Nicholas Stern was clear yesterday that if you keep increasing duty you would expect fewer people to fly. Is that right?

**John Healey:** You may have seen the explanation we gave around the Pre-Budget Report decision to double the rate of air passenger duty. The demand effect of that is that perhaps five million passengers out of 140 million a year may not be flying by 2010, therefore there is a demand impact. The environmental gain from that on our modelling is a range between 0.2 and 0.5 million tons of carbon a year by 2010. If you take a mid-point from that, 0.3 million tons of carbon is probably the annual environmental gain by that duty decision on air passenger duty.

Q293 Mr Fallon: If it is such a blunt instrument, as I think you have now acknowledged, what tax instrument would better tackle the environmental effects of aviation?

**John Healey:** Some would argue that—

Q294 Mr Fallon: What would you argue?

**John Healey:** If you will forgive me: some would argue, and the Government has made clear, that the legal constraints on being able to consider duties of any type on the use of fuel in international aviation is an anomaly and a constraint on our ability to consider that as a tax policy instrument. But our principal policy aim—because we believe it is for both aviation and more generally likely to be the most effective—is to see aviation included in the European Union trading scheme and to do so as soon as possible. Once again, in the UK and from the UK, with support from the industry, we have led arguments for that move and have been encouraged by the work the Commission has been doing recently in their proposal in December.

Q295 Mr Fallon: Given they are not expected to join the trading scheme fully until 2011, are you reconsidering how to incentivise airlines in the interim period? It is four years until then.

**John Healey:** Clearly we are encouraging and working with the industry where they are able to reduce emissions, where they are able to put in place sensible and genuine carbon offsetting schemes. In the meantime, one of the justifications, I think, in environmental terms of the decision the Chancellor took on air passenger duty is that, as Stern makes out, and as we have consistently argued as the Government, it is right that every sector makes some contribution to dealing with climate change, and it is surely right that aviation at least covers the environmental cost that its activities impose.

Q296 Mr Fallon: But you have nothing before 2011 to further incentivise the aircraft industry, apart from increasing air passenger duty as you have, or perhaps again.

**John Healey:** We are prepared to look at other policy measures. We have said consistently that we believe the trading scheme is the best policy solution, but we said in the Air Transport White Paper in 2003, in the Budget in 2004, 2005 and 2006 and in the Energy Review last year as well that we will—and we do not rule out—be prepared to look at other policy instruments and the use of those if there is a case for that.
Q297 Chairman: When the airline representatives were here I was making that very point to them and challenged them that, given they have five years' free ride until 2011, what are they going to do in that interim period, given that they think air passenger duty is the wrong tax? I have challenged them on that, Minister, and I am looking for the airline industry to come back and not to slide out from that. I think there is an issue here that they should be doing something up to 2011. Would you agree with that?

John Healey: I would encourage the aviation industry to take the further steps that they have been doing to date. Where they are working with us on some of the policy areas I mentioned earlier on, we welcome that as well.

Q298 Chairman: What I am suggesting to them is along the right lines then.

John Healey: I think it is unarguable. Although some may argue it, I think it is unarguable that aviation should at least be contributing and covering the costs that it imposes through its environmental impact.

Chairman: You agree with me. That is the thing. We will move on.

Q299 Mr Gauke: The Chairman is always on the right lines, Minister. Could you clarify something: Is air passenger duty an environmental tax as you define it?

John Healey: It is an environmental tax as classified by the Office of National Statistics. It is an environmental tax in their terms, internationally comparable terms, because, although its principal policy purpose may not be environmental, clearly it has an environmental impact.

Q300 Mr Gauke: A year ago, as Mr Fallon has quoted, you said explicitly "the air passenger duty is not an environmental tax". What has changed in the last 12 months?

John Healey: I have described the air passenger duty as a blunt instrument and not principally an environmental tax for environmental purposes. I have just been pretty clear with the Committee: air passenger duty is not the most environmentally effective tax for aviation; it is not the most environmentally policy for aviation; but it is available. The decisions we took at the Pre-Budget Report will lead to environment gains, both direct emissions reductions and further emissions equivalent reductions because of the other greenhouse gases. We have consistently said that, although our first priority is to get it into the trading scheme, we will consider the case for other policy measures.

Q301 Mr Gauke: Does the Treasury have an estimate as to the level of emissions or the number of flights that will be reduced that would otherwise occur had it not been for the increase in air passenger duty?

John Healey: We do and it derives from the model that HM Revenue & Customs use for air passenger duty. I was able to set this out for the Environment Audit Committee last week. As I mentioned just a moment ago, the modelling that we have of air passenger duty suggests that the APD rise that we announced on 6 December will lead by 2010–11 to around five million fewer passengers a year flying out of a total of around 140 million and that gives you the impact on demand. It gives you from that an ability to calculate a likely emissions reduction.

Q302 Mr Gauke: About 3% or 4%, would that be right? On my maths that would be a reduction of 3% or 4% from what otherwise we would have had.

John Healey: It is a reduction of round about five million out of 140 million.

Q303 Mr Gauke: As you are the Treasury I am taking it that you would be better at sums than I am.

John Healey: Thank you.

Q304 Mr Gauke: You have said that principally it is not an environmental tax, if I recall what you said a moment or so ago, but would it be fair to say that the Chancellor, when he presented it in the Pre-Budget Report did say very explicitly it was an environmental tax and principally an environmental tax?

John Healey: No, but he quite rightly said that the decision that he was announcing on the level of air passenger duty would lead to an environmental gain, that it would lead to emissions reductions, as I said, at mid point of around 0.3 million tonnes of carbon a year by 2010, but actually, when you take into account the impact of emissions at high level from aviation, that is a climate change equivalent effect of about a three-quarters of a million tonnes of carbon a year, so there is an environmental gain to be had from the air passenger duty and he made that clear when he made his announcement.

Q305 Mr Gauke: If I can turn briefly to something that came up yesterday, Sir Nicholas Stern told us that the first he knew that he was going to be working with Colin Challen was when the Chancellor told him. Did the Chancellor make Mr Challen an offer he could not refuse?

John Healey: No. There is clearly a misunderstanding here. The initiative that Mr Challen is involved in—he is Chairman of the All Party Parliamentary Group on climate change—is independent of government, it is through an all party group and is potentially an all party exercise. It seemed to the Chancellor and to me a very good idea for senior parliamentarians to get together with senior academics and others, including Cambridge University, and not just in the UK but across the Commonwealth, to discuss some of the challenges that we all face. That is something that we think is a good idea, that we want to support. The Chancellor passed on the proposal from Colin Challen to Sir Nicholas Stern and I am glad, as he confirmed to the
Committee yesterday, that he is willing and looking forward to working with Mr Challen and others on this.

Q306 Mr Gauke: We know the Chancellor facilitated the arrangements with Mr Challen and Sir Nicholas Stern. We also know that Mr Challen will be working, as you say, with Cambridge University and specifically the Centre for Energy Policy Studies, which is run by a senior Labour activist, Mr Nick Butler. Was the Chancellor involved in any way in facilitating the arrangements between Mr Challen and Mr Butler and the Centre of Energy Policy Studies?

John Healey: No. The Chancellor’s involvement was confined to receiving the proposal from Mr Challen and passing that to Sir Nicholas Stern. It is clearly a good idea, it is clearly something we want to support—

Q307 Mr Gauke: Did the Chancellor have any contact with Mr Butler on this issue?

John Healey: No.

Q308 Mr Gauke: Unequivocally? I know they both spoke at the same Fabian Society conference on 13 January.

John Healey: No, the Chancellor has not discussed this with Mr Butler. To some extent, if I may say so, I am disappointed here, because clearly the idea of bringing your senior parliamentarians and your senior academics together, not just from the UK but within the Commonwealth and more widely, to discuss what policy implications and challenges we face on climate change really ought not to be a matter of party politics, particularly when you have it led from this House by Colin Challen, who is Chairman of the All Party Parliamentary Group on climate change, a group that has as its treasurer, Mr Gauke, your party’s treasurer who is your spokesman on the environment, and 23 of your colleagues; MPs who are members of the Conservative Party are members of this group. Clearly there is a basis here for a really important initiative.

Q309 Mr Gauke: Minister, I am not criticising that. I am simply trying to get to the point, and, if I may say, you appear uncharacteristically defensive on this point, as to precisely what the role was of the Chancellor in Mr Challen making a decision not to stand for Parliament at the next election in order to fight issues relating to climate change and to work with Sir Nicholas Stern. I was merely asking what the arrangements were. I am grateful for your answers.

John Healey: Good. I do not mean to be defensive; I do not think I am defensive. I hope I am clear: it is independent of government, it is a good idea, we fully support it and I hope that support for this initiative extends across party.

Chairman: Minister, your five million out of 140 million, given this is a Treasury Committee, is exactly 3.5%.

Q310 Kerry McCarthy: I know the Treasury has historically not been at all keen on the idea of hypothecation of taxes or ring-fencing them to meet particular spending objectives, but would it not be easier to sell the idea of environmental taxes to the general public if they thought the revenue raised was actually being used to mitigate environmental damage?

John Healey: Sometimes there is a good and clear case for using the proceeds of environmental taxes for environmental purposes. We have, for instance, recycled some of the revenues from the Climate Change Levy to support the Carbon Trust. We have recycled some of the proceeds of the Aggregates Levy to support the Aggregates Sustainability Fund. There is clearly a more general case for devoting revenues that may be raised from environmental taxes, if one likes, taxes generally on bads, on pollution and damaging activity, to offset some other revenue sources that may be goods, so, for instance, when the Climate Change Levy was introduced, rather than taking that entire revenue into the Consolidated Fund we cut the national insurance contributions for employers by 0.3 percentage point. We did cut it by 0.1 percentage point when we introduced the Aggregates Levy, but it is well established that some taxes that are clearly classed as environmental taxes also help to raise revenue for essential government spending and services, including on the environment and transport. That has been the case, for instance, with the fuel duty virtually since it was introduced in 1928.

Q311 Kerry McCarthy: In terms of using environmental taxes to raise revenue, surely with a successful environmental tax, if it is to work in changing behaviour as well, the actual revenue would dwindle as time went on as it would have the desired effect that companies would change their behaviour. Is there any mileage therefore in offsetting those with tax cuts elsewhere? I think the Liberal Democrats, for example, have suggested that they could raise £20 billion by environmental taxes and they would use that partly for public spending but they would offset that with taxes. Is it possible to operate on that sort of basis?

John Healey: No, I think it is important to consider the questions that need to be analysed and dealt with on raising revenue and to consider those separately from questions of how one might want to spend those revenues. As I say, there are established environmental taxes, such as fuel duty, which have historically and for decades played a part in raising general revenues that governments have been able to use flexibly and importantly for other essential spending, and that allows not just for greater flexibility; it also allows for greater stability in the tax revenue base.

Q312 Kerry McCarthy: But taxes such as the fuel duty are not primarily designed to change behaviour, are they? They are revenue raising mechanisms, which is why they do not fit the Treasury’s definition of environmental tax, so
presumably it is quite easy to predict the revenue streams from those sorts of taxes, but when it is ones that are more aimed at changing behaviour it is more difficult?

John Healey: It is certainly true that if you have a tax that is specifically aimed at environmental gain in changing behaviour, as it becomes successful (as with the Aggregates Levy) your relative tax take diminishes to the extent that the tax itself is effective. I mentioned earlier on that the quarrying of stone and other aggregate for the first time has gone down by 8% in recent years since we proposed and brought in the Aggregates Levy. Clearly that is having the policy impact that we want. In revenue terms it is also going to mean the revenues are reduced by that amount.

Q313 John Thurso: Minister, in the Pre-Budget Report the Government stated that a key aim of government intervention is to encourage behavioural change’ I am interested in behavioural change. To achieve that objective at what level do environmental taxes need to bite?

John Healey: That is an impossible question at a general level and I think it is only possible to examine that when one looks at the design and operation of specific taxes or potential taxes. I mentioned to the Committee earlier on the Climate Change Levy. That has had an impact on investments in and activities that have led to more efficient use of energy amongst businesses. That has led to energy efficiency savings such that that by 2010 the Climate Change Levy itself will mean that perhaps three and a half million tonnes of carbon less are emitted by businesses covered by the Climate Change Levy. It is only when one gets into the design and operation of specific taxes that one can consider that sort of much more general question.

Q314 John Thurso: If you look, for example, at emissions, and I think it is our shared ambition to see them reduce, there is a problem to a certain extent in that revenue will reduce if the emissions also reduce. To what extent can the Treasury commit therefore to emissions reduction given that it has to have regard also to raising revenue?

John Healey: The Treasury quite clearly and very strongly has committed itself to taxing playing a part in emissions reductions. For instance, let me take the Climate Change Levy. Part of the design of the Climate Change Levy package is 80% discounts for climate change agreements, so firms in the most energy intensive sectors that enter into these agreements pay the Climate Change Levy not at 100% but at 20%. We did that (a) because we thought that there was an important international competitiveness concern that we needed to build into the design of the Climate Change Levy package, and (b) because we believe that could also be effective, despite the fact that we took a revenue hit on that element of the design, as it has proved in helping to reduce emissions. The same could be said for the duty discount on biofuels, for instance. At 20p per litre, once we get to 2008 and we are looking at a 2.5% market in the UK, that will be a revenue foregone, in other words, a cost in revenue of around £300 million to the Treasury. We take that into account, but clearly it has not stopped us wanting to put that in place because we believe it is going to help drive and develop the market in biofuels in the UK and it is going to help, because of that, secure some of the emissions reductions from road transport in a sector that we need to do more in.

Q315 John Thurso: Clearly, a key element in seeking to change behaviour is the ability to measure the impact of any given measure. Are you satisfied that you have got the measures in place to be able to measure behavioural change?

Ms Russell: We do set out in the PBR and Budget at the back of chapter 7 our latest evaluation and assessments of emissions saved or other environmental impacts of our taxes. On many of our taxes, company car tax recently, the Climate Change Levy, there have been significant evaluations undertaken of the taxes which have then subsequently been published.

Q316 John Thurso: What has been the most effective? Do you know?

Ms Russell: In terms of just emission reductions, the Climate Change Levy, as the Minister said, is probably the most effective.

Q317 John Thurso: Would you agree that the other side of that equation of behavioural change is the carrot, tax, regulation being the stick, and a stick and a carrot are both needed to get the best effect? On that point the question is what the Treasury can do to help here because this is about giving money away. There was an article in this morning’s Guardian where the Renewable Energy Association were accusing the DTI of killing off the demand for solar panels and wind turbines on homes because the monthly budget for that programme had run out an hour and a quarter into the month. Is the Treasury looking and working with DTI to increase those programmes to fulfil the demand that there clearly is for people to put such devices into their own homes?

John Healey: The short answer is yes, both on the specific question of how we look to encourage the growth of the market and the incentives for taking up things like solar energy and microgeneration. That was part and parcel of the £50 million that the Chancellor announced at the last Budget to help try and support that. Clearly there has to be a role for both the stick and the carrot, as you quite rightly point out, Mr Thurso. That may be done through spending programmes. That may also be done, as we have done, through the tax system as well. Achieving through tax that universal switch to ultra low sulphur fuels was done essentially because we were able to put in place through the duty system an incentive that priced ultra low sulphur fuels slightly more cheaply at the pumps than what they replaced, so clearly a combination of stick and carrot, a combination of policy measures, whether those are information campaigns, sometimes government
spending, sometimes regulation or sometimes tax, is often required to see the sorts of changes that we would both want to see in the future.

Q318 John Thurso: Could I ask you if you would look at the Low Carbon Buildings Programme to see if some more could be made available because it is clearly very successful and what we would all want to encourage?

John Healey: That will be one of the areas that we look carefully at in the context of the Spending Review this year.

Q319 John Thurso: One last question, if I may. The Irish introduced a plastic bag tax, the result of which is that the number of bags issued by shops is down by 90%. The Scottish Parliament chose for its own reasons not to proceed with such a measure, but what is your view on such a measure?

John Healey: We have also been following the Irish experiment quite closely. Our judgment at present, and we are ready to take fresh evidence and look at it again, is that when you consider that plastic bags are less than 1% of the waste stream in the UK and that it has had in Ireland some perverse consequences in terms of other things that may be used that they had not necessarily anticipated, it is not necessarily a good instrument in our view to deal with some of the problems that we have over volumes of waste. As I say, we are ready to look at fresh evidence and arguments for whether we could and should introduce it in the United Kingdom but we have not been convinced yet.

John Thurso: I have to say I have a major plastic manufacturer in my constituency who is not very keen on the idea either.

Q320 Mr Love: According to the definitions of the Office of National Statistics you mentioned earlier on, the total proportion of tax revenues made up by environmental taxes has been falling in every year since 1999. This Committee, when it reported on the Budget last year, commented on the use of environmental taxes and could not greater use be made of them. What is the current Treasury position on that and do you think there is more opportunity for environmental taxation to achieve the Government’s objectives?

John Healey: I think in general there may well be scope and we are ready to look at the scope for using environmental taxes as part of what we need to put in place and do so more. If I may say so, though, I think the wrong way of assessing that is to look at the total revenue take from environmental taxes because if your yardstick for the commitment or success of environmental policies is simply the revenue that is drawn from green taxes I think you miss three important things. The first is that clearly high tax receipts in such a field can either be a result of high rates of tax or the activity that you want to discourage. The second thing is that simply looking at the level of revenue misses the essential point that we have discussed this afternoon, that you can use the tax, for instance, in the discounts for the Climate Change Levy through agreements, for instance through the duty discounts for biofuels, in a way to encourage the sort of behaviour you want to see but nevertheless has a hit on the revenue figures. Thirdly, the tests should better be that you get the behavioural change, you get the environmental gain as the measure of the policy’s success rather than the revenue.

Q321 Mr Love: In these circumstances are you suggesting that their reduction is a sign of success, that behavioural is taking place? Is there evidence for that?

John Healey: No, I am not. What I am saying is that simply using the yardstick for total revenues derived from green taxes does not tell you about how effective they are or how successful government policy and clearly tax policy is as a whole, and so therefore it is a misleading and imperfect measure.

Q322 Mr Love: A number of the environmental groups have been saying to us, and indeed have been saying more generally, that the Government has steered away from this area because it feels that this may be bad for the economy. How would you respond to that so-called criticism, that environmental taxation is bad for the economy?

John Healey: That is too sweeping to be of any significance as an argument. Some environmental taxation, if it is well designed and deployed, can actually be beneficial to the economy, but I think we are right in government and in the Treasury to consider, as part of whether or not we introduce or change rates of environmental tax, what the economic consequences are going to be, both for households and for businesses. That is an important part of the balance of pressures and concerns that we would need to take into account in those decisions. On fuel duty, for instance, I am aware that some advocate the reintroduction of an automatic annual escalator. I am aware of some of the criticisms of the green groups that somehow we have not raised fuel duty in the way that we should for environmental purposes, but if you look over the last two years, up to last summer, for instance, at how the pump price of diesel rose by 16p per litre, in those circumstances I think it would have been a mistake to have an automatic escalator that jacked it up still further. It would have caused problems for the motorists and indeed economic consequences for British business. I use that simply as an illustration of how judgments on tax have to be able to weigh some of the environmental ambitions that are there with the economic consequences, and indeed the social consequences too, because in some cases some taxes will hit poorer people and poorer households harder.

Q323 Mr Love: The Stern Report dealt pretty robustly with the argument about the impact on the economy. However, he took a more nuanced view in relation to the possible impact on innovation and efficiency, competitiveness, if I can put it in those terms. What is your view about the impact that environmental taxation may have on competitiveness in some sectors of the economy?
John Healey: Clearly it depends on the particular environmental tax that one is looking at. To the extent that it may affect price and be designed to affect price, it would have that potential. That potential is clearly magnified if it is a move that has just taken place in the United Kingdom. It is one of the reasons why trading rather than tax is, in our view, a much better approach for dealing with some of these environmental concerns around climate change because essentially it helps you do two things. Firstly, it helps you overcome some of the concerns about competitiveness impacts in a particular country and, secondly, it helps you achieve the sort of reduction in emissions in the most cost-effective way that is possible.

Q324 Mr Love: The overall thrust of the Stern report was that the 1% cost that there would be to stabilise global greenhouse gases up to 2050 is much less than the possible 5–10% impact on GDP that would occur if we do nothing. To what extent has the Treasury been able to factor in those figures in any cost benefit analysis that it is doing about the likely impact of environmental taxation and other issues, or is it too early for that to have happened?

John Healey: You will appreciate that with 700 pages we are still examining some of the implications of—

Q325 Mr Love: I see you all have copies with you today; we should have brought our copies as well! John Healey: I will not encourage Rebecca Lawrence to quote from the Stern report, unless she really wants to. Clearly there are some areas where there are implications which we are considering. I think the importance of the Stern report overall is the analysis leads to the conclusive message that there are significant costs in dealing with the challenge of climate change but those costs will be far greater if we do not take the action that is necessary and those costs will be far greater if we do not take that action internationally rather than unilaterally within the UK or elsewhere.

Ms Lawrence: If I can add one thing, and I will not quote from the Stern report. We do accept the analysis and the conclusions that the report gives. That 1% is dependent on quite effective and careful policy design where you need sufficient flexibility in your policy and you need to be mindful of costs because if you design your policy badly you can push costs higher than that.

Q326 Mr Newmark: I have got more macro question. I am more interested in your particular view on this, Minister. On one of the analyses the assessment of the Stern report was that in order to do what we need to do it would cost something like 1% of the global GDP. Do you see that as achievable, realistic, and sensible? It is a pretty expensive cost given that historically the problems were not created by this generation and that future generations will benefit from that, so this generation is being asked—I am talking in a global sense—to pay 1% of global GDP.

John Healey: In a sense you are posing an ethical rather than an economic question.

Q327 Mr Newmark: Yes.

John Healey: Personally, I, and the Government, would go along with the judgments that Stern has taken that underpin his report. Clearly there is a significant cost.

Q328 Mr Newmark: So you think this generation should pay for future generations then, which is essentially what that is saying?

John Healey: I think this generation has a particular responsibility to take steps to allow us to start to deal with climate change and it is quite right that in attempting to see a stabilisation of emissions in the sort of territory that Stern indicates we accept and understand the consequences and the cost of those and in making those sorts of calculations we should not regard the value of the world, as it were, the importance that future generations might place on a healthy and sustainable climate and world, any less than we do at the moment. I think it is right and it is reasonable that this generation takes its responsibility for helping to safeguard the interests of future generations who will also have many of these challenges to face for themselves as well.

Q329 Chairman: Minister, we gave you the figure of 3.5%, which was to the first decimal place. One of my colleagues has been very inventive and he has said it is 3.571428 recurring!

John Healey: I hope that helps the Committee with its inquiry.

Chairman: Thank you very much for your attendance, Minister.
Tuesday 27 February 2007

Members present

John McFall, in the Chair

Mr Michael Fallon
Mr David Gauke
Ms Sally Keeble
Mr Andrew Love

Kerry McCarthy
John Thurso
Peter Viggers

Witnesses: Mr Rick Haythornthwaite, Chairman, Better Regulation Commission, and Mr Simon Bullock, Economy Campaigner, Friends of the Earth, gave evidence.

Q330 Chairman: Good morning and welcome to our inquiry into climate change. We have been delighted you could come along at short notice. Can you introduce yourselves for the shorthand writer, please?

Mr Bullock: I am Simon Bullock, Economics Campaigner for Friends of the Earth.

Mr Haythornthwaite: I am Rick Haythornthwaite, the Chair of the Better Regulation Commission.

Q331 Chairman: The Better Regulation Commission recently published a report in response to the Stern Review, discussing the most appropriate way of regulating to mitigate climate change. On the day the report was published, Rick, you wrote in the Financial Times that reports such as Stern might “unleash huge demand for more regulation”. Would such demand be an entirely bad thing?

Mr Haythornthwaite: Let me start, Chairman, by saying that I think the Stern Report was fundamentally a very good report. There may be a number of weaknesses levelled at it, various discount rates, or whatever, but, regardless of that, I think it was represented a very positive move in that it drew a line under the debate around the science. There has, as I pointed out in that newspaper column, I think, been a consensus that has bordered on a sort of clamouring consensus that I do not think is bad in the sense that there is now energy, ideas and a degree of consideration behind policy and, second, that there was no real framework of tests in the market against which policy-makers should basically judge themselves, and that is why we came out with the report.

Q332 Chairman: Looking at your Financial Times report, is it fair for me to summarise that when you say you are worried about the consensus, you are not really worried about the consensus but you are worried about the crazies who come in after it?

Mr Haythornthwaite: Yes, I am worried about the crazies, but even the more sensible propositions have got to be put within a strategic context. If we are going to capitalise on Stern and a lot of the good stuff that went before, because Stern really, I think, crystallised quite a number of views that were around, then the public has to come with policy-makers and with the Government, and the credibility of change is so important, and so my belief, and the Commission’s belief, is that whatever happens should be set within a clear strategic context. Yes, we want to filter out the crazies, but we also want to make sure that even the sensible propositions are clearly fitted within a strategic context.

Q333 Chairman: Simon, you can maybe answer if you are one of the crazies in your answer to the question! An important part of regulating to tackle climate change will be making appropriate use of environmental taxation, but in the evidence from the FoE you state that, since the year 2000, the Government’s use of environmental taxes to tackle climate change “has stalled and in many areas gone into reverse”, and you argue that the Government is “paralysed” by fear that action would be bad for the economy. If you had been in government since 2000, what steps would you have taken with regard to environmental taxation?

Mr Bullock: I think with environmental taxation it is largely a selling job around having a coherent set of policies that takes into account, not just tax, but spending and regulation and all the tools that government has at its disposal. I think a concern has been, to take the road fuel duty as an example, that it was raised for a number of years but that all the public perceived out of it was taxation rising. It is very difficult to sell a policy whereby you are increasing the prices for people but not putting any effort into improving the alternatives; and we sought, and we continue to seek, to change a situation where the cost of the two most polluting motor transports—road and air—fall in real terms and the costs of the least polluting alternatives, bus and rail, rise in real terms. What we have been advocating is a coherent tax-and-spend policy, in the main, so that the revenues coming from road fuel duty are politically, though not necessarily formally, hypothesised to improvements in public transport so that, for example, people have decent alternatives: they do not have to drive into work, they can use bus or rail to get in cheaply, affordably, and I think if that had been done since 2000, making those alternatives better, then it would have been far easier for the Government to sell environmental taxes as a necessary and worthwhile thing to do for climate change.
Q334 Kerry McCarthy: A question for Rick in the first instance. How clear is it which Government department is actually taking a lead on environmental issues, and how well is the cross departmental work actually being coordinated?

Mr Haythornthwaite: The only thing that we would observe at present is that there is activity in DTI, in Defra, in the Foreign Office, in the Treasury, and activity that is now across a multitude of sectors, and it is not clear to us to date that this sort of cohesion is required. We are encouraged to see talk of the Office of Climate Change, but that Office of Climate Change has got to develop a clear role, and our hope is that the energies from here on in do not go into the politics of organisation but that they spend time working on the recommendations we have put in the report; in other words getting the fundamental building blocks of the policy, which is understanding the pros and cons of different methods of carbon pricing, establishing a clear stabilisation goal so that everyone understands it and a carbon-price pathway—a clear methodology for evaluating policies across government—and to make sure that the seven tests are woven deeply into the policy-making agenda. In answering your question, we do not see cohesion as yet, there needs to be some clear lead, and that lead needs to spend the first months really establishing that framework.

Q335 Kerry McCarthy: So with the publication of the Stern Report, is there scope for the Treasury to take more of a lead rather than, presumably, Defra at the moment?

Mr Haythornthwaite: It is not really for the Commission to say who it should be. We would simply establish the principle that there needs to be clear leadership, there needs to be co-ordination and those building blocks and tests need to be a fundamental part of the policy. I think it is for the Government to decide who takes that lead.

Q336 Kerry McCarthy: Simon?

Mr Bullock: We feel, again, the exact place for leadership is unclear at the moment, but there is certainly a need for a much stronger role from Treasury. I think, in the light of Stern and so many economic signals acting in the wrong direction, it is appropriate for there to be a major overhaul of Treasury policy in regard to energy and climate change; so we would look to see, as a response to Stern, that the Treasury took a much more active leadership role across government on climate change and the tests that the Better Regulation Commission suggest around a strategy for climate change by September. I think it is, I think it is a very valuable and useful thing, and we hope that the Government does do that.

Q337 Kerry McCarthy: What sort of mechanisms are in place in terms of public procurement in particular? For example, if you were to look at a situation of somebody who is in charge of buying light bulbs in a state school. Obviously it would be desirable if they bought energy-efficient light bulbs. Is there scope to have regulation down to that sort of miniscule level, or is that something that the Government can just send out signals on?

Mr Haythornthwaite: I think that, if one takes a step back, the first of our tests is where we say that climate change policy has got to be consistent with economic growth. In other words, we cannot change the world, but we can, very clearly, set a clear example by showing what we can do with domestic policy, and part of that is establishing leadership in the public sector, and I think it is for the Government to make it clear what it believes should be achieved in the realm of energy efficiency within public sector bodies, and so, yes, we are very hopeful. What device is used, I think, it is for them to review. The outcome is important to us. There are many different routes of doing it. Whether actually Fiat is the most effective is often questionable, but they need to look at the alternatives.

Q338 Kerry McCarthy: Would you be concerned if there were a plethora of regulations that were brought in to try to ensure that people complied more quickly? Obviously the Government can send out signals and guidance and say, “This is what we would like you to do”, but that would be a much slower method of ensuring compliance or encouraging people to go along that path than actually forcing people to do that, but would there be a concern that it would actually result in too much regulation if the Government was to be prescriptive?

Mr Haythornthwaite: Coming back to the point of credibility, any regulation put into the public sector is clearly more regulation in quite a highly regulated area, and so, if you look at the test, if it is clearly couched within a strategy, if one looks at the need to keep administrative burdens to a minimum, and, as we have said, if something is failing, get rid of it, there is the opportunity to create space for those policies. So I think the Government needs to get beyond increments on this, look at it in the round, and, if they do feel that the classic regulation, Fiat, is the best way to push this through, then find ways of reducing the administrative burden elsewhere.

Q339 Kerry McCarthy: Simon?

Mr Bullock: Very briefly on that, because public procurement is not an area I have expertise on, around the leadership issues I think people generally get a lot of exhortation from the Government to do the right thing when often it is quite difficult and expensive for them to do that. The Government’s drive to get people to do their bit: if they were seen to be leading themselves, public procurement would clear the way. If the Government were simply to insist that all schools and hospitals were to use energy-efficient light bulbs, it would be a very strong message to go out and also one that would save vast amounts of money. I think the Better Regulation Commission’s report and the Stern Report cite energy efficiency as the measure which has the highest net economic benefits, huge economic benefits, and the barrier there is inertia and lack of information—something the Government could do a lot about quite easily.
Q340 Ms Keeble: I wanted to ask a bit more about the regulatory tools that were available to Government, in particular the balance between taxation and regulation. I appreciate your comments on those. Rick, first, really which are the pros and cons? If you take the light bulb case again, is it better to change the taxation on non-energy-efficient light bulbs or simply to ban production of the non-energy-efficient?

Mr Haythornthwaite: I think it would be beyond our competence to say which is best. What we would say is—

Q341 Ms Keeble: What are the pros and cons?

Mr Haythornthwaite:—what are the pros and cons. Clearly, if one has looked at the opportunities of information, education, self-regulation, co-regulation, whatever, and found them to be lacking in terms of their ability to create any sort of impact (and we have history in these areas—there have been a lot of attempts), then one has to get, as you say, to the area of taxation, trading or regulation. Institutionally, I think one could say that the Commission, in the absence of any evidence of market failure, is always more for the market-based solutions, but we recognise that in certain instances either the market-based solutions are not sufficiently well developed to be credible—Stern talks at length about emissions trading, for example—and that other instruments are required, and so our main plea in all of this comes down to the fact that the behavioural outcomes of any one of these things and the pros and cons are looked at thoroughly, but they are so situation-specific I think it is very difficult to generalise.

Mr Bullock: Generally, we agree with the Stern Report that the combination of taxes, permits, regulations and all we need depends on the circumstances. On light bulbs, I think the Government is saying that it cannot do a number of things because EU rules prohibit it. For example, VAT changes or outright bans you cannot do because it requires the consent of all Member States, in which case an alternative may be something like product charges, with the money recycled into making green bulbs cheaper. Again, it will vary on the specifics, but just to come back, one further thing on this is that, in our view, the issue really is not whether taxes are better than regulations; it is that all of them are needed now. It is the urgency of the situation that is so grave. I just go back to something that Stern has said. He was talking about stabilising atmospheric concentrations at between 450 and 550—that was his range. He described 550 as being a very dangerous place to be, with the substantial risk of very unpleasant outcomes, and he went on to say on this, “It is still possible to stabilise at 550 parts per million. Ten or 20 years ago it was possible to stabilise at 650. It was possible 10 years ago to stabilise at 550, but we have missed the chance.”

Q342 Ms Keeble: Can we go on to the public perception in relation to tackling climate change, in particular taxation. One of the difficulties with green taxation is the very negative public perceptions of it very often and, therefore, the ability for people also to find other ways round it. I wonder how you see that can be tackled and also whether that is one of the reasons perhaps for looking at regulation, where you have uncertainty perhaps about the outcomes albeit you do not always know the economic consequences. Rick, would you like to answer that first, and then I have some other questions for Simon on the public perception?

Mr Haythornthwaite: What I would say is that we sometimes owe credit to the public for their capacity to absorb complex argument. I think we have seen around pensions and avian flu that, where things are put across in a strategic context, people understand it and are willing to consider a variety of options. I think the same will apply to climate change policy. If it is argued well within a strategic context and is not seeking to actually be put under justification of another policy, they will be accepted. It just needs to be argued well and people need to understand how it fits within the desired outcome of stabilisation at a certain level.

Q343 Ms Keeble: Simon, given your very active campaigning Friends of the Earth has done previously—

Mr Bullock: I think it is an overall package that is needed which will have tax rises but also tax breaks: things like council tax breaks on energy-efficiency measures, stamp duty rebates for energy-efficiency measures and also some evidence that the money that is being raised either goes in the form of tax cuts elsewhere or in spending on things that make it cheaper and easier to take the environmental option.

Q344 Mr Fallon: Mr Haythornthwaite, you set seven tests for policy-makers. How many of those seven tests did the increase in air passenger duty fail?

Mr Haythornthwaite: We have not looked at it in detail, but one would go back and ask questions around the quality of the strategic arguments put forward. I think one could look very clearly at whether or not there was a carbon pricing benchmark used. There was not an enormous consideration of the administrative burdens. In other words, quite a number of those tests, I think, have failed.

Q345 Peter Viggers: In your recent report, Mr Haythornthwaite, you state that one way in which the Government could ensure that all carbon emitters are exposed to an appropriate carbon price is by imposing taxes and regulations. What do you think is the most effective way for the Government to establish a fixed carbon price?
Mr Haythornthwaite: First of all, as Stern says, one needs to acknowledge the fact that it will be 20 years or more before we truly have an emissions trading system that has settled down, has a liquidity and scale to give you a good carbon price, but we do believe it is important to set one early on, and to do that we need to be clear about where we want stabilisation to be and at what level and, whilst that carbon price may not be right, it is better than working within the range of the 35 to 140 dollars that we have at the moment and will, I think, give a far more consistent benchmark for public policy to be looked at. Elsewhere our view is that one should seek to set a carbon price through the market as quickly as possible but recognise there are circumstances where the administrative costs of doing that are too high and areas where actually one can end up with carbon leakage through sectors of the market that one cannot apply trading to and, therefore, there will be a place for taxation and regulation in those areas, but we would like to see market-based solutions used wherever they can be.

Q346 Peter Viggers: You make it clear in your report that you see the need for a system which is both robust and flexible?

Mr Haythornthwaite: Yes.

Q347 Peter Viggers: Also international, I assume. Who would supervise this? Are you satisfied that the European Union Trading Emissions Scheme will evolve to an appropriate arbitrator?

Mr Haythornthwaite: I think that Stern was very clear about the issues that need to be dealt with, truly creating the scarcity of allowances, truly making sure that there is transparency, liquidity, price smoothing mechanisms, that there are no sectors escaping, and so on and so forth. I think that the UK Government has considerable influence in Europe on this. We have got some way to go before that scheme works and, over this second period of the Emissions Trading Scheme, I think every government needs to be pushed very hard to make sure this emerges into Europe as a credible system that can increase liquidity over time and extend to a truly international system.

Q348 Peter Viggers: Mr Bullock, how much confidence do you have that market-based solutions will provide a way ahead, or do you think we need to be more dirigist?

Mr Bullock: I think market solutions are certainly part of the solution. They are not the only thing, which Stern points out: you need all types of measures at governments’ disposal. I think that Stern was right again that internationally the Emissions Trading Scheme may well be a very strong front runner for the best instruments to use. However, there are significant problems with the EU ETS at the moment, and they do need ironing out, but the main one, as I think has been mentioned already, is that there is heavy over-allocation of permits in the first phase of the gap; so that does need addressing.

Q349 John Thurso: Mr Bullock, in your written evidence you argued that linking environmental taxes with specific linked spending measures would make them more politically acceptable, the Government having used the Aggregates Levy to reduce National Insurance and so forth. Why should not revenue from environmental taxes be used for greater social good or to reduce income tax, or whatever?

Mr Bullock: I think that they can. The Government has to raise tax from a number of sources, and we strongly advocate the environmental tax reform principle: that you should be aiming to tax pollution rather than tax goods and things that people value. So we do advocate a tax reform agenda. There are instances, I think, where, for political reasons, you might need to link spending with taxes to make them acceptable to people. I am not arguing for formal hypothecation across the entire economy—that is clearly not the way to go—but there are instances where linking it would make it politically acceptable so that the policy can deliver the objectives Government wants.

Q350 John Thurso: Would you agree that the ultimate objective of environmental taxation is actually to change people’s behaviour?

Mr Bullock: Taxation generally has a number of objectives. John Healey was laying them out for you when he came to your Committee earlier on, and taxes certainly have more than one purpose. Road fuel duty, for example, to my mind, has two main purposes: one is to raise general revenue for government coffers and the second one is that it acts as a brake on demand in road transport and is useful, in that context, from a climate change point of view.

Q351 John Thurso: But, as you have pointed out, motoring in real terms is 96%, 97% of where it was 10 years ago and buses are 22% more expensive than rail is, whatever it is, so it has failed miserably on that score?

Mr Bullock: They have not implemented it. The road fuel escalator was dropped in 2000 and I think there have been two inflation-based rises since. It has fallen in real terms, so it is just a strategy that the Government has dropped. I think that is the reason why it has failed.

Q352 John Thurso: If you look at the objective of trying to achieve behavioural change, are there not two things that are required? One is that there is a perceived self-interest in those who are taxed that the change in taxation actually is in their interests, they can see a goal, and the other is that they have to have real knowledge of what one is seeking to do? Therefore, if you go back to the fuel duty, at the moment there is no self-interest in changing it and nobody understands why one should, whereas the academics who look at something like, say, road-user charging can make the arguments. Is there a need to make better arguments?

Mr Bullock: I think there is a case for packages. To give you one example, one which might happen very soon around green cars, the Department for
Transport, we understand, is about to launch an information campaign for showing people for what cars they can buy their carbon emissions, because they have identified that is an information gap. The Government, the Treasury, could also at this Budget put in place larger differentials for cars according to their carbon emissions. They have all got slight differentials at the moment—twenty quid, I think, between band F and G cars. So, if you had an integrated policy where you have got a financial incentive to change, plus the information that lets you know what cars are available, then that could drive quite a lot of change, and I think that, potentially, in the next couple of months there could be good progress on that.

Mr Bullock: I think there are more important tax measures the Government should be looking at: for example, the landfill tax escalator, variable charging and an incineration tax considering the externalities of incineration. However, the plastic bag tax does have the advantage that it is a highly symbolic action. I think it goes back to the point I was making earlier, that for individuals to do their bit they need to see that the Government is doing something as well. The difficulty with things like the landfill tax is that it is not very obvious at all what is going on with it, most people do not even know about it, whereas a plastic bag tax, although the environmental effect would not be that great, would have a large symbolic effect in showing that this is something the Government can do, this is very obviously removing a problem which people see all the time, like littering of plastic bags.

Q353 Chairman: You have a broad definition of regulation and this is a narrow piece of legislation. What other options are there than legislation, do you think, in this area?

Mr Haythornthwaite: There is always the possibility for no action, information, education, self-regulation, co-regulation to be considered as light touch, and they should be given due consideration, and then, if it is really felt that that will not deliver the behavioural change and the outcomes desired, then moving slowly to the areas of trading regulation and taxation. As I have said in a previous answer, I would like really market-based solutions to be given prominence and be fully tested before we look to the mix of others. We do acknowledge that under many circumstances it will require a mix, but we would like to give the market-based mechanisms the full run.

Q354 Chairman: Are there fundamental issues you want in the face of the bill?

Mr Haythornthwaite: I think in the reality here, you need to establish those principles: the principles of good strategic consideration, packages and full risk regulatory impact assessment of anything that goes through. The reality is that a lot of the detail will come through secondary legislation, and therefore, just making sure that the context and the rigor of policy-making is established clearly within the Climate Change Bill.

Q355 Chairman: Our final question for both of you. Rick, what will determine whether the forthcoming Climate Change Bill is a successful piece of regulation?

Mr Haythornthwaite: From the stand point of the Commission, I think I would look for four things. The first thing is that it clearly lays out the desired outcomes. There is no doubt of the desired outcomes. The second is that it quizzes any concept of international heroics that this is really about high quality domestic policy. Thirdly, I would love to see the seven tests incorporated within legislation and, finally, I would like to make sure that it is compatible with other papers, such as the Energy White Paper, that are coming out at the same time, that there are no clear clashes.

Q356 Chairman: Simon, how much can a single Act of Parliament be expected to do?

Mr Bullock: I think it can do a lot. It would clearly set a framework and a context for all of government. What we would like to see from a bill is a clear goal, annual carbon budgets, a strong independent body to monitor it, strong reporting mechanisms, and that is the sort of thing that can drive policy across government. We face a situation at the moment where political parties of all colours set 20-year targets and, as we know, they are not being met. What we feel we need is some genuine accountability within a term of Parliament, because climate change is a long-term problem and it is one that is very easy for any government to defer to the next administration to deal with. That is why we strongly believe that annual carbon targets are needed and why you need legislation to ensure it happens.

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Q359 Chairman: In a best case scenario how far could we expect the Climate Change Bill to go towards addressing the UK’s contribution to the climate change problem?

Mr Bullock: The bill does not actually deliver the policies themselves. After you have got the bill for, say, an annual 3%, 5% cut a year, or whatever it will be dependent on the science, then you would need a climate strategy of the sort that the Better Regulation Commission has outlined is needed by
Dr David King, Witness:

Government says quite a lot that climate change is from an international point of view. I think the UK would set out which policies are needed across which government so that you have a clear strategy which will provide the right level of investment. Spending Review. So, there is certainly a need to grow that level of investment.

In terms of flood defence, our budget for the next year will be in the order of £440 million, and our starting point would be that any reduction or erosion of that would lead to increased flood risk. Nicholas Stern told us that the south of England can expect wetter winters, drier summers, pressure on the sewerage system and more severe storm surges on the Thames. Have we got in place adequate funding and plans to cope with that?

That is certainly a big question. I think we have got the right policy frameworks in place and the areas of principal vulnerability are around flood risk and, indeed, on water resources. If I take flood risk firstly, the policy frameworks set up by Government in Making Space For Water is a good one and the basket of activities that the Agency deploy to reduce risk are about raising awareness, about warning, about building and retaining defences and are the right activities, but there is a question about the level of investment. Likewise with water resources, the principal strategy is a twin-track approach of new resources, where new resources are necessary, but also demand management, getting on top of water efficiency and leakage, et cetera. So the strategic frameworks are right but there is a question about investment and pace.

We also have obligations to help them with these eventualities and, in general, developing countries, especially the poorest countries, are far more vulnerable to the actual threats of climate change itself and have the least ability to respond. For example, the budget that has just been mentioned in terms of £440 million is large compared with Africa where there is a very vast need to improve the weather forecasting systems on the ground. I think there was a plan put in place, Global Climate Observing System (GCOS), to raise $200 million for the whole of Africa to allow for better forecasting, which is a key part of getting information to people so that they are prepared for adaptation activities, as well as to provide technology, and technology not just to reduce greenhouse gases, but technology that may be necessary for adaptation purposes. These legal obligation arise under many different articles of the Convention. We also have obligations to help them prepare for planning for adaptation activities, as well as to provide technology, and technology not just to reduce greenhouse gases, but technology that may be necessary for adaptation purposes. These legal obligation arise under many different articles of the Convention, but the clearest one is 4.4.

Mr King, do you think that the approach of the Government as far as adaptation to climate change is adequate or sufficient?
Dr King: I think the approach is right. If we take where the greatest vulnerability is, which is around flood risk, I think it is a question of investment. The Foresight Study had two principal points: one that risk will increase and, secondly, there is a need for increasing investment up to the level of about one billion pounds per year if you are to keep annual damage at the order of two billion pounds. So, I think it is really a question about increasing levels of investment for flood risk management, and certainly we would like to see that in the next Spending Review. If you look at capital rationing, if you look at construction price inflation and if you look at need, we estimate that an additional £150-200 million extra in the next Spending Review period is required. On water resources it is about pace and it is about investment for water companies. We know the south-east of England is water-stressed. That is where most development will come in, that is where you are going to see the impacts of climate change and 10% less resource. Therefore, it is very important that the current consultation on water metering moves at pace and that we have a better handle on how we drive down or improve water efficiency.

Mr Hewett: I think it is also worth pointing out that current investment in flood defence is also extremely cost-effective to the economy as a whole. At the moment the cut off is a benefit of six to one for the economy. That means that a lot of projects which only have a benefit of four to one or five to one do not get built at the moment because we are capital constrained. Also the internal rate of return on that investment is 27%, compared to smaller numbers for road and rail investment, so it very cost-effective for the economy. If that investment was not made, then the economy would pick up those costs through higher insurance costs in the long run; so it is not money that is wasted, it is money that will be cost-effective in any case, and the risks will increase over the next 20 to 30 years.

Q368 Mr Gauke: On the flooding point, which parts of the UK coastline do you see as being particularly at risk and most likely to be affected by rising sea levels? Also, I suppose we are talking mostly about coastline, but also river flooding. I know places like Newby have flooded on many occasions.

Dr King: Certainly the greatest risk is on the coast, and most of the east coast of England is at risk and we might see risk increasing by anything up to 20%. It is the combination of flooding and, of course, coastal erosion and the east coast is really in the front-line of climate change impact.

Q369 Mr Gauke: So the east coast?

Dr King: The east coast, particularly East Anglia, from Lincolnshire right down and, indeed, part of the south coast would be the area of highest risk and the front line in terms of climate change impacts.

Q370 Mr Gauke: Can I ask for clarification on the level of funding that you need to protect this particular area? What precisely are you looking for from the Comprehensive Spending Review as to your budget in this area?

Dr King: The current level of spending, as I said, is about 440 million in different grant-in-aid from Government, and if you are to see a real increase over that level, then in the Comprehensive Spending Review we would be looking for an increase of somewhere between £150-200 million over the three years.

Q371 Mr Gauke: That was your bid, was it?

Dr King: We do not actually bid. The bid will go in through our sponsoring department, Defra. I do not think that has been submitted yet.

Q372 Mr Gauke: Can I then turn to the other issue which you mentioned of water resources. I represent a constituency in Hertfordshire and there is enormous concern about plans to increase building there and yet we are short of water. To what extent do you think the Government is recognising concerns about water shortages in its planning policies?

Dr King: I think they have recognised that in a number of ways. Firstly, as I have mentioned, they are out to consultation at the moment on the possibility of putting in universal metering in the south-east of England, and that really comes on the back of the recognition that the South East is water stressed, but, secondly, we are seeing a package of measures coming through with the Sustainable Building Code, which looks for much greater water efficiency in new houses, firstly, in public supportive buildings, but the expectation through building regulations will go into the wider building programmes; so there is certainly a recognition.

Q373 Mr Gauke: Do you have any concerns about proposals to build (and it is always a changing number) 80-90,000 new homes in Hertfordshire, given the water shortages that currently exist and also the concerns about climate change—that adaptation should be not building where we do not have the resources?

Dr King: Certainly we have concerns, but we have been actively involved on the new growth points in looking at what the impact would be on all aspects of the water cycle. Provided that you see a real step-change in water efficiency, both in terms of new houses and, indeed, the existing stock, and provided there is new resource both on time, then it will be possible to meet the demand of housing in the South East, but there is quite a work programme in order to do that.

Mr Hewett: On the consultation on planning policy on climate change there are opportunities through that statement for local authorities to highlight where they are in more water stressed areas than other parts of the country and stipulate that they might want higher standards than the regulatory floor. That is an opportunity, I think, for local authorities to adapt to climate change in their area.
Q374 Mr Gauke: Returning to flooding and flood defence insurance, looking at your written evidence, you say, “Responsibility for provision of affordable insurance cover for the most vulnerable areas currently sits with the insurance industry for voluntary agreement.” How is this voluntary agreement managed?

Dr King: The UK is pretty unique in that the insurance industryunderwrites the cost of flood damage; and the voluntary agreement that they have with government is enthroned in a statement of principle, and the key component part of that is that the insurance industry is prepared to continue with insurance provided that the Government put in adequate investment. So that is the key point.

Q375 Mr Gauke: Can you say it is as sustainable, given the rising sea levels?

Dr King: I think it is sustainable, provided the investment is put in, but I think there is a real risk. If you have inadequate investment and you get more frequent storm events, more damage, then obviously the insurance industry will make business decisions on the cost of insurance. In the insurance industry at the moment there is a fair degree of cohesion through the Association of British Insurers, but as risk increases there is more risk of individual companies ploughing their own furrow.

Q376 Mr Gauke: I also notice in your written evidence you state that the UK will face a sea level rise in excess of one metre in the next 100 years. My understanding is that the IPCC report, which has come out in the last month, has actually reduced its projections for sea level rises and we are talking more about seven to 17 inches by the end of the century. Have you revised any of your projections or figures as a consequence of the IPCC report?

Dr King: The current allowances that we have (that is built in for sea level rise or, indeed, for increased flow in rivers) have not been reviewed, but they will be reviewed up with the next iteration of the UK six scenarios, and those scenarios will be better than the previous ones in that they will have greater granularity, but also they will be based on a number of different climate models rather than just on one. So it will be 2008 before we see a revision of that.

Mr Hewett: The other point to make on the sea level rises is that part of that one metre is the south-east of England sinking over that period as well; so it is not just the rise in sea levels.

Q377 Mr Gauke: Okay. One final question. Do you feel that adaptation, which is clearly where your role is, perhaps does not receive the attention that mitigation has done, whether it be in the Stern Report or generally?

Dr King: I think that is true. Certainly, if we look at the last 18 months, there is no doubt that there has been increased public and political profile on climate change, but it tends to be on the mitigating part of the agenda. No one disputes that we need to get to grips both domestically and internationally with emissions, but adaptation is also important because, irrespective of what we do, because of the inertia in the system, we are going to see the impacts of climate change over the next 25 years.

Q378 Ms Keeble: Can I ask how active your discussions are with British insurers on the insurance issues? There are some real concerns to the public about having to pay higher premiums for people who are in flood-risk areas.

Dr King: We have an active dialogue with the insurance industry through the Association of British Insurers, but most of that dialogue focuses in on provision of information, which is through our flood map, which they then use as part of their determination of insurance policies, but also supplying information in terms of what our medium-term construction plan would be: because the general principle they have in place is that, provided a scheme is in the offing, then they will continue to provide insurance.

Q379 Ms Keeble: One of the issues about your map is that it lets insurers know, and it also lets the householders know, whether their properties are in flood-risk areas and, therefore, it opens up the way much more for differential insurance premiums, does it not? Do you detect more active concerns about the pooling of risk?

Dr King: That is true, because our map indicates if a house is in low, medium or high risk, and undoubtedly that would be factored into the pricing strategy of an insurance company, but, as you rightfully point out, that information is also available to the household, so there are choices.

Q380 Ms Keeble: Do you think the voluntary agreement is breaking down in terms of the pooling of risk?

Dr King: No, I do not think so. The voluntary agreement is still certainly very much alive and was renewed back in November.

Q381 Ms Keeble: I wanted to ask a bit about the planning process in high flood risk areas. As you probably know, my constituency is in one, at least Northampton is one, and after the floods there, when 1,500 houses were flooded, there was investment in the flood defences and changes in planning policy. However, since then we have become a growth area and there has been a lot of building in what looks like the flood plain because we have soft engineering. How actively do you police the planning policies?

Dr King: Development control is the key component part of how we manage our flood risk. I think since Easter 1998, autumn 2000 we have seen a huge improvement in the way that local authorities consider flooding in planning applications. Three or four years ago we had PPG25 (the planning guidance) and we reported annually on the performance of local authorities, and that certainly helped focus minds. I would have to say we still saw major developments going ahead irrespective of our advice, but we have now just seen the introduction
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of PPS25, which strengthens the planning guidance and also gives the power for us to recommend call-in should a local authority go against our advice.

Q382 Ms Keeble: You say it has not worked particularly well, and Northampton is a failing local authority, the planning functioning is particularly failing. Given this crucial area, which will be particularly important if flood risk increases (as everybody expects it will) because of global warming, how are you going to make sure that you are not just a toothless watchdog and that there really is thought going into the planning controls that are going to be needed?

Dr King: We have a presumption against development in the flood plain, and also the policies are set up in such a way as to move development away from the flood plain. However, recognising that in many areas you already have development there and development has taken place over hundreds of years, what is important is that, where there is infill development, that development goes forward in a way that minimises risk, and you can do that through flood resilience and, indeed, in Making Space For Water.

Q383 Ms Keeble: Can I come back on that? You might have a presumption against development, but the local authorities do not, and it is not infill, it is wholesale housing developments in flood plain areas which have gone up since the controls were tightened. If the Government is to get the policies which have gone up since the controls were tightened, the local authorities do not, and it is not infill, it is not the way to go forward. If the Government is to get the policies which have gone up since the controls were tightened, the local authorities do not, and it is not infill, it is not the way to go forward. You say it has not worked particularly well, and Northampton is a failing local authority, the planning functioning is particularly failing. Given this crucial area, which will be particularly important if flood risk increases (as everybody expects it will) because of global warming, how are you going to make sure that you are not just a toothless watchdog and that there really is thought going into the planning controls that are going to be needed?

Dr King: A number of points. Firstly, I would dispute that there is wholesale development in the flood plain. I do not have the figures to hand, but certainly in 2004/2005, I think about 10% of developments went ahead, that we would claim to be major developments, that are in excess of 10 houses or non-residential developments greater than 1000 square meters, contrary to our advice. PPS25 is a significant tightening of planning regulations. There is a requirement for both strategic and, indeed, localised flood assessments, and if a development is going through, then the local authority has to inform us and we have the power to recommend call-in.

Q384 Ms Keeble: How about with the Urban Development Corporations, which involve both the Northampton growth area and I think also a special delivery vehicle for the Thames Gateway area which must also be in flood plain, in an area that is at risk of flooding?

Dr King: Again, if you look at the Thames Gateway—

Q385 Ms Keeble: Do you have the same powers?

Dr King: We have exactly the same powers. We have been very closely involved with the Thames Gateway, and certainly, in terms of the development going forward it can only take, place against the principles of Making Space For Water which is about setting back flood defences, creating enough space for flood water in times of flood events and also building in flood resilience.

Q386 John Thurso: May I ask what the main issues faced by developing countries are with regard to climate change and what assistance they are receiving?

Ms Yamin: As I said, the main issues are understanding, first of all, what the impacts of climate change are likely to be on developing countries and then preparing for those impacts in the key sectors. Most developing countries are far more reliant on natural resources and major parts of their economies are more exposed to climate risk sectors such as agriculture, fisheries, tourism, for example; so understanding what will happen in these sectors is very critical for them. A lot of work has been done to try and get this information out there, but the degree to which the climate change models can provide detailed information to countries, in particular, so that they can understand their situation in detail has been missing. Current climate models are too coarse and do not provide that level of information in depth, but they have improved. The assistance part of it has been lagging behind the need expressed from their side to start this understanding and start the planning process. I think some of it is to do with the higher attention given in policy terms to the mitigation side of the story over the last 10 years. We were building the climate regime on the basis of precaution, and now we understand that the precautionary time is finished and we are actually facing the impacts of climate change here and now. We are also realising now very much that, whatever we do in terms of mitigation, the climate for the first half of this century is already fixed. So really we need to deal with the impacts that are going to occur. That does not mean that we neglect the mitigation side, but the adaptation focus has now very much come through in terms of the agencies who would now be able to provide assistance to developing countries, such as the regular development in agencies, the international financial institutions, the World Bank, and so forth. Over the last 18 months, two years, there has been significant understanding within these agencies that it is part of their mandate to work with these countries to also take climate change considerations into account. Increasingly their work is starting to shift, slowly but towards providing more assistance on the climate change front to these countries. In terms of the amount of resources, there is always never enough, but on adaptation it is very significantly disproportionate to the amount that is actually needed. The World Bank calculated last year in the Gleneagles Process something like $9 to $41 billion needed on an annual basis. It is very difficult to track the amount of funding going to adaptation due to the diversity of funds, but in terms of the dedicated climate change funds that we have at the moment, we have about $230 million pledged to date to devote to adaptation activities. Amongst
roughly 140 countries this is not very much even to take them forward on the process of the planning side. The actual implementation side is, as I said, very much delayed because of a lack of human capacity both on the donor side as well as the developing country side, but there are slightly more positive things happening in the international arena. Over the last few years we have established two dedicated funds to help least developed countries, that is about 50 countries, which will have a dedicated fund. That currently has about $120 million pledged in there, and that allows them to prepare national programmes of planning for adaptation and also to ask for funding implementation of these plans but, as I say, the funding is quite small. The bulk of the funding is really in regular development assistance funding which is yet fully to take into account climate considerations.

Q387 John Thurso: It seems to me that there is a problem which is that we lump together every country that is not a developed country whereas in actual fact there are certain countries, such as China, India and so forth, which are developing very quickly and are rapidly moving into being high consumers of energy and therefore producers of emissions whereas at the other end of the scale there are countries like many of the African countries which are light years away from being in that position. The problem with the poorest countries is that we are all creating the problem and they are suffering it. Do you think that the international community has to take a much more realistic and scientific view of how it assists the different countries, in other words we should be assisting countries like India and China by helping to create technologies that are energy efficient but we help countries like African countries with adaptation because there is not much to mitigate?

Ms Yamin: That is right. As I mentioned, the climate change regime has moved towards a more differentiated approach by setting up dedicated funds for the least develop countries which covers the most vulnerable countries and this fund excludes India and China, for example.

Q388 John Thurso: Do you think, for example, we should invest in carbon sequestration in China?

Ms Yamin: We are already doing some exploratory work as part of the UK and the EU to do that, but you also have to remember that in terms of populations the largest numbers of people who are vulnerable are actually in those top five countries too, so they are not only contributors but they are also carrying a very large degree of the vulnerabilities. They are also increasingly part of the global economy, so shocks to their economies and their peoples are also likely to have more complex effects than in some of those other countries which have already very many dedicated channels of assistance. The African countries are among those where a lot of mainstream development assistance flows are already going. Those are an important part of trying to raise the general capacity to be able to respond to all manner of threats, including climate change, so I think there are differentiated approaches going on there.

Q389 John Thurso: How concerned would you be if one of the results was that there was a widespread introduction of protectionist policies in global trade as a result of this?

Ms Yamin: The issue of climate change and global trade and the intersection between them has been examined a lot in the literature. The focus at the moment is on trying to see how trade can be used in a positive sense so that we maybe give preference to greener technologies, as it were, and have more active schemes to allow for greater trade in green goods which has not really been looked at. My own view is very much that if you do not have a universal regime, if you have major economies who are not taking part, then at some stage there will be competitive distorting effects and trade will need to take that into account. Countries have a right under the Convention and they can under the Protocol at some stage decide whether to deal with those effects in a manner which restricts trade, as it were, from those countries not part of the regime. But there is no country which is willing to go out there and start doing that now. The bulk of the effort has gone on trying to integrate those economies not in the regime back in.

Q390 John Thurso: Sir Nicholas Stern claimed that one of the factors in the Darfur crisis was the problem of migration due to agricultural changes. How much do we know about potential migration flows as a result of climate change and its potential impact?

Ms Yamin: There are some studies that were assessed as part of the IPCC process in the last report and the forthcoming Fourth Report. Some of them have very large figures of potential refugees, the Norman Myers work of 20 million people and so forth, but I think climate change is part of a much broader set of stresses that lead to these sorts of crisis situations and also to migration. I think though that this is an area where much more additional work will need to be done to find out how people will respond to varying degrees and the repetition of crises upon them, whether they choose to relocate, will they choose to diversify their livelihoods. I think migration is a particular concern for Europe given our proximity to some major flash points and our connectedness with Asia and Africa.

Q391 Peter Viggers: Initially to Mr King and Mr Hewett, carbon emission trading schemes have many supporters. What part do you see them playing in the fight against carbon pollution?

Mr Hewett: The European Emissions Trading Scheme will be central to the way that Europe deals with this problem and we agree with the Government that ultimately we would like to see that trading scheme extended to link up with other ones around the world. It is early days. It is clear that particularly the cap setting process, the allocation process, the first phase, was flawed in giving every
have very weak environment agencies who have very culture generally. In many developing countries you reporting mechanisms and in terms of a compliance infrastructure in terms of the regulatory oversight, Carbon trading requires a very robust Ms Yamin: accepting that?

Di Yamin: Moving to Ms Yamin, if you look at emissions trading schemes, within Europe and the way in which that approach, called the Clean Development Mechanism, is functioning. It is also very difficult in those circumstances where you have very large economies that are growing very rapidly and that have no real control of the economic activities that are going on on a day-to-day level and do not have of the capability to regulate. That is why on the international side in terms of developing countries we have had a more project-by-project based approach. It also helps learning by doing and that is the way in which that approach, called the Clean Development Mechanism, is functioning. It is also increasing the capacity of those countries to maybe later on at some stage move up to a more sophisticated system that requires less bureaucracy, as it were, in terms of the individual projects. Internationally there are emerging cap-and-trade systems coming in. In the United States there are eight states which have this initiative called the REGI, the Regional Greenhouse Gas Initiative, in the north-eastern states, and I think California will shortly also have a system that is emerging. There is a system in New South Wales already, and so you can see an emerging patchwork of schemes that could be connected up. The issue really will be about the degree of environmental integrity of each of these schemes. As was just pointed out and you are aware, the environmental integrity, especially at the beginning of these types of schemes, has been lax basically because industry has had to be bought in with sweeteners of excess allowances. That is what has happened. Cap-and-trade and emissions trading is great and we are all happy about it now but they come in because other more effective instruments such as taxes were deemed totally unacceptable over the last 10 years of climate policy in many jurisdictions, including ours in Europe, so they have come about as a result of being more acceptable politically but the price has been that they are at the moment generating fewer real emission reductions and exerting fewer powerful behavioural changes than we would like.

Dr King: Or putting in place a market mechanism in order to translate awareness into behavioural change.

Ms Yamin: Carbon trading requires a very robust infrastructure in terms of the regulatory oversight, reporting mechanisms and in terms of a compliance culture generally. In many developing countries you have very weak environment agencies who have very little staff, no administrative records and much greater difficulty in enforcing any kind of environmental legislation. This may exist on paper but it never gets enforced. These factors tend to make imposing a cap-and-trade type scheme very difficult in those circumstances. It is also very difficult in circumstances where you have very large economies that are growing very rapidly and that have no real control of the economic activities that are going on on a day-to-day level and do not have of the capability to regulate. That is why on the international side in terms of developing countries we have had a more project-by-project based approach. It also helps learning by doing and that is the way in which that approach, called the Clean Development Mechanism, is functioning. It is also increasing the capacity of those countries to maybe later on at some stage move up to a more sophisticated system that requires less bureaucracy, as it were, in terms of the individual projects. Internationally there are emerging cap-and-trade systems coming in. In the United States there are eight states which have this initiative called the REGI, the Regional Greenhouse Gas Initiative, in the north-eastern states, and I think California will shortly also have a system that is emerging. There is a system in New South Wales already, and so you can see an emerging patchwork of schemes that could be connected up. The issue really will be about the degree of environmental integrity of each of these schemes. As was just pointed out and you are aware, the environmental integrity, especially at the beginning of these types of schemes, has been lax basically because industry has had to be bought in with sweeteners of excess allowances. That is what has happened. Cap-and-trade and emissions trading is great and we are all happy about it now but they come in because other more effective instruments such as taxes were deemed totally unacceptable over the last 10 years of climate policy in many jurisdictions, including ours in Europe, so they have come about as a result of being more acceptable politically but the price has been that they are at the moment generating fewer real emission reductions and exerting fewer powerful behavioural changes than we would like.

Mr Hewett: No. I think the trading scheme itself, the liquidity in the trading, works and it has been demonstrated to work by the fact that it has driven the price down so low. Clearly the market is finding the most cost effective ways of delivering under the cap that it has, which is a very generous one. Phase two has a tougher cap so we will see how that plays out and we would hope that phase three would have a tougher cap still. That is the only way the trading schemes will work, for the cap to keep coming down.

Q394 Peter Viggers: Moving to Ms Yamin, if you look at emissions trading schemes, within Europe one can understand that it is perfectly possible to set a structured mechanism but, looking around the world, do you envisage difficulties in other countries accepting that?

Ms Yamin: Carbon trading requires a very robust infrastructure in terms of the regulatory oversight, reporting mechanisms and in terms of a compliance culture generally. In many developing countries you have very weak environment agencies who have very few staff, no administrative records and much greater difficulty in enforcing any kind of environmental legislation. This may exist on paper but it never gets enforced. These factors tend to make imposing a cap-and-trade type scheme very difficult in those circumstances. It is also very difficult in circumstances where you have very large economies that are growing very rapidly and that have no real control of the economic activities that are going on on a day-to-day level and do not have of the capability to regulate. That is why on the international side in terms of developing countries we have had a more project-by-project based approach. It also helps learning by doing and that is the way in which that approach, called the Clean Development Mechanism, is functioning. It is also increasing the capacity of those countries to maybe later on at some stage move up to a more sophisticated system that requires less bureaucracy, as it were, in terms of the individual projects. Internationally there are emerging cap-and-trade systems coming in. In the United States there are eight states which have this initiative called the REGI, the Regional Greenhouse Gas Initiative, in the north-eastern states, and I think California will shortly also have a system that is emerging. There is a system in New South Wales already, and so you can see an emerging patchwork of schemes that could be connected up. The issue really will be about the degree of environmental integrity of each of these schemes. As was just pointed out and you are aware, the environmental integrity, especially at the beginning of these types of schemes, has been lax basically because industry has had to be bought in with sweeteners of excess allowances. That is what has happened. Cap-and-trade and emissions trading is great and we are all happy about it now but they come in because other more effective instruments such as taxes were deemed totally unacceptable over the last 10 years of climate policy in many jurisdictions, including ours in Europe, so they have come about as a result of being more acceptable politically but the price has been that they are at the moment generating fewer real emission reductions and exerting fewer powerful behavioural changes than we would like.

Q393 Peter Viggers: But are you satisfied that the control mechanism will be both robust and flexible? Mr Hewett: Yes. The main issue for us is how you set the cap, not the actual trading scheme itself. That works.

Q395 Peter Viggers: So the EU is working on its own mechanisms. What thought is it giving to expanding these mechanisms throughout the rest of the world by way of example?

Mr Hewett: Phase three of the trading scheme is being reviewed at the moment by the Commission and one of the issues that that review is looking at is just how it starts to build robust mechanisms to link to such schemes as the one in California or the north-eastern states in America. It is not an area which we have spent a lot of time on. We have run the scheme in the UK as part of the European scheme but we have not focused our work on extending it worldwide, so it is not something we have competence to answer on in much detail.

Q396 Chairman: A final question to both of you. We have been looking at the economics of adaptation, David, and it has been mentioned by one witness to us that the Government are not collecting information on adaptation centrally. Is there a need for that to assist public understanding of the issues of climate change and tell people exactly what we are doing now so that they can engage in that debate? Dr King: First, the Government are collecting information. In 2005 they published an adaptation strategy and have gathered information from a local and national level of what adaptation measures are taking place and the intention is to make that information available through the web. I think later in this year it is the intention to publish an adaptation framework. I do not think it is just a matter of awareness. I think there is quite a high level of public awareness about climate change but it is translating the awareness into behavioural change. We say with flood risk, for example, that we have put a lot of effort into raising awareness. Awareness is
high of people who live in the flood plain but that does not always translate into taking action to be prepared for a flood.

Q397 Chairman: How do we study behavioural change because some of our witnesses have said to us that adaptation is the way forward, that is the only strategy, keep doing that and we are fine, but what about mitigation?

Dr King: The debate should not be about mitigation or adaptation; it should be very much about a dual approach. We need to get emissions under control but we also need to move ahead with adaptation measures and that is dependent on the amount of investment we put in.

Q398 Chairman: One thing the Government should be doing on international issues: leave us with that message before you go.

Ms Yamin: I think it should be stepping up donor collaboration amongst the agencies which have by far much larger funds and the international financial institutions to look at adaptation in much more depth. Currently most of the agencies would not be able to tell you what percentage of their portfolio in terms of investment is exposed to climate risks, nor would they be able to tell you what are the adaptation activities that are potentially affected or that they can support because they do not have the tracking systems in place, they have not been through the portfolios in depth. DFID is one of the leading agencies and they are ahead of the game on that, but I certainly think that if the Government can continue to push for greater donor collaboration and greater ways of maximising the effectiveness of aid through various channels that would be a great push in the right direction.

Chairman: Can I thank you all very much for coming to this evidence session with us. It has been very helpful.

Witnesses: Captain Eivind S Vagslid, Technical Officer, Sub-Division for Pollution Prevention, Marine Environment Division, International Maritime Organisation, Mr Mark Brownrigg, Director General, Dr Mel Davies, Director of Development, BMT Ltd, and Mr Stuart Greenfield, Head of Marine & Safety, Carnival UK, Chairman of the Chamber of Shipping Environment Committee, Chamber of Shipping, gave evidence.

Q399 Chairman: Good morning and welcome to this evidence session. Can you introduce yourselves for the shorthand writer please?

Mr Greenfield: Stuart Greenfield, Head of Marine & Safety at Carnival UK, and I am Chairman of the Chamber of Shipping Environmental Committee.

Mr Davies: Mel Davies, Director of Development, BMT Ltd, an international maritime consultancy based in the UK.

Mr Brownrigg: Mark Brownrigg, Director General of the Chamber of Shipping.

Captain Vagslid: Eivind Vagslid, Marine Environment Division, IMO.

Q400 Chairman: Captain Vagslid, you have written to us saying “Shipping is a clean, green, environmentally-friendly and last but not least an energy efficient mode of transport”, so there is nothing for us to worry about. We just pack up and go home. Why are we having this inquiry, for God’s sake? Everything is great in your back yard.

Captain Vagslid: Well, regarding shipping, yes. Shipping is emitting about 1.8% of the total CO2 emissions in the world and on the other hand transporting 90% of the world’s cargo. Ships are getting more and more energy efficient, both due to improved hull design and propulsion systems and due to better utilisation of individual ships, but, of course, as long as they are burning fossil fuel you cannot really solve the question or the problem.

Q401 Chairman: Could you give us some examples for the public record of initiatives that you have undertaken to address the issue of climate change?

Captain Vagslid: IMO has been discussing climate change since 1997 but, as I said, no green solutions have been found. We have recognised that CO2 emissions from ships are the largest greenhouse gas source and we have put in place a voluntary indexing scheme to better understand the relationship between the transport work undertaken and CO2 emissions and a working plan where we are step by step looking into baselines and possibly emissions trading and other ways to solve CO2 emissions from ships.

Q402 Chairman: Mark, in your written evidence to us you state that “the UK shipping industry is not complacent and we commit to further reducing our carbon emissions in the shortest possible timeframe”. What are the biggest obstacles to further reducing your emissions?

Mr Brownrigg: I think the starting point is, as has just been said, that the level of emissions is relatively low to begin with so the return on changes is correspondingly low, but that, as we have said, is not in any way a reason not to look further at what one can do and there are a number of areas of potential improvement in operational terms that we are looking at. Some of these are not dependent on us; they are dependent on interfacing customer needs, but we can look at things like slower speed sailing, we can look at trying to reduce waiting time in ports waiting for berths. There may be other handling methods that can be improved, for example, alternative weather routing arrangements which could lead to the use of less fuel.
Q403 John Thurso: Can I ask you, Mr Brownrigg, as the industry representative, whether the industry accepts that the “polluter pays” principle should apply to the shipping industry and is the fairest way to mitigate emissions?

Mr Brownrigg: In general that is a principle which we would endorse, but equally we consider that we are a low level polluter on this and you have to set that against the benefit in that, as has been said, we carry 90% of world trade; that balance has to be kept in mind all the time.

Q404 John Thurso: On the basis that the polluter pays it means that those who are polluting more will be paying more, so you become more economically effective.

Mr Brownrigg: Potentially, but it equally depends on what point that principle is applied, whether it is applied nationally, regionally or internationally. We are extremely exposed internationally as an industry and so any measures that are taken need to be promulgated at international level.

Q405 John Thurso: In one of the papers to us, I think it was yours, there was an argument that reducing emissions even by 10% would be so costly as to oblige people to use other forms of transport. Presumably from that you would mean air transport.

Mr Brownrigg: No, because we are talking here essentially about the movement of goods and cargoes and the aviation industry could not carry the goods and cargoes that the shipping industry carries.

Q406 John Thurso: So what would they shift to?

Mr Brownrigg: It depends again on the route. If it is a near sea route it can be ship to road, it can be ship to rail and the like. I do not think we were saying definitively that that would happen. We were saying that you must take into account—when considering what legislation to look at—the potential for modal shift, because in some areas it is considerable.

Q407 John Thurso: One would have thought that the import of goods from China or India or wherever was going to be by sea or nothing. Is there a serious possibility that an overland truck route would develop?

Mr Brownrigg: It has been known, but clearly from China that is pretty unlikely unless the Trans-Siberian rail route becomes—

Mr Davies: I think it might depend on the severity of the penalty as far as the shipping lane was concerned if it was not uniformly applied with other forms of transport. For example, from Asia through the Suez Canal would you stop at the Mediterranean and then ship across Europe? Would you only go to one US coast and have more trans-continental transport? Those would be the distortions that could be met if the issue could not be tackled on an international basis.

Q408 John Thurso: Presumably it is the CO₂ per tonne of freight carried. Would that be the equivalent of the passenger mile?

Mr Davies: That is the equivalent. That is the basis of the IMO index.

Q409 John Thurso: So in the best of all worlds, if the emissions per tonne were that you arrived on the west coast of America and then went by train, for example, across to the east coast, is that better than trucking all the way round through the Panama Canal and would that be a good solution?

Mr Davies: That would be a good environmental solution if there were the capacity to do that.

Q410 John Thurso: Can I turn to the question of technologies? I think perhaps Mr Greenfield will answer this; I am not sure. What could be done in ship technology to make them more efficient? I ask this question as a fan of shipping and one who recognises the role of shipping in transporting freight, so I am not asking this in a threatening way. What are the avenues down which we can go or have we really got to the point where there is not much left to do?

Mr Greenfield: I think you possibly summed it up in the last part: there is not a great deal left to do. Certainly in all the companies, if we could reduce our emissions by 10%, that would cut our fuel costs by 10% so we would be doing it now. The efficiency starts at the design stage of the ships and the size of the ships, the quantities of containers that ships carry now. I think Mark has some figures on the size of container ships now compared to previous years. After that there is keeping the bottom of the ship clean, hull scraping, the new paints that we put on the ships that keep them clean all the time, which are again very expensive but keep the costs of fuel down.

Q411 John Thurso: Presumably the alternative is to get away from fossil fuels, one of which would be a hydrogen propulsion unit and that must offer probably the best hope.

Mr Greenfield: Yes.

Mr Brownrigg: But we are a long way from it.

Q412 John Thurso: Sure, although it is interesting to note that there are very large vessels plying around the world that have a nuclear driver to them. Has anybody ever thought about that?

Mr Brownrigg: I have been on a nuclear ship many years ago, but they never made it work in terms of cargo carrying.

Q413 John Thurso: The US Navy uses aircraft carriers.

Mr Brownrigg: But with the numbers of ships that are out there it would raise other issues, I would have thought.

Mr Greenfield: There are very few ports that would allow us to call. The ports themselves would stop us.

Q414 John Thurso: What research is going on into technology development and who is doing that?

Mr Davies: Engine manufacturers particularly have been doing that, and engine manufacturers over the last three decades have been responsible for quite significant fuel efficiency improvement. As Stuart
mentioned, it has been ship designers in terms of the
detail, and this is really shaving off the odd
percentage here and there in terms of ship design and
propulsion efficiency and so on, so that is being done
fairly widely by the international community in this
area, and, as was also mentioned, rather more
tactical decision advice on routing and weather
issues, again to squeeze small amounts of
performance improvements out of it.

Q415 John Thurso: You have talked about ship
design. I once was very slightly involved because I
used to be a director of a cruise line company and we
ordered a new cruise ship so I know a little bit about
it. Clearly a modern ship goes through the water
with far less friction than some of the older ships, but
equally there are an awful lot of very old ships dotted
round the world. Is there something that can be done
to promote investment in a new, energy efficient fleet
or is that so aspirational as to be unrealistic?
Mr Brownrigg: Again, you have to get the balance
with the net benefit that is going to arise from that.
Of course, modern ships should be invested in and
the objective is to reduce the average age of one’s
national fleet all the time—that is the objective of
individual companies too, to operate with efficient
modern ships. In our judgment the scope for
operational improvements is probably modest, but
nonetheless we are pursuing that.

Q416 John Thurso: Is there a role for government?
Do you think the Government should be doing more
to assist the industry?
Mr Brownrigg: I think there is a role for government
in acknowledging that, in the context of transport,
shipping is part of the solution and therefore that has
a knock-on impact into the way in which shipping
should be treated in general taxation terms as well as in
specific taxation terms. As I say, I think that is the
starting point. If one can encourage responsible
shipping through the tax regime, that to our mind is
a useful objective. If you can encourage the use of
shipping in short sea routes which compete directly
with land-based modes of transport that helps too.

Q417 John Thurso: I know one of my colleagues is
going to ask you about taxation so I will stay on
that, but you mentioned coastal shipping. It always
struck me that part of Britain’s freight problems
could be solved by much more effective coastal
shipping, going back to the old dirty coastal steamer.
For that how important is it to get a very deep
container port somewhere in the UK as a staging
post? That is teeing up a ball for you, is it not?
Mr Brownrigg: That is okay. We think that the
difficulty in encouraging short sea is that you may
also distort at the same time. That is not the question
you were asking, but part of the future in our
judgment is to maintain direct calls by container
shipping in this country; this is a serious issue at the
moment and raises questions of port capacity and
port capability. At the moment we have very few
berths which can take the largest container ships.

Q418 John Thurso: For example, Orkney has a plan
to do a deep berth and container port and
Hunterston, I think, is another candidate and so on.
Mr Brownrigg: Again, I think this raises wider issues
as to whether there is sufficient market justification
or volume demand to require that in location A or
B. That is a bigger question, I think.

Q419 Peter Viggers: The difference between
shipping and even more efficient shipping is as
nothing compared with the impact in environmental
terms between shipping as it currently is and
aviation. If one visits Brentford market, which is the
outsourcing for Heathrow, one finds Brentford
humming, buzzing, bursting with fruit from South
Africa and flowers from Israel and even fruit from
Korea. What thoughts have you given to working
your way into the market currently enjoyed by
aviation? Can we expect technological
breakthroughs to enable fruit and flowers to be
carried longer distances without deterioration, as
bananas are, for instance, or would you hope in
expectation of exhortation and even government
action?
Mr Brownrigg: I think one has to come back to an
understanding that most fruit by far is imported by
ship. There are jet-fresh strawberries, there is jet-
fresh this and that, but most fruit comes in
containers or in specialist refrigerated cargo vessels.
I would have thought that the proportions overall,
certainly in volume terms, are minute by comparison
to what is brought in by shipping. Imports and
exports into this country are around 95% by sea by
volume, and so there may be a quirk in Brentford
market but I think in most of the supermarkets
around the world and across the Med the fruit and
most produce comes by sea.

Q420 Mr Gauke: Can I return to the issue of
taxation? Do you consider the tonnage tax to be an
environmental tax?
Mr Brownrigg: No, to put it in brief. An
environmental tax is normally imposed specifically
for environmental reasons. Tonnage tax is a
particular tax designed to encourage investment and
operation from this country for reasons of
international fiscal competitiveness. I do, however,
believe that a positive fiscal environment for
shipping in this country, given our track record of
high quality shipping, has an impact which is
positive in environmental terms, because it
encourages the growth of a responsible fleet in a
sector which is a low emitter. There are dangers—
not just in the tonnage tax context if there are
changes proposed to that, but also in the wider
capital allowances system—which we shall face over
the next three or four years, where I think people
should take the indirect or maybe direct impact on
the environment into account. But those are dealing
primarily with fiscal and industry matters as
opposed to environmental matters.

Q421 Mr Gauke: Are there any incentives within the
UK tax system for you to cut your emissions?
Mr Brownrigg: Again, we start from a low base.

Q422 Mr Gauke: Accepting that, but, if not, is there anything that you think could be done or do you think that you have a low base and that is enough?
Mr Brownrigg: I think most of the solutions there, apart from the general acknowledgement that shipping is at the right end of the spectrum, lie in achieving operational improvements such as those we have discussed. We favour, as opposed to regulation and tax arrangements, what is becoming increasingly called a goal-based approach—so that one sets objectives and then allows market-based and technological solutions to emerge to meet those.

Q423 Mr Gauke: You have talked about using shipping more in your written submission. You have talked about a sea change in the use of the coast and what-have-you. What evidence do you have that this would be beneficial to the environment?
Mr Brownrigg: To the degree that it takes lorries off roads that is pretty direct. The difference with rail is probably undefined, so we do not know that. To the degree that it reduces anything from air I do not know, but I do not think there is so much competition in a cargo sense, as I said earlier.

Q424 Mr Gauke: Have you produced any figures? Are you able to quantify it?
Mr Brownrigg: There are figures. I think there were figures in the IMO presentation. They are fairly long in the tooth, those figures. I think they were talking about an 8,000 deadweight tonnes ship. Now you are talking, in container terms anyway, of 70,000-plus, maybe getting on towards 100,000 deadweight tonnes. I think we need some help in separating out data where different modes are lumped together—rail and sea and waterway—to see precisely where we stand, but that is an area where we could use help. Also, data is not always as it seems in the shipping side. You can get sister voyages almost which are up to 45% different in their assessment of emissions, but that changes because of different factors.

Q425 Mr Gauke: Can I ask about the potential inland waterways as someone with a canal running through most of my constituency? How much potential is there to start using our inland waterways?
Mr Brownrigg: This is always very subjective. In my own mind, as nowhere is very far away from the coast in this country I think coastal shipping offers a greater opportunity but there are many who believe that the rather limited use of waterways could increase substantially. At the moment it tends to be just the waterways immediately behind essential areas.

Q426 Chairman: What we are interested in here is finding out how much international co-operation has taken place because we had the aviation industry in to give evidence and in an answer to my colleague, Peter Viggers, I think the representative from Virgin said, when Peter asked him about a global emissions trading scheme. “Clearly there is some opposition from foreign governments to the introduction of such a scheme. We have certainly done our best to persuade our fellow airlines around the world that this is the best approach, but there is no secret that in particular the United States is opposed to the application”.

Q427 Chairman: How successfully are you working with the ICAO on the issue of carbon emissions?
Captain Vagslid: We have co-operation between the two separate areas but, of course, some of the matters are similar and both civil aviation and merchant shipping are international transport industries. However there are more differences than similarities, there are a lot more ships and many more ports in the world than there are airports, so it is not easy to take the schemes suitable for civil aviation and use them unchanged for the shipping sector.

Q428 Chairman: Okay, but we are looking for hard evidence and facts here. Could you write to us an answer to that question, in other words, how successfully you are working with the ICAO on the issue of carbon emissions? In other words, what has been done?

Mr Brownrigg: From the shipping industry, I do not think we are working very closely with the aviation industry at all on this because we so far have considered ourselves separate.

Q429 Chairman: Yes, but we have here a protocol saying that the Marine Environment Protection Committee at its 55th session in October 2006 agreed that co-operation between the secretariats of the International Civil Aviation Organisation and the IMO should be strengthened and the developments related to GHG emissions and both organisations should be communicated to each other.

Captain Vagslid: We are doing that. We are reporting the outcome of the different meetings.

Q430 Chairman: Yes, but I am looking for hard evidence on what you are doing in terms of carbon emissions for our inquiry, so could we get some written evidence from you following this meeting and this line of questioning?

Captain Vagslid: Sure, but I can tell that the wording there is from our latest debate at the MEPC55 in October and at our next meeting we will discuss greenhouse gases from ships at MEPC56 in July, and there we will exchange reports with ICAO and they have now put in place a voluntary emissions trading scheme which we will use as far as we can.

Q431 Chairman: Send us some written evidence if you can. What is shipping doing that aviation is not doing, because I have noticed the exchange of correspondence in a number of the national papers?

Mr Brownrigg: I think there was an instinctive reaction to the suggestion of fuel taxes which said, “Not just us, please, but others too”. So I am not really answering your question there either, but that is what I think led to the exchange of correspondence that you are referring to.

Q432 Chairman: I have challenged the aviation industry to come back to our Committee within six months in terms of what they are doing on this issue together because, as I mentioned, it was the first time they had ever come together when they were sitting before our Committee, but they are a wee bit reluctant and shy to come forward with anything, so what are you doing?

Mr Brownrigg: I cannot speak for aviation at all. We work together across the different shipping sectors in this country. The Chamber of Shipping brings together six or more different sectors with their different issues and we work very closely at international level with our counterparts. We work on all policy issues, including the environment and including within that climate change.

Q433 Chairman: Again, some written evidence from you on that would be helpful.

Mr Brownrigg: As to the nature of the co-operation?

Q434 Chairman: That would be very helpful to us. Currently under the Kyoto agreement there is no incentive for national governments to discourage shipping industry emissions. How could international shipping be included in domestic targets?

Mr Davies: Excuse me?

Q435 Chairman: Do you want me to repeat it to give you more time to think?

Mr Brownrigg: Domestic targets. I think.

Mr Davies: The possible mechanisms have been analysed quite thoroughly in various European Commission studies and one recently in January went through a whole range of possible allocation possibilities to include them in the national emissions ceilings. They are many and varied and complicated, but those particular allocation mechanisms are not generally recommended in the studies as necessarily being the best way of either creating an incentive or a cap-and-trade type of system.

Chairman: Thank you very much for your time this morning and your evidence. It has been very helpful to us.
Q436 Chairman: Good morning and welcome to our last session of the morning. Can you introduce yourselves please for the shorthand writer?

Mr Pearce: My name is Brian Pearce. I am the Chief Economist at the International Air Transport Association.

Mr Rochat: My name is Philippe Rochat, Head of the Environmental Department of IATA based in Geneva.

Q437 Chairman: Thank you. Do you believe that the Stern Review makes a strong enough case for the UK Government to adopt a system of taxation and incentives to combat climate change caused by aircraft emissions?

Mr Pearce: I think it certainly makes the case for having incentives for combating climate change emissions. One of the things we would like to make the case for here is that as an industry we take climate change extremely seriously, and have done for some time, and much is being done.

Q438 Chairman: We certainly did not get that impression from the representatives from the airline industry before us a few weeks ago.

Mr Pearce: We have a number of measures that we would like to describe that we as an organisation are taking and we see our member airlines internationally taking. Do you want me to run through those?

Q439 Chairman: Very quickly.

Mr Pearce: First of all we are very aggressively tackling waste. Last year we worked with air transport providers to shorten 300 routes. There were over six million tonnes of CO2 saved from that. For instance, Europe to China I believe we saved 30 minutes from those routes and there were a number of other measures like that. We have on our target list 75 more routes this year, such as between Johannesburg and London. At the moment 10 wasted minutes in those flights because of zig-zagging routes and inefficient infrastructure provision are wasting 28,000 tonnes of CO2. There are similar examples around the world. We are pressing the European Union to simplify the navigation system. Again, there is a tremendous amount of wastage of emissions. Delays within the European air space totalled last year 15 million minutes, that is 33 years. My colleague Philippe is speaking a little more up to date with the technical aspects but there are 12 million tonnes of CO2 that could be saved through having a unified air traffic management system and eliminating those delays, so there is wastage that we are actively tackling. The second way in which I believe the industry is very actively reducing its climate change impact is through fleet replacement. In the last two years we have seen almost 4,000 new aircraft ordered worldwide. In the UK for 21% of its existing fleet over the next four years to 2011 they are taking deliveries of new aircraft. That is an extra 6% of the fleet each year, and traffic is only expected to grow by 4% or 5% over that period. A lot of those aircraft that are being ordered now are specifically to replace older, less fuel efficient aircraft and that surge of aircraft orders in the last two years is going to make a big improvement to the fuel efficiency of the existing fleet.

Q440 Chairman: I asked the previous representatives if they would provide us with written evidence of things that are happening, so the same applies to yourselves. What initiative is the industry itself taking to tackle climate change independent of domestic or international regulations?

Mr Rochat: We have in IATA a four-pillar strategy which is based on technological progress and fleet renewal. Technological progress as such makes no difference but if airlines renew their fleets and use more modern aircraft it makes a lot of difference. We are addressing all infrastructure deficiencies and inefficiencies around the world. We are implementing all over the world operational best practices through which airlines reduce, for instance, the weight on board their aircraft, clean their aircraft, taxi with a single engine rather than two or three or four engines. Altogether technological progress and operational and infrastructure improvements have permitted the aviation sector to absorb roughly half of its growth in CO2 terms. When traffic grows 5% emissions grow between 2.5% and 3%, so these achievements are extremely important and we are determined to continue. As you know, ACARE in Europe has approved very ambitious targets for the year 2020. We have the same approach in North America through the NASA with similar goals and the manufacturing industry, Boeing, Airbus and the engine manufacturers, all together invest on average around $5 billion a year in research and development. I have not mentioned here what are—

Q441 Chairman: You tell me you are encouraging the airlines. What are the best airlines in terms doing in terms of climate change? What are the worst airlines?

Mr Rochat: I would say it depends on the age of the aircraft they use.

Q442 Chairman: Yes, but I am asking what are the best airlines. You tell us. You leave us with names here, the best airlines and the worst airlines, in other words those that need encouragement.

Mr Rochat: No, it is impossible to provide you with this figure because it depends on so many characteristics.

Q443 Chairman: No, no, it cannot be impossible.

Mr Rochat: I can refer to the best aircraft in environmental terms.

Q444 Chairman: We ask simple questions and we want simple answers. Give us the best airlines and give us the worst airlines, and if you cannot give us that your evidence is not really worth a toss.
Mr Rochat: I would say the major European airlines and the low-cost airlines in Europe are among the best, and the fleets in the developing world are probably the worst because again airlines in the developing world are using old aircraft sold by major carriers in the developed world and that makes a difference.

Q445 Chairman: So you are telling us that all the domestic airlines are fine but the problem lies with the developing countries?
Mr Rochat: No. It depends on the volume of traffic of airlines. I am referring to the aircraft characteristics. We cannot compare British Airways and Zimbabwe airlines.
Chairman: I give up. Let me hand over to my colleague Michael Fallon.

Q446 Mr Fallon: Mr Rochat, Mr O’Leary, who runs Ryanair, said that aviation was neither the cause of global warming nor the solution. Does IATA agree with that?
Mr Rochat: I would not formulate this in the same terms. We represent today according to IPCC 2% of CO2 emissions worldwide, and according to the same IPCC projections we should represent 3% of the same CO2 emissions in 2050. The Stern report is not very different. It refers to 1.6% today and 2.5% in 50 years from now, so we are not a big polluter. However, our main problem, and we are addressing this, is the fact that our emissions are growing in absolute terms, so we have to do something. We have covered the efforts which are being made today through technology, infrastructure improvements and operational gains, and I guess we have also to address economic measures such as emissions trading.

Q447 Mr Fallon: So you do not agree with Mr O’Leary?
Mr Rochat: Not entirely, no.

Q448 Mr Rochat: The Stern report says that the impact of aviation is two to four times higher than the impact of CO2 emissions alone. Do you accept that?
Mr Rochat: We do not entirely accept this as it is not exactly in line with the most recent views of the International Panel on Climate Change. The IPCC has downgraded the multiplier effect or the radiative forcing effect of aviation and today, according to what we know from the IPCC report which is coming out next month, it seems that the radiative forcing effect of aviation is comparable to the radiative forcing effective of ground-based emissions sources. With one nuance, but it is a question mark, which is the effect of aviation contrails on cirrus clouds. Here there is a potential problem which the scientific community is unable to assess today. That is my answer to you.

Q449 Mr Rochat: But do you accept Stern’s warning on the extent to which you are a growth industry?
Mr Pearce: Perhaps I can pick up on that. Even though all the evidence suggests that we are as an industry a small part of the problem at the moment, that is not to say that the industry does not take this as a very serious problem.

Q450 Mr Fallon: That is what is confusing me, Mr Pearce, because you keep saying the impact is very small but you are doing everything possible to reduce it. Which is it?
Mr Pearce: Because of the Stern report there is increased perception that this is a very serious policy issue and as such the airlines internationally are taking this as a very serious issue. It is also, if I might say, a very serious issue because the CO2 emissions come directly from our fuel consumption. If you look at the table at the back of the Stern Review, which lists different sectors, airlines are the third most energy intensive industry. Almost 26% or 27% of our costs are made up of fuel.

Q451 Mr Fallon: So you are a major polluter then?
Mr Pearce: No, we are not a major polluter because we are just 2% of total emissions, but amongst our costs what I am saying is that fuel is a very important driver of efficiency and emissions reductions in the industry.

Q452 Mr Rochat: Let me ask Mr Rochat why is IATA not encouraging more consumer information? When the Chairman asked you to define the best and the worst airlines you kept talking about aircraft. Why are you not on the front foot here encouraging consumers by eco-labelling the various aircraft so that we can distinguish between the worst performing aircraft and indeed the worst performing airlines? Why are you not promoting such a scheme?
Mr Rochat: As a trade association we represent most international airlines around the world. We have to treat our members equally in this regard. We cannot impose our views on them. We lobby with them, we encourage them to be proactive in this regard but we cannot really as a trade association impose our views on or obtain from our members a weighting according to environmental performance because it is not supported by them, and I have to confess here that as a trade association we act on behalf of our members but we are pushing them to have again a proactive approach. We are providing them with a lot of support in improving their fuel performance but again it depends on fleet renewal processes and, as we know, IATA does not lead in this regard.

Q453 Mr Rochat: I understand that, but why are you not promoting more eco-competition amongst the airlines? Are you not in favour of competition?
Mr Rochat: Yes, we are in favour of competition. We are making competition possible. It is, I think, up to the individual airlines to promote their environmental performance as such.
Q454 Mr Fallon: But they may all then come up with a different type of eco-labelling. Why does not IATA, before governments around the world impose it on you, come up with its own scheme so that consumers can work out for themselves which the greener aircraft are and which the greener airlines are? Why do you not get on with it?

Mr Rochat: We are in the process of developing at an industry-wide level a way to calculate CO₂ emissions for passengers. Some airlines have developed such a scheme according to their own commercial policies. We consider that it would be important for consumers to be able to have, let us say, a reliable source of information covering the average fleet, not only which airline. This is a tool we are planning to develop.

Q455 Mr Fallon: You are planning to develop it, you think it is important but you are not promoting it.

Mr Pearce: A number of airlines are already developing these tools.

Q456 Mr Fallon: I know that. I am asking why IATA are not promoting an eco-labelling scheme.

Mr Pearce: Our board of governors—

Q457 Mr Fallon: I want to hear from Mr Rochat. He is the Director General.

Mr Rochat: We are promoting this idea among IATA members but only a limited number of them are today receptive to this idea. We are making progress but we cannot impose it on our 250 members overnight. It is a long process. It requires a lot of effort and I can assure you that we are doing our best in this regard but we are dealing with airlines from all over the world and, as you know, the environmental agenda is not the same for all of them.

Q458 Mr Fallon: Do you accept the implications of an eco-labelling scheme, that those airlines that can demonstrate to passengers that they are reducing the environmental impact of air travel would enjoy competitive advantage over other airlines?

Mr Rochat: Absolutely, yes.

Q459 Chairman: Maybe I can ask a quick question on the back of eco-labelling. You said, and I quote, that you have had a limited number of airlines who have been receptive. You said that in answer to Mr Fallon.

Mr Rochat: So far, yes.

Q460 Chairman: Who are they? What airlines have been receptive and what airlines have been truculent?

Mr Rochat: I would say it is very closely related to the views of their governments, if I may use this expression. In other words, European carriers are far more receptive to climate change issues and this is very much in line with the views of their governments, while carriers in other parts of the world are not having the same interest or the same pressure.

Q461 Chairman: That is just on the UN report, which most governments have been involved in and have signed up to, so the answer to my question, Philippe, does not make sense to me.

Mr Pearce: But, as you know, if I might address that, governments in the US and in Asia Pacific are very much pursuing a technology path, and indeed that is what our members are doing. You will see tremendous new fuel-efficient aircraft—

Chairman: No, no, I am asking a simple question here in response to Philippe’s statement that there are a limited number who have been receptive, so I am looking for an answer to that in terms of the different types of airlines. Who are these, Michael said?

Mr Love: Name and shame.

Chairman: Maybe I will give you time to think on that and we will ask David to come in.

Q462 Mr Gauke: Following up on that, when you say it is related to the views of their governments, to what extent do you think it is the views of public opinion in those countries? Is it related to the views of their customers?

Mr Rochat: It is difficult to be very specific in this regard. We do not clearly know what are the views of the public in certain parts of the world. We get the views of governments through ICAO in many discussions that they have at ICAO level. The views of the public transpire from the press, from similar comments. We detect clear changes in public opinion in North America, in the Asia Pacific region also, but it is again a process which is taking time and ICAO has made tremendous progress in addressing climate change issues. This means that governments also are progressively changing progressively so I think it is a reality. We are a global industry. We have to reconcile the views of different regions, of different levels of development, and it is not always easy to find the most ambitious compromise between our members and between states, but progress is being made. I do not want to refer to the views of the maritime sector but the fact is that the aviation sector is, I think, far more proactive in addressing climate change than the maritime sector and this is reflected in ICAO debates. The ICAO has developed guidance for states that plan to apply emissions trading to aviation. This is already a very substantive result and will help states a lot, especially in Europe, which are planning to implement emissions trading for aviation.

Q463 Mr Gauke: I am sure our representatives from the maritime industry, who are sitting quietly in the back of the room, would point out that, given the amount of freight that they transport, the amount of carbon they emit is tiny compared to what the aviation industry emits.

Mr Rochat: We roughly meet the same amount of CO₂ emissions, 1.8% or 2% in the case of aviation. I think we are exactly in the same situation. Governments do not treat the aviation and maritime sectors equally. Why is the European Union not considering the inclusion of the maritime sector in its emissions trading system? Personally, I see no reason
to treat differently these two sectors that contribute in a comparative way to the economic and social development of the world.

Q464 Mr Gauke: Could we make a comparison with another form of transport, road transport? According to Stern, in global terms the level of taxation in the aviation sector is currently low relative to road transport fuel taxes. How do you justify that?

Mr Rochat: I think my colleague will address the question of taxation because he has very interesting figures.

Mr Pearce: The major difference is that aviation pays fully for its infrastructure. In the UK that is £1.5 billion a year. Road users do not. Yes, they do pay a fuel tax, but if you look at it per—-

Q465 Mr Gauke: But they pay well beyond their infrastructure?

Mr Pearce: They do, but if you look at the infrastructure costs, the amounts paid for infrastructure to the airports and also to the air navigation providers are in excess of the costs. There is a positive contribution.

Q466 Mr Gauke: Even if you deduct the infrastructure costs for roads you are still left with a much more heavily taxed means of transport, are you not, compared to aviation, or do you disagree?

Mr Pearce: I would not necessarily disagree, no.

Q467 Mr Gauke: Are there any particular economic or social reasons why aviation should be treated favourably, if you like, by government or through the taxation system and otherwise?

Mr Pearce: Although aviation carries perhaps less than 1% in tonnage of world cargo carriers they carry between 35% and 40% by value. I think there is also the impression that air transport is all about cheap holidays. Actually, 35% of people travelling from the UK are on business. It is less than 30% who are travelling on holiday according to the CAA surveys. Air transport plays a critical role in linking British businesses with global markets. It provides a lot of benefits to the economy that go beyond the price that passengers pay. That in my mind is the principal reason.

Q468 Mr Gauke: Mr Rochat, are the steps that the aviation industry is taking at the moment because of fear of regulation or taxation or are they in response to the demands of its customers?

Mr Rochat: I think both elements play a role. I think initially pressure based on regulation and taxation was an important factor. Today public opinion is also influencing the process and this is a helpful element, if I may use this expression, in promoting good practice and proactive attitudes among airlines, especially outside the European region. To come back to the point of taxation, I would like to underline the fact that if fuel taxation does not apply to international aviation it is not at the request of the industry. It is simply because governments in ratifying the Chicago Convention in 1944 accepted this basic principle of international law that for reciprocal reasons they would not charge fuel tax for international traffic. The question is really in the hands of governments. It is up to them to decide if they want to change the regime they approved 60 years ago, so it is up to governments to consider those issues. I do not think there is any privilege behind this because again aviation covers all its infrastructure costs and part of its environmental costs through user charges. We have charges on noise, we have charges in the UK, Switzerland and Sweden on NOx, so I think that the system which is in place in this regard is a fair one for the aviation sector.

Chairman: We accept the benefits that the aviation industry provides to individuals in the country, there is not any doubt about that, but you talk about the system that exists. There is a new system now, Philippe, because of the issue of climate change and I do not think it does service to minimise the contribution that the airline industry is making to emissions. If I quote Stern, which you quoted at the beginning, Stern says that the UK aviation sector currently accounts for about 5.5% of the UK’s total CO2 output and it could rise to 15% by 2030, so there is a big issue and a big problem here. What Stern also says is that the effect of all aviation emissions is at least two to four times greater than the effect of CO2 emissions alone because of nitrous oxides and water vapour and other things, so it is a big and growing issue and you are here to tell us what you are doing as a result of the new environment and the new situation, and it is with that positive line of questioning that we want to examine you.

Q469 Peter Viggers: You were talking about routing. What is the necessary flying time from Brussels to London Heathrow, to take one example, and what is the scheduled time?

Mr Pearce: That is a good question to which I do not know the answer.

Q470 Peter Viggers: It is about 35 minutes and one hour, and nobody quite knows why. Mr Rochat seems to know.

Mr Rochat: Yes. There is a difference between the scheduled time and the real time of flying and this depends on the conditions which are related to ATM, route availability, weather conditions and other factors, and we are not entirely satisfied with the way the infrastructure for the air transport sector is developed in Europe. We do not have an efficient system.

Q471 Peter Viggers: There is a problem there. What is the official attitude of IATA to the Carbon Emissions Trading Scheme?

Mr Rochat: We consider that emissions trading among economic measures is a far better tool than taxes and charges. It is clear opinion which is supported. I think, by the whole industry, but we insist on the proper design of an emissions trading scheme for aviation. We do not believe that for a global industry like ours regional or national schemes are the solution. We have always supported
a global scheme through ICAO according to what
the Kyoto Protocol suggests for aviation and we
regret to say that at the last IACO assembly IATA
insisted on the development of a global scheme for
aviation and no one state supported that idea. We
are continuing to develop this concept. We consider
that aviation emissions are global; they take place all
over the world. More than half of aviation emissions
take place over the high seas where no state is
entitled to impose emissions trading, so we think
that only a global solution through IACO will work.
ICAO has the mandate to regulate air transport over
the high seas in the international air space. We think
it is the only solution. Of course, it takes more time
than an EU emissions trading scheme. We realise
this because to get the support of 25 or 27 states is
one thing; to get the support of 190 states is a
different story, but again progress is being made.
IATA is extremely active in this regard. I can tell you
that the guidance on emissions trading that was
developed by IACO and adopted two weeks ago in
Montreal was developed under the chairmanship of
one of our IATA colleagues, so we are very active in
this regard and we believe that this is part of the
solution, not a big solution but it is part of the
solution with technological, operational and
infrastructure improvements.
Mr Pearce: Like Stern, I am quite optimistic that we
are seeing the development of a patchwork of
trading schemes; you heard that from an earlier
witness. We have seen a number of schemes set up in
the north east of the US and in California, New
South Wales and others, and, like Stern, I am quite
optimistic that we could see the development of a
linked scheme which has more global characteristics
and the ICAO guidance that Philippe was talking
about has been developed now which will help
ensure some consistency across those.

Q472 Peter Viggers: Stern suggests that it is difficult
to translate the effect of aviation CO2 emissions into
carbon dioxide equivalents. Are the airlines
undertaking work to try to settle this figure?
Mr Pearce: There are a number of projects that the
aviation industry is engaged in. There is one in
Europe that certainly British Airways and Airbus
are involved in to look at these other emissions, the
science of which we understand is still very
uncertain.

Q473 Peter Viggers: How quickly do you forecast
global airline emissions will increase on the current
basis?
Mr Rochat: Again, referring to IPCC and the Stern
report, we believe that CO2 emissions are expected to
increase from 2% today to 3% in 45 or 50 years from
now. I have to state one thing which is quite
surprising, I would say. Over the past 15 years this
figure of 2% CO2 emissions has not changed. In
other words, the aviation sector contribution to
climate change has not increased more than the
average of other sectors, so for the past years we
have remained stable at 2%. It does not mean that
aviation emissions have not increased. It means that
they have not increased more than the emissions of
other sectors, and this is more or less the result of
that progress we have just mentioned.

Q474 Peter Viggers: Apart from conversion of
aviation CO2 emissions what are the technical
problems you foresee in an emissions trading
scheme?
Mr Rochat: One of the more difficult problems
regarding the EU Emissions Trading Scheme today,
and that is why I was referring to a global scheme, is
the geographical coverage. Are states entitled to
impose emissions trading for the emissions of
foreign aircraft without the blessing of the state of
registry or are states entitled to impose emissions
trading for emissions that take place outside their air
space? These are two very serious legal questions
and, as you probably know, governments outside
Europe have in this regard an opinion which is quite
different from the opinion in the European states, so
this is one of the problems. The second problem is
the level of auctioning or benchmarking. We are
very much insisting on a benchmarking system that
would not penalise the best in class. Chairman,
coming back to your concern regarding the fuel
efficiency or the environmentally efficient airlines
or aircraft, so if we can modulate the Emissions
Trading Scheme and introduce in the calculation of
the scheme a way not to penalise the best in class but
to penalise the worst in class we would be very much
in favour of this solution. These are the critical
points as far as emissions trading is concerned.

Q475 Chairman: Just to tie up a few things, as we
know, aviation is to be incorporated into the EU
Emissions Trading Scheme from 2011/2012 but I
note that Anthony Concil, the Communications
Director of IATA, was quoted in November 2006 as
saying, “Air travel is responsible for 2% of emissions
and for Europe to act before a global agreement is
putting the cart before the horse”. Does IATA not
accept that aviation should be part of the ETS?
Mr Pearce: The point that was being made was that
there was an expert group working on the technical
difficulties.

Q476 Chairman: No, it is a very simple question.
Does IATA not accept that aviation should be part
of the ETS?
Mr Rochat: In general we are considering emissions
trading as part of the solution as preferable to taxes
and charges but provided the Emissions Trading
Scheme applicable to aviation is designed in a way
which does not penalise air transport.

Q477 Chairman: So you are still fighting on it? In
other words, you have not come to a mature view on
the issue. You are still lobbying Brussels?
Mr Rochat: We are still lobbying Brussels to
improve—
27 February 2007  Mr Philippe Rochat and Mr Brian Pearce

Q478 Chairman: To be exempt from the ETS?  
Mr Rochat: No, to improve the scheme as it is proposed today. It is a natural process. We have been part of this, so we are not fighting the scheme as such. We are lobbying for the scheme to fit with aviation requirements.

Q479 Chairman: So you disown your Communications Director’s comments that it is putting the cart before the horse?  
Mr Rochat: This reflects, and we have not changed, that again a global scheme is for aviation a better solution than the original scheme.

Q480 Chairman: My mind is tired this morning and I just wanted to make it simple from me. Do you accept that you have to be part of the ETS or do you say, “There has to be a global agreement before Brussels does anything”? Is it the former or is it the latter?  
Mr Rochat: In a more recent press release we have expressed a cautious welcome.

Q481 Chairman: So you have not accepted it fully yet?  
Mr Rochat: We have accepted—

Q482 Chairman: You have not accepted it fully yet? Brian?  
Mr Pearce: No, because of the issue of foreign airlines having to cover their emissions—

Q483 Chairman: That is an important part of our evidence. I asked the individual airlines when they came before us what they are going to do to reduce emissions prior to aviation’s inclusion in the EU ETS scheme in 2011/2012. I did not get much of an answer from them but we are holding them to that. What is the aviation industry going to do there?  
Mr Pearce: I think they sold themselves short because, as I started off this session, it seems to me that there is a lot being done attacking waste.

Q484 Chairman: They never told us anything that they were going to do. Has the aviation industry itself set any targets for reducing emissions?  
Mr Rochat: Yes. We have a fuel efficiency goal. IATA measures fuel per passenger kilometre. We have improved—

Q485 Chairman: There is nothing published, as my colleague is saying.  
Mr Rochat: Yes, it is published.

Q486 Chairman: This is the issue for us because we get the feeling from taking evidence from the shipping industry this morning and yourselves that the shipping industry is ahead of yourselves, but we want to be fair to both of you. Your written submissions to us are crucial in our determining our report, so we are looking for that and if you say your colleagues sold themselves short could you go back to them, Brian, and say, “Next time don’t be so coy”, but send us that written information so that we have that and we are fair to everybody? It is very important they do that; otherwise we could be critical when there is not any need to be critical if there is evidence there for us to assess. Okay? Back to my colleague’s point, which I think is very important in terms of doing something. He came from the angle of increasing competitiveness in the industry. Why is eco-labelling not being taken up and why can IATA not recommend and promote that? After all, in one of our written submissions we had FlyBe, which is a small airline, announcing that they will shortly be introducing an eco-labelling scheme, so why is that not going to be an initiative?  
Mr Pearce: I think that is an interesting idea but we have been instructed by our board of governors to pursue the tackling waste initiative first. There are measurable, demonstrable carbon savings which could be made there by having a single European sky.

Q487 Chairman: So this is an industry that does not really want competition?  
Mr Pearce: Oh, it does, of course it does.

Q488 Chairman: So why do they not introduce eco-labelling?  
Mr Rochat: We are promoting this idea, but the problem is that we have to persuade our members in this regard, and it is a process which cannot be implemented overnight.  
Chairman: Maybe we did not do justice to the whole area this morning in 40 minutes, but let me tell you that your written evidence is going to be read by us very carefully. We will look to both yourselves and the shipping industry coming forward with further information. Thank you very much.
Written evidence

Memorandum submitted by the Institute of Directors

EXECUTIVE SUMMARY

1. This memorandum is submitted in response to the invitation to submit evidence in Treasury Committee press notice no 14, dated 14 December 2006.

2. While taxation has a role to play in dealing with environmental issues, taxation is also a burden which needs to be kept under firm control. Any developments in environmental taxation should therefore observe the following four principles.

3. First, any increases in revenue raised should be matched by reductions in the revenue raised from other taxes. Environmental taxes must not become a tool to increase the size of the overall tax burden. Matching reductions must be pound for pound and in the same year. Any shortfall in a matching reduction, for example because an environmental tax raises more than expected, should be made good by further reductions in other taxes as soon as the shortfall becomes apparent.

4. Second, any taxes should apply equally to businesses and to private consumers, even if they are only collected from businesses, and the amounts due should appear on bills or tickets sent to private consumers. This will ensure that members of the voting public are fully aware of the burdens that are being imposed. That will in turn help them in considering both their patterns of behaviour and their political views.

5. Third, environmental taxes should be simple in design and straightforward in their application. They must also be introduced with ample warning and with advance publication of detailed guidance on what needs to be done.

6. Fourth, environmental taxes should be designed to do their job properly. The level of a tax should match the cost of the environmental damage. The onus must be on the Government to demonstrate the amount of that cost. And there is no point in imposing a tax if the taxed behaviour will simply relocate to another country and continue to do the same damage.

7. The text below expands on the thinking behind these principles.

GENERAL UNCERTAINTIES

8. Taxation has a role to play in achieving environmental objectives. The theory of taxing externalities in order to achieve an efficient outcome is well-established. However, the main current environmental concern is global warming. This makes it difficult to apply the traditional approach of taxing externalities, for two main reasons.

9. First, it is not obvious whether to tax. The effects of human activities on global warming are not sufficiently well-understood. It may be that the main factors affecting future temperature levels are natural forces, which are outside the control of human beings. If that were so, there would be no point in taxing anyone in order to influence future temperature levels, except to the extent that human activity really made a difference. By contrast, traditional problems of externalities can very easily be addressed by taxation. If there is a financial penalty for running polluting factories, that can induce factory owners to reduce the pollution. If they do not, then they must compensate the general public.

10. Second, it is not obvious what level of taxation to impose. Global warming would have costs, but it would also bring benefits, for example because fewer resources would need to be spent on heating or because some areas would become more suitable for habitation. The ideal tax to deal with an externality is one that equals the cost of that externality. If the cost is unknown, the tax level cannot be set reliably.

THE BURDEN OF TAXATION

11. These uncertainties lead us to urge caution in the introduction of new environmental taxes, or in changes to the levels of existing environmental taxes. There is a risk of not achieving the intended goals, while still imposing the burden that any tax imposes. That burden will in part be suffered by persons other than the immediate payers of the tax, including customers, suppliers, employees and shareholders (including shareholders on whom many people depend, such as pension funds). One of the worst policy mistakes to make would be to think that because environmental taxes are intended to address worthy ends, they are cost-free, or even positively desirable in themselves (as opposed to desirable for the results that they may achieve). All taxes are burdens on individuals, one way or another, even if the route is indirect, and the costs of taxation must never be neglected.

12. The adverse economic effects of high overall levels of taxation are well-documented in the economic literature. (See for example the literature surveyed in Chapter 2 of Tax Matters, Tax Reform Commission, 2006, and particularly W Liebfritz, J Thornton and A Bibbee, Taxation and Economic Performance, OECD Economics Department Working Paper 176, 1997.) This is why environmental taxes must not be used as a way to increase the overall level of taxation, and revenue raised must be matched by reductions in the revenue raised by other taxes.
MAKING THE BURDEN VISIBLE

13. One good way to encourage caution and to limit the overall burden of taxation is to ensure that voters are well aware of the tax burdens that are being imposed on them. A tax on businesses alone can easily go unnoticed by private individuals, even though they are in fact paying it. Where a tax is collected from businesses, the amount should be drawn to the attention of consumers. And where private individuals engage in activity that is sufficiently environmentally damaging for businesses to be taxed, private individuals should also be taxed. If, for example, carbon dioxide emissions need to be discouraged, those emissions need to be discouraged whoever is responsible for them. If, for example, the climate change levy makes environmental sense, the exemption of domestic energy consumption from the levy makes no environmental sense.

SIMPLICITY

14. The complexity of the tax system is a pressing issue. It is therefore essential that taxes be simple in design and straightforward in their application. There is some tension between simplicity and the precise achievement of policy objectives. But in the environmental field, and particularly in relation to global warming, uncertainties about what needs to be done mean that precision in policy objectives is meaningless anyway, as soon as one moves beyond some target average temperature range or target sea level range to actions designed to achieve those targets. Complexity can of course also spring from a desire to achieve some extraneous political objective, but that is hardly a justification for complexity.

15. An important element in making the application of taxes straightforward is to give ample warning of their introduction and to publish detailed guidance in good time. There should be no repetition of what happened with the climate change levy. Draft guidance was made available in good time, but the finalised guidance was not published until after implementation of the levy.

16. Changes to existing taxes also need to be introduced with due warning. It was most unfortunate that in the Pre-Budget Report on 6 December 2006, the Chancellor announced an increase in air passenger duty for flights on or after 1 February 2007, whether or not the flights had already been bought. The results, in relation to flights which had been bought before the announcement, will be a great deal of administrative difficulty and an arbitrary allocation of the costs between suppliers and customers which will depend on legal provisions (such as the Package Travel Regulations) that were not designed for such deliberately engineered surprises, rather than on economic principles.

TAXES MUST DO THEIR JOB PROPERLY

17. If a tax has a specific objective, it must be designed to achieve that objective. If, for example, a tax is intended to reduce carbon dioxide emissions, there is no point in applying it to nuclear power. (If nuclear power has other environmentally damaging effects, they should be dealt with using other measures, which may or may not include taxation.) And if an activity has adverse environmental effects which justify taxing the activity, it should be taxed whether it is carried out by businesses or by private individuals.

18. The general uncertainties mentioned above make it hard to design taxes to achieve precise objectives. But that is not an excuse for giving up and introducing new taxes without adequate evidence to support their introduction. The onus must be on the Government to justify its proposals in detail. All of the analysis that officials carry out in relation to any proposal should be published in its raw form, with no selectivity or presentational gloss, before proposals are debated in Parliament. That level of openness will maximise the chances of making the correct decisions.

January 2007

Memorandum submitted by Hambleside Danelaw Ltd

EXECUTIVE SUMMARY

1. Hambleside Danelaw is a UK manufacturer of roofing products. In 2006, it won the Queen’s Award for Enterprise: Innovation for the ground-breaking design behind its energy-efficient Insulator rooflight and three major environmental awards.

2. The Group welcomes the focus of the Treasury Committee’s inquiry on the appropriate role of environmental taxation in the context of a range of means by which the Government can seek to achieve its environmental policy aims. It has been lobbying the Government and the Stern Review on the issue in relation to the building industry for the past 18 months. Buildings account for around 40% of carbon emissions in the UK.

3. A widespread lack of compliance within the building industry in respect of the energy efficiency provisions of the Building Regulations leads Hambleside Danelaw to propose that a carrot in the form of tax incentives would be far more effective than a stick in the form of even tougher regulation.
4. Hambleside Danelaw was encouraged that in the case of the building industry, Stern shared this view.

5. The Group’s proposals, which were submitted in advance of the Pre-Budget Report, centre on a change to the Industrial Buildings Allowance (IBA) and business rates in order to provide greater incentive to construct buildings which exceed the basic energy efficiency performance targets set out in the Building Regulations.

6. The cost to the Government of these proposals appears not to be substantial; indeed the benefits to business of a better more energy efficient building could well lead to a reduction in their operating costs through energy savings, with a resultant increase in profits, thus increasing tax revenues for the Treasury.

7. The Treasury’s response to the Stern Review in the Pre-Budget Report’s recommendations on buildings was to focus on the housing market. While this was laudable, Hambleside Danelaw would naturally have liked it to have been more ambitious in its scope. The Group hopes that further progress can be made in the full Budget.

ABOUT HAMBLESIDE DANELAW LTD

8. Hambleside Danelaw Ltd (www.hambleside-danelaw.co.uk) manufactures Glass Reinforced Polyester (GRP) rooflights and other roofing and ventilation products in Daventry and Inverness. In 2006, it won the Queen’s Award for Enterprise: Innovation for the ground-breaking design behind its energy-efficient Insulator rooflight for commercial buildings. The Group also won three leading environmental awards, including a Business Commitment to the Environment award, to add to others awarded in previous years. It made two submissions to the Stern Review on the Economics of Climate Change (according to the index of responses, it was one of only two organisations from the building industry to participate in the Review’s initial consultation).

9. Hambleside Danelaw’s turnover is currently in excess of £10 million a year and it employs almost 90 people. The Group was established in 1975 with its first factory at Inverness for manufacturing GRP products becoming operational in 1978. In addition to attaining BS 14001:2004 in recognition of its environmental management systems, the Inverness facility has achieved carbon neutrality. Hambleside Danelaw’s greenhouse gas emissions are monitored by the Edinburgh Centre for Carbon Management and offset. Offsetting is achieved through the Trees for Global Benefit scheme in the Bushenyi District, Uganda. This project uses the Plan Vivo system which offers a tried and tested system for generating carbon offsets.

10. Examples of Hambleside’s good practice include using recycled glass instead of sand to reduce the input of virgin raw materials into the manufacturing process and reducing heating in the factory by 13%. Lower costs for waste disposal have also been achieved despite increased transport costs. All of Hambleside Danelaw’s staff have received environmental training and have been involved in the management system from the initial review to reaching the agreed environmental targets. As part of its ongoing commitment to the environment, the Group has noted that the recycling of fibreglass is not being carried out on a commercial scale anywhere in the UK. Therefore by developing new materials, it is encouraging the recycling of this material and it hopes to expand the system to allow it to take waste fibreglass from other companies in Scotland. The new materials developed will also encourage the use of glass plastics and thereby reduce the amount of new aggregates being extracted and the use of other virgin materials.

TAX INCENTIVES TO ENCOURAGE BETTER ENVIRONMENTAL PRACTICE IN THE BUILDING INDUSTRY

11. Hambleside Danelaw is encouraged that a particular focus of the Treasury Committee’s inquiry is on how the Government can use environmental taxation to encourage behavioural change. The Group believes that bringing about such a change within the construction industry will help to significantly reduce carbon emissions from new and existing buildings, which account for around 40% of the emissions in the UK.

12. This follows the attention given to buildings’ emissions in Sir Nicholas Stern’s report on the economics of climate change, which was published in October 2006. The report appeared generally more supportive of punitive taxes against organisations and individuals who exceed regulatory limits on carbon emissions than tax incentives for those whose emissions are inside the limits. But in acknowledging the technology market failure in the construction industry, it agreed that direct financial incentives may be the answer for the building sector.

13. Echoing the points made by Hambleside Danelaw in its own submissions to the Review, Stern recognised that while architects may be knowledgeable about sustainable technologies, the lack of a coordinated approach within the industry remains a “key barrier” to progress.

14. The Group strongly supports the Review’s conclusion that by paying a little more now, one will save a great deal more later. It believes that this mitigation argument is particularly applicable to the construction industry where many builders still spurn using insulated materials that comply with the Building Regulations in order to save on costs. Using Stern’s calculated cost of carbon at £85 per tonne, Hambleside Danelaw estimates that with its own Insulator rooflight delivering a CO₂ saving of 50 tonnes per year on a typical 1,000 sq metre installation, the additional £8,000 cost of the rooflight compared with one which just
complies with the regulatory limits would soon be offset by a carbon energy cost saving of £2,500 year on year. This does not take into account additional savings being realised through a reduction in heating and lighting costs.

**Issues with the Building Regulations**

15. Hambleside Danelaw recognises that there is a major onus on product suppliers to market more effectively the potential long-term energy savings of using insulated building materials. A key marketing-related issue, however, is that in general the builder walks away from his responsibility for the sustainable elements of a commercial building after the completion of construction (typically, a nine month period) when the building itself might stand for 50 years. He will probably not be interested, for example, in the end-user benefits of insulated rooflights which include more people working and living in day-lit spaces leading to improvements such as better workforce productivity, health recovery times, student performance levels and retail sales.

16. To expand on this, the building process can appear complex. The building designer or architect acting on behalf of the developer will design a building. They will specify the various materials to be used and seek to ensure compliance with the Building Regulations. The next stage is for a contractor to quote for the work and as is so often the case in the UK, it is usually the cheapest price that will “win” the contract. Cheap usually comes at a cost and that cost may well be a reduction in the quality of the specified products which can be detrimental to the environmental performance. There may be several layers of contractors involved in the various stages of construction, each element being very competitive in order to gain the work from the main contractor.

17. The builder’s biggest concern is to achieve the contract and for maximum profit. With his prime interest in the building being only for the nine months or so average build time, it is the building occupier who will thereafter suffer the problems—either through high maintenance costs or poor energy efficiency. Either way there is financial and long-term environmental cost to the occupier and indirectly to the Exchequer as a result of reduced profits from day-to-day operations.

18. Historically the Government has tried to address this market failure by opting more for the “stick” rather than the “carrot”, most notably in the form of Part L of the Building Regulations for England and Wales. As the Government acknowledged in the consultation in 2005 on amending Part L, the effectiveness of the regulations has heavily undermined by a widespread lack of compliance on the part of builders.

19. When the Department for the Communities and Local Government (DCLG) introduced revised regulations in April 2006, it seemed that there had been a genuine attempt to tighten the required energy performance of a building and its enforcement. However, Hambleside Danelaw remained concerned that the complexity of the regulations (the Group described them at the time as “a recipe for confusion” amongst specifiers and contractors) would leave the compliance problem unresolved. The concerns appear to be borne out by the outcome of a recent online consultation exercise undertaken by the DCLG on the regulations, which generated a huge number of responses, with the issue of complexity being a predominant theme.

20. Just a short time ago, the traditional GRP rooflight would have had a U value (the measurement used for heat loss) in excess of 3.3. The Building Regulations of 2002 addressed this to a certain extent and the U value of a rooflight was reduced to an average of 2.2. However, the regulations at that stage, permitted a form of “offset” which meant that many buildings were constructed still using the old rooflight construction method.

21. It is now perfectly feasible to produce a high performing environmentally sound rooflight product with U values proven to be as low as 0.8—at a cost differential of approximately 30% over the base rooflight product. Indeed Hambleside Danelaw believes that the technology is now commercially viable to obtain values below 0.5. The energy savings are proven to be substantial. This coupled with the fact that new materials have now allowed rooflights to have a service life of 45 years reflects the advances made in this product but at a cost.

22. The cost differential of £8,000 between an advanced rooflight product and a base product over a 1,000 sq metre installation might seem very small, but in the scenario of building “cheaply”, it is a major consideration. This acts as a disincentive to further investment in technology and slows the rate of advance in the building industry as a whole. Furthermore it does not help in the fight against climate change.

23. Since Stern was published, the Group has become further concerned by the less onerous guidance offered by the Building Research Establishment (BRE) in relation to the installation of rooflights as part of the “officially approved” compliance information available from the National Association of Rooflight Manufacturers (www.narm.org.uk). Hambleside Danelaw has been informing potential customers that rooflights covering 20% of an industrial building’s roof area is now a feasible, realistic and cost effective proposition for improving levels of natural daylight and reducing the daytime need for artificial lighting. However, the latest BRE guidance, which allows easier attainment of building emission targets than anticipated last April, acts as a disincentive to expanding the rooflight area.
Specific Proposal for Tax Incentives for Using Insulated Building Materials

24. For the past 18 months, Hambleside Danelaw, with invaluable support from its two local MPs, has been lobbying the Government for a change in taxation in so far as it relates to the construction of non-domestic buildings. The lobbying led to a meeting with the Financial Secretary to the Treasury in the run-up to the Pre-Budget Report 2006. Hambleside Danelaw undeniably has a vested interest in pursuing this campaign, but it is its attitude to the environment and its excellent track record in this area which is driving the Group forward on this issue. The Group makes no secret of the fact that it believes that a successful future as a manufacturer lies in the development of new era products which are “green”. It has an environmental, corporate and social responsibility to ensure this.

25. Hambleside Danelaw is not a tax expert and appreciates that this is a complex subject. However, its experience of the building industry suggests that using a “carrot” is more likely to have an impact on the industry’s behaviour. Therefore its proposals, which have been submitted to the Treasury, are focused on the introduction of new tax incentives.

26. The basic premise revolves around a change to the Industrial Buildings Allowance (IBA) and business rates—to provide greater incentive to construct buildings which can show that they exceed the basic performance targets set out in the Building Regulations. It has taken the IBA system for the basis of the example, but similar encouragements for improved environmental building performance could possibly be achieved through variations in stamp duty levels. It would be a consideration that these changes should apply to new build and refurbishment projects in order to encourage the older building stock, domestic, commercial and industrial to be “environmentally modernised”.

27. In the opinion of Hambleside Danelaw, these changes if implemented would focus the mind of not just the developer, but also encourage the building occupier to ask more questions about the environmental performance of the building he is about to occupy. Both parties would gain from enhanced property values, rental incomes, energy savings, carbon emissions reductions, and improved building quality.

28. Hambleside Danelaw has proposed the following:
   (a) For all buildings that just meet the basic performance target set out in the Building Regulations, that the IBA is reduced to 2.0% from the current 4% rate.
   (b) Where it can be certified that the materials used within the construction improve its performance beyond that basic performance target plus say 15%, that the IBA be 4%, as now.
   (c) For buildings that can show they have used materials which go beyond the basic target performance standard plus say 30%, the IBA increases to 6%.

29. The products required to achieve the better performance may increase new build cost in a range of 5 to 10%, but improved IBA allowances, and improved rental levels due to better building performance and potentially enhanced resale values would all help to encourage better practice.

30. The following table provides a basic illustration of the IBA tax relief structure on a typical new build cost for a factory/warehouse unit:

<table>
<thead>
<tr>
<th>Table</th>
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<tbody>
<tr>
<td>Example of typical build costs for a 5,000 square metre industrial unit with office accommodation (based on assumed 10% extra build cost):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Taxation relief IBA</th>
<th>£3 million Basic standard property—effective tax relief</th>
<th>£3.15 million 15% + Enhanced environmental performance</th>
<th>£3.3 million 30% + Enhanced environmental performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBA current 4%</td>
<td>120,000 at 30% rate = £36,000 per annum</td>
<td>126,000 at 30% rate = £37,800 per annum</td>
<td>132,000 at 30% rate = £39,600 per annum</td>
</tr>
<tr>
<td>Proposed IBA 2.0%</td>
<td>60,000 at 30% rate = £18,000 per annum</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Proposed IBA 4%</td>
<td>No change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proposed IBA 6%</td>
<td>No change</td>
<td></td>
<td></td>
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<tr>
<td>Savings (Cost) to Treasury</td>
<td>£18,000</td>
<td></td>
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</tr>
<tr>
<td>Notes to the Table</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. It can be seen that under current tax relief structure a building which could cost between £150000 and £300,000 extra to build only attracts additional tax relief per annum of £1,800 or £3,600 respectively—this does not in Hambleside Danelaw’s opinion, provide an attractive enough basis for encouraging better building practice.</td>
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2. Whilst those buildings meeting minimum standards attract a reduced tax allowance, those achieving a better performance gain, a 15% improvement would mean that for a 5% assumed increase in build cost there would be an additional £19,800 per annum tax allowance, and for a building meeting even better requirements there would be a further £41,400 to help fund the additional extra £300,000 of investment.

3. The net cost to the Government of the IBA changes is modest unless all development switched to the higher performance category, in which case the additional cost over the current position would be £19,800 per annum, over approximately 17 years rather than the current 25 years. Over time it is revenue neutral, although it is appreciated that there is additional expenditure over that 17 years.

4. The main corporation tax rate at 30% has been used for the purposes of this example.

31. Under these suggestions, there would appear to be a real incentive for improvement in the UK building quality and sustainability.

32. Sustainability itself is another key issue, the longer the service life expectancy of the materials used within construction, the better for the environment. Older building stock has lasted literally centuries. In the aftermath of the Second World War building quality deteriorated and the effects of that can be seen all around: schools of the 60s requiring rebuilding, poorly constructed flats requiring demolition—all within the terms of building life and after just a very short time, which is neither cost-effective financially nor environmentally.

Changes to the Business Rates

33. It has been explained that the builder has a short-term interest in the property—limited effectively to the construction phase. The developer potentially has a long-term interest but he may not be the occupier. It is the occupier who will see the benefits from reduced energy costs etc. He can therefore influence the building performance. He can demand better materials be used. He may pay more in rental cost, but he will gain in other savings, for example, reduced artificial lighting, reduced heating or air conditioning requirements.

34. A small change in business rates could assist in encouraging better build practice. Consideration should perhaps be given to increasing the business rates for new buildings, which again only meet the basic building envelope target, by say 5%, but with the rating level remaining at current levels for those exceeding that minimum target performance by 15%.

Conclusion

35. These changes to the taxation system, if implemented, would, it is believed, provide the incentive for the building industry and its suppliers to invest in the new technologies required to meet the increasing demand for environmentally responsible products. They would help address the market failure referred to by Sir Nicholas Stern in his report.

36. The cost to the Government of this appears not to be substantial; indeed the benefits to industry of a better more energy efficient building could well lead to a reduction in their operating costs through energy savings, with a resultant increase in profits, thus increasing tax revenues for the Treasury.

37. The Treasury’s response to the Stern Review in the Pre-Budget Report’s recommendations on buildings was to focus on the housing market. While this was laudable, Hambleside Danelaw would naturally have liked it to have been more ambitious in terms of scope. The Group hopes that further progress can be made in the full Budget.

January 2007

Memorandum submitted by the Energy Saving Trust

1. Executive Summary

1.1 The Energy Saving Trust believes that the Government has made only limited progress against the undertakings set out in its Statement of Intent on Environmental Taxation, published in 1997, and the subsequent Tax and the environment: using economic instruments, published in 2002. Whilst the undertakings were sound and sought to correct market failures impacting upon the environment, they have not been continued in taxation policy since publication. Only a very limited implementation of environmental taxes has been seen, including the introduction of Vehicle Excise Duty based on carbon dioxide emissions, and Enhanced Capital Allowances for microgeneration and energy saving equipment. There is considerable scope for a much greater range of environmental taxes, particularly those seeking to address climate change.

1.2 Environmental taxation has an important role to play in behaviour change. This role has not been sufficiently explored or exploited, in either encouraging or discouraging behaviour which impacts upon climate change, including household sustainable energy and transport.
1.3 Environmental taxation is a vital component of the policy mix required to mitigate climate change. Along with a clear and consistent regulatory regime, investment and spending programme, trading schemes, and voluntary agreements, environmental taxation can provide the necessary encouragement for comprehensive, sustainable individual behaviour change in both their household and transport habits.

2. Introduction

2.1 The Energy Saving Trust was established as part of the Government’s action plan in response to the 1992 Earth Summit in Rio de Janeiro, which addressed worldwide concerns on sustainable development issues. We are the UK’s leading organisation working through partnerships towards the sustainable and efficient use of energy by households, communities and the road transport sector and one of the key delivery agents of the Government’s climate change objectives. Our response focuses on the key areas of the Energy Saving Trust’s activities and related issues that are relevant to the inquiry. We do not attempt to answer questions outside our area of expertise. Please note that this response should not be taken as representing the views of individual Energy Saving Trust members.

3. Progress made by Government on 1997 and 2002 Undertakings


3.1 The Statement of Intent on Environmental Taxation, published in 1997, committed HM Treasury to:

"... explore the scope for using the tax system to deliver environmental objectives ... over time the Government will aim to reform the tax system to increase incentives to reduce environmental damage. That will shift the burden of tax from "goods" to "bads"..."

3.2 This was further endorsed by the Government’s 2002 paper Tax and the environment: using economic instruments which confirmed the primary purpose of environmental taxation and regulation as the correction of market failure, of which climate change is a clear example.

3.3 The Government’s limited progress against its 1997 and 2002 papers is evidenced by the falling rate of revenue from environmental tax receipts, now only 2.9% of Gross Domestic Product (GDP), compared with 3.6% in 1999. Similarly, environmental taxes as a percentage of total taxes and social contributions have fallen from 9.7% in 1999 to 7.7% in 2005. Total revenue from environmental taxation is 2005 was £35 billion, largely from the energy sector.

3.4 While there have been some efforts in this direction, including the introduction of the emissions-based Vehicle Excise Duty (although emission band differentiation remains inadequate), and Enhanced Capital Allowances for microgeneration and energy saving equipment, there is still considerable scope for additional taxation to correct this market failure, particularly on those products/behaviours which are contributing to negative environmental outcomes, such as climate change. We still find ourselves in a situation where products and behaviours which contribute to climate change are not discouraged through the tax regime and the most energy efficient products and behaviours on the market are not encouraged through fiscal incentives. This is a particular issue in relation to energy use of individuals—household and transport—which makes up almost half of the UK’s carbon emissions.
4. Government’s Use of Environmental Taxes for Climate Change

The government’s use of environmental or “green” taxes that are specifically targeted at tackling climate change.

4.1 Within the Energy Saving Trust’s area of expertise—individual energy use predominately in homes and personal transport—there has been very limited use of environmental taxation. As previously mentioned, Vehicle Excise Duty and Enhanced Capital Allowances are two key initiatives in this area. In addition, the recent increase in fuel duty was a step forward however, the re-introduction of the fuel price escalator would provide a stronger and more effective long-term price signal for vehicle users.

4.2 However, the general trend of environmental taxation tackling climate change has been to provide limited, and often not widely promoted, incentives on the “goods” rather than taxing the “bads”.

4.3 The Chancellor, in his Pre-Budget Report 2006, announced plans to remove stamp duty on zero carbon homes. This is a welcome announcement and should provide some financial incentive for home-buyers when zero carbon homes become more widely available. It should also provide an incentive for the house-building industry to mainstream zero carbon housing.

4.4 Reduced rate (5%) VAT is applied to energy saving materials including energy efficiency measures such as insulation, and microgeneration technologies. These materials must be professionally installed in order to attract the reduced rate. With the growing DIY market and increasingly popularity of microgeneration technologies in this market, the reduced rate of VAT should be applied to all of these materials.

5. Environmental Taxation for Behavioural Change

The extent to which the Government uses environmental taxation to encourage behavioural change, rather than solely to raise revenue, and the social impact of such taxation.

5.1 Effective environmental taxation can play a major role in changing behaviours, saving energy resources, addressing social issues and helping to benefit the economy through increased demand for more sustainable products and services.

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

“A tax is a cost of production, but also a means to making economic choices and determining economic outcomes. An effective environmental tax can play a major role in changing industries, reducing energy use, improving the environment, and deterring actions that are damaging to the environment. For both consumers and businesses alike, economic instruments such as tax can enable environmental goals to be achieved at the lowest cost and in the most efficient way. By internalising environmental costs into prices, they help to signal the structural economic changes needed to move to a more sustainable economy. They can encourage innovation and the development of new technology. The revenue raised by environmental taxes can also be used to reduce the level of other taxes, which can help to reduce distortions in the economy, while raising the efficiency with which resources are used. Where there is a strong case, some or all of the revenue may also be used to reinforce the effectiveness of a tax measure by strengthening incentives for positive action, or mitigating adverse impacts.”

5.3 However, Government has only used environmental taxation to encourage behavioural change in limited circumstances, as outlined in section 5 (above). Given the pressing climate change targets set by the Government—20% reduction in carbon dioxide emissions on 1990 levels by 2010, and a 60% reduction by 2050—much greater use of environmental taxation for the purposes of behavioural change is required.

5.4 There are numerous opportunities for Government, in the short term, to use environmental taxation to change behaviour. Consideration should be given to a range of additional taxation measures including the taxing of the most energy inefficient types of products, such as “gas guzzlers” and plasma screen televisions.

5.5 There is also a clear need to increase the uptake of energy efficient lighting over incandescent bulbs. This could be achieved by continuing to reduce the relative price premium between energy efficient bulbs and conventional bulbs to encourage consumer take up of more efficient lighting. Government should give consideration to reducing the VAT on compact fluorescent lamps (CFLs) to 5% and applying an inefficiency charge on incandescent bulbs at a rate of at least 50 pence per unit.

5.6 The Government should also be encouraging householder behaviour change, particularly the installation of insulation, by utilising existing taxation mechanisms more effectively. Council Tax rebates have provided an effective means of encouraging the installation of cavity wall insulation in the 16 local authority areas which are currently piloting the scheme in conjunction with British Gas. Further analysis of Council Tax rebates can be found in the Energy Saving Trust’s Changing climate, changing behaviour: delivering household energy saving through fiscal incentives available at http://www.est.org.uk/uploads/documents/aboutest/fiscalupdate.pdf
6. **APPROPRIATE ROLE OF ENVIRONMENTAL TAXATION**

The appropriate role of environmental taxation, in the context of the range of means by which the Government can seek to achieve its environmental policy aims—for example, by means of regulation, a voluntary agreement or a spending measure.

6.1 In order to be effective, environmental taxation needs to be primarily linked to achieving long-term environmental outcomes but should also be considered through fiscal measures aimed at a short term behavioural change as a pre-cursor to longer-term fundamental change. It should also be part of a comprehensive policy package of taxation, regulation, spending and investment, trading schemes, and where appropriate, voluntary agreements.

6.2 To a large extent, the most appropriate instrument will depend upon the elasticity of the market. Taxation and/or incentives are more likely to work in an elastic market whereas those markets which are highly price inelastic are often best addressed through regulation.

6.3 New and emerging technologies, for example sustainable energy technologies, are often best encouraged and developed through spending programmes which help to fast-track their commercialisation. For example, the DTI’s Low Carbon Buildings Programme which encourages wider uptake of microgeneration technologies.

6.4 Consideration must also be given to the use of revenues from environmental taxation. Generally, revenues raised from environmental “bads” should be hypothecated to provide investment, regulatory enforcement, and/or incentives for linked environmental “goods”.

6.5 The role of environmental taxation in the policy mix is well supported in the Stern Review, which recommends the three essential elements of climate change policy include Carbon Pricing (pricing carbon through taxes, trading or regulation in order to incorporate the full social costs of actions), Technology Policy (bringing forward low-carbon and high-efficiency technologies through research and development, demonstration, and market support), and Policies to Remove Barriers to Behavioural Change (cost effective mitigation options are not always taken up due to lack of information, the complexity of choices or the upfront cost—policies on regulation, information and financing are important).

6.6 It is important that all aspects of the policy mix are sending clear and consistent signals to individuals and the market. UK citizens need clear signals from Government in order to change their behaviour, particularly around climate change. This is strongly supported by the Sustainable Development Commission’s I will if you will report into bringing about behaviour change for sustainable lifestyles.

*January 2007*

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**Memorandum submitted by easyJet Airline Company Ltd**

Treasury Committee’s inquiry into Climate Change and the Stern review: the implications for HM Treasury policy on tax and the environment.

**EXECUTIVE SUMMARY**

— Aviation accounts for 1.6% of Global Greenhouse Gases (GHG) and unlike other some sectors, airlines have powerful existing incentives to reduce their emissions.

— Powerful future technology is being developed which could potentially cut CO₂ emissions from aircraft by 50% within the next 15 years.

— Taxation drains capital from the airline industry, has the potential to damage airlines’ financial performance, and degrades airlines’ ability to invest in this new generation of aircraft.

— Taxation as already introduced by HM Treasury is disproportionate and promotes perverse behaviour by passengers.

— Unless a fuel tax was levied at a global level it would also promote perverse behaviour.

— easyJet believes that the best policy option open to HM Government to incentivise greater air transport environmental efficiency is the inclusion of aviation in an emissions trading scheme—this should include all flying and be introduced as soon as possible.

— The Stern Review’s economic forecasts to 2050 will need to take into account step changes in aviation efficiency and a full assessment of the environmental damage of other modes of transport.

This paper sets out easyJet’s written evidence for this Inquiry.
AVIATION ACCOUNTS FOR 1.6% OF GLOBAL GREEN HOUSE GASES (GHG) AND UNLIKE SOME OTHER SECTORS, AIRLINES HAVE POWERFUL EXISTING INCENTIVES TO REDUCE THEIR EMISSIONS

1. The Stern review defines human-induced climate change at its most basic level as an externality, as emitters “face little or no economic incentive to reduce emissions”.1 This is undoubtedly true for many sectors of the economy (for example, car manufacturers generally make more profit on larger cars, but these tend to generate more emissions per passenger km than smaller, less profitable vehicles).

2. However, this is not the case for the air transport sector, as fuel is already one of the biggest costs to an airline. Fuel accounted for 29% of easyJet’s costs in the financial year to September 2006 and was by far easyJet’s largest single operating cost. The airline industry is chronically unprofitable and is highly competitive in deregulated markets such as the EU and the US. These two factors mean that improvements in fuel efficiency are crucial to economic survival. Whereas these incentives can vary (some sectors of the industry are still protected by bilateral agreements) they are particularly strong in the European short-haul market where low cost carriers can only survive by being fuel-efficient.

3. In this arena, one of the crucial competitive advantages of low fares airlines is their fuel efficiency. easyJet estimates that the typical European airline operating the same aircraft as easyJet (Airbus A319) on the same route would burn 27% more fuel per passenger. This difference in fuel cost represents more than easyJet’s after-tax profit.

POWERFUL FUTURE TECHNOLOGY IS BEING DEVELOPED WHICH COULD POTENTIALLY CUT CO₂ EMISSIONS FROM AIRCRAFT BY 50% WITHIN THE NEXT 15 YEARS

4. The airline industry is highly capital intensive. It also has a strong track record in deploying this capital towards new technology to improve efficiency. Since the beginning of the jet age, the GHG emissions per passenger has fallen by 70%.2 easyJet itself has placed firm orders or options for 315 Airbus A319 aircraft with a list price of over $12 billion, 91 of which have been delivered since September 2003.

5. As the Stern Review highlights, the Advisory Council for Aeronautics Research in Europe (ACARE) requires new aircraft produced in 2020 to be 50% more fuel efficient per seat kilometre relative to their equivalents in 2000, in addition to producing 80% less NOx. According to the Stern Review the targets are broadly on track to being met. ACARE is an EU body, but the target is likely to have a significant impact on fuel efficiency internationally because aircraft manufacturers will want to keep up with fuel efficiency standards.3

6. easyJet is actively engaging with both airframe and engine manufacturers in a dialogue aimed at developing this new generation of aircraft. easyJet’s policy is to grow its fleet using the latest technology aircraft, whilst retiring older aircraft usually within seven to 10 years of delivery. In 2006, easyJet’s fleet had an average age of 2.2 years.

TAXATION DRAINS CAPITAL FROM THE AIRLINE INDUSTRY, HAS THE POTENTIAL TO DAMAGE AIRLINES’ FINANCIAL PERFORMANCE, AND DEGRADES AIRLINES’ ABILITY TO INVEST IN THIS NEW GENERATION OF AIRCRAFT

7. The Stern Review makes it clear that the first task of mitigation policy is to establish a price for emissions [see paragraph 18]. Stern then makes clear that “the second task of mitigation policy is to promote research, development and deployment”.4 Any form of environmental taxation has the potential to reduce the capital available to the airline industry for investment in more environmentally efficient technology and is therefore poor policy.

8. The new rate of APD announced in the pre-Budget Report 2006, had it been collected last year, would have represented 154% of easyJet’s after-tax profit in the financial year to September 2006 (£94.1 million).

9. easyJet’s return on equity in that year was 10.1%. It has a target to raise its return on equity to a more equitable 15%—a level which it feels its shareholders would regard as an acceptable level of profitability. This is still below the average level of profitability achieved by UK-quoted companies. Significantly higher levels of taxation represent an obstacle to achieving acceptable levels of profitability.

10. easyJet needs acceptable levels of profitability to invest in its fleet. The new rate of APD would have represented 147% of easyJet’s net capital expenditure in the financial year to September 2006 (£98.5 million). 31% of net capital expenditure in 2006 went into growth; 69% went to replacement of earlier generation aircraft. This investment resulted in a reduction of the rate of easyJet’s emissions per passenger by 3.2% for 2006.

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1 Stern Review Part 1, 2.1. pp 24.
3 Stern Review Part VI, 22.7 pp 486.
4 Stern Review Part 1, 2.7 pp 35.
11. Public policy which prolongs poor financial performance in the airline sector cannot lead to positive outcomes for efficiency. The history of the US airline industry over the last 20 years demonstrates that poor financial performance leads to under-investment and an ageing, inefficient fleet.

**TAXATION AS ALREADY INTRODUCED BY HM TREASURY IS DISPROPORTIONATE AND PROMOTES PERVERSE BEHAVIOUR BY PASSENGERS**

12. The new rate of APD for European passengers represents 25% of easyJet’s median fare.

13. The Stern review accepts that “many national policy measures such as landing charges tend to be blunt instruments for cutting carbon emissions”. APD does not incentivise consumers to reduce their emissions as there is no direct link between the application of the tax and the distance flown by the passenger or the emissions produced by the aircraft.

14. In fact, APD as currently structured perversely penalises the flights, which produce the least emissions—short haul flights. Any environmental tax takes money out of industry and reduces the amount available to invest in the latest environmentally efficient technology. For example, a passenger travelling from London to Auckland generates more than 15 times the emissions as does an easyJet passenger travelling from London to Marrakech, yet is charged the same APD (£40).

15. Furthermore, the retrospective application of the increased rate in APD, by definition, cannot in any way shape or form influence behaviour, as consumers and companies cannot change past behaviour (the behaviour existed before the tax increase existed).

**UNLESS A FUEL TAX WAS LEVIED AT A GLOBAL LEVEL IT WOULD ALSO PROMOTE PERVERSE BEHAVIOUR**

16. The Stern review states: “The international nature of aviation also makes the choice of carbon pricing instrument complex. Internationally co-ordinated taxes are difficult to implement, since it is contrary to International Civil Aviation Organisation (ICAO) rules to levy fuel tax on fuel carried on international services. The majority of the many bilateral air service agreements that regulate international air services also forbid taxation of fuel taken on board.”

17. The Stern review also states that the competitiveness impacts on industries such as air transport will be reduced if climate change action is co-ordinated globally and that “International co-ordination on reducing emissions from aviation is important, for example, to avoid leakage of mitigation policies from travellers switching to different carriers, or air carriers changing their routes, or practices such as ‘tankering’ (ie carrying excess fuel on planes to avoid refuelling at airports where fuel taxes are levied)”. There is an environmental and economic cost in tankering (the extra weight of fuel increases fuel burn on the previous sector), but any significant difference in the cost of aviation fuel from different locations will inspire the behaviour of consistent tankering, which leads to an increase in GHG emissions for the same output.

**EASYJET BELIEVES THAT THE BEST POLICY OPTION OPEN TO HM GOVERNMENT TO INCENTIVISE GREATER AIR TRANSPORT ENVIRONMENTAL EFFICIENCY IS THE INCLUSION OF AVIATION IN AN EMISSIONS TRADING SCHEME—THIS SHOULD INCLUDE ALL FLYING AND BE INTRODUCED AS SOON AS POSSIBLE**

18. The Stern review makes it clear that the first task of mitigation policy is to establish a price for emissions and easyJet concurs. easyJet supports bringing aviation within the European Emissions Trading System as soon as possible as the most practicable method of establishing the price of emissions from the European air transport sector in addition to leading the world towards emissions trading as a means of reducing GHG emissions globally. We believe that this is the only way to deal with such an international business and to put it on an equal footing with other sources of carbon emission.

19. easyJet is actively working with the European Institutions to bring this scheme in as soon as possible and to make sure that it is effective. It is vitally important that ETS captures all travel to and from Europe that it encourages the efficient airlines and discourages the inefficient.

20. The airline industry is starting to gear up for the next generation of technological change [see paragraph 5]. Participation in EU ETS at the earliest possible time allows the industry to contribute to technological advances in other industries in advance of its own new technologies becoming available. The EU ETS also incentivises a relative sense airlines to become more efficient with their existing technologies and business models.

21. If APD is indeed an environmental tax (and not simply a tool for generating revenue), it should be removed as soon as aviation is included in the EU ETS.

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5 Stern Review Part VI, 22.7 pp 485.
6 Article 24 of Chicago Convention exempts fuel for international services from fuel duty.
7 Stern Review Part IV, 15.5 pp 341.
8 Stern Review Part III, 11.2 pp 256.
9 Stern Review Part VI, pp 485.
10 Stern Review Part 1, 2.7 pp 35.
22. The Stern Review states that in 2050 under “business as usual” projections, CO₂ emissions from aviation would represent 2.5% of global GHG emissions, but this does not take into account the step change in environmental efficiency that will occur before then nor the inclusion of European aviation in the EU ETS from 2011. In addition, the Intergovernmental Panel on Climate Change (IPCC) will issue its second report on aviation and the global atmosphere later on in 2007, so any forecasts will need the be revised to reflect the latest scientific thinking.

23. The European Environment Agency estimates that the average specific CO₂ emissions of the total EU15 passenger car fleet were 164g per kilometre in 2003. Its estimate for average car occupancy is 1.6 passengers. This equates to 102.5g of CO₂ per passenger kilometre, or 7.1% more than easyJet’s average. Any fiscal instruments that take passengers off aircraft and into their cars will lead to more CO₂ per trip, not less.

24. The comparison with rail journeys should include some assessment of the environmental cost of the infrastructure used to provide the service, rather than just the marginal energy use of the single train journey. The environmental cost of rail infrastructure is unclear, but considerable, especially if the energy demands of additional high-speed rail services are met from existing marginal electricity generating capacity (usually coal).

25. The Stern Review makes clear that “discussions on tackling the climate change impact of the international maritime industry are at a very early stage” and much work is required to identify and develop mechanisms to control maritime transport’s GHG emissions, particularly CO₂.

January 2007

MEMORANDUM SUBMITTED BY THE FORUM FOR STABLE CURRENCIES

EXECUTIVE SUMMARY

1. This submission undertakes a systemic analysis of money and public funding whilst proposing “green credit” as a new economic instrument. It identifies “state money”, “Government money” or “cash” as not-interest bearing (NIB) and “credit” as interest-bearing “bank money”. We illustrate the parallels between the exponential growth of CO₂ emissions, the national debt and credit as part of the money supply as a whole. Long-term parallels illustrate how global warming cannot be curbed without curbing the growth of lending at interest. For exponential growth is unlimited and an indicator for unsustainable, unnatural and cancerous growth.

2. Using the public statistics of the Bank of England, the submission identifies the cash/credit ratio as a measure for changing the direction of current trends. An increase in the Government share of the money supply could fund environmental activities, lower personal, corporate and governmental indebtedness and allow Westminster to leverage budgetary control over the City.

3. As formulated in Early Day Motion 408, the submitters recommend adding public or “green credit” to available policy means so that a maximum of activities to ameliorate global warming can be funded by Government. So far, there has always been enough money for war, but never enough for the environment. Green credit would increase the Government’s budget and fuel the level of environmental activities at the speed required by climate change. As an ethical and green measure, the cash/credit ratio would indicate the balance between spending money for the common good and making money out of money through interest.

4. In relation to the Stern review, the submitters invite the Committee to consider evaluating 3D Metrics’ prototype software for complex systems. Having proved rather successful for financial forecasting over daily and weekly intervals, this software has the capability of multi-scale modelling while handling multi-dimensional parameters and multi-variant data.

5. Since this “3DM” software is independent of scale, it can handle short and long time intervals. As it is also independent of application, it can process data from financial, monetary and economic sources as well as climate change. Thus it is likely to prove more effective for future modelling and monitoring than the PAGE system used for the Stern report.

6. In conclusion, this submission finds environmental taxation as unsuitable as borrowing to raise revenue. With a view to social impact and changing behaviour, our recommendation is the use of money not as a “green stick” but as a “green carrot”: by using green credit, energy efficient buildings, a carbon neutral transport system and the use of renewable energies can become commonplace at the speed that is desirable and necessary.

11 Stern Review Part VI, 22.7 pp 486.
“We are learning by bitter experience that the organism which destroys its environment destroys itself.”
Gregory Bateson (1904–1980), British anthropologist, social scientist, linguist and cyberneticist.

**Introduction to the Submitter**

7. Sabine K McNeill has organised the *Forum for Stable Currencies* in the House of Lords since 1998. Drawing from international and national expertise, well over 50 Forum meetings, combined monetary and structural analysis with financial and economic evidence at constituency level: see www.monies.cc

8. As a mathematician and systems analyst, she was an employee of CERN, the *European Centre for Nuclear Research* in Geneva. Her company *3D Metrics* was recently sponsored by UKTI to participate in the UK @ CERN exhibition. The result is a potential collaboration to provide add-on software to CERN’s de facto standard for data analysis and visualization. See www.3dmetrics.co.uk for Measuring New Qualities in Finance, Science and Economics.

9. Sponsors of the *Forum for Stable Currencies* and participants in meetings in both Houses are politicians, researchers and publishers who, in a voluntary capacity and without any funding, have brought together an expert body of knowledge since the 1950s. The evidence substantiates the environmentally detrimental long term effects of short term policies and even shorter term statistics. Speakers at the Forum have included:

- Austin Mitchell MP, Chairman: http://www.austinmitchell.co.uk/
- Margrit Kennedy, author, *Interest- and Inflation-Free Money*—Creating an exchange medium that works for everybody and protects the Earth: www.margritkennedy.de
- Michael Rowbotham, author, *Grip of Death* and *Good bye, America* http://books.google.co.uk/books?q=michael%20rowbotham%20+grip%20+death

**Green Credit for Green Purposes**

10. Climate change requires system analysis applied to many parameters and measurements globally, just as the global economy requires a system analytical approach to statistics and metrics. However, economics is a “soft science” that has been accused of autism by its own student body. See www.paecon.net, the site of the *post-autistic economics network* founded in 2000, which says economics is now so sick that even members of its inter-sanctum publicly admit it.

11. For the purpose of clarification, the following definitions are cited from the Oxford Dictionary:

- **monetary**: relating to money or currency;
- **financial**: (1) relating to finance, (2) possessing money;
- **economic**: (1) relating to economics or the economy, (2) justified in terms of profitability;
- **credit**: (1) the facility of being able to obtain goods or services before payment, based on the trust that payment will be made in the future. (2) an entry in an account recording a sum received—from *credere* “believe, trust”.

This submission challenges the language and metrics used by lending institutions to turn “public credit” into “Public Spending Borrowing Requirements”.

12. With respect to the economics of climate change addressed by the Stern report, “economic instruments” comprise:

- the *policy means* of HM Treasury,
- the *interest rates* set by the Monetary Policy Committee,
- the *financial stability functions* of the Bank of England,
- the *interest rates and bank charges* of monetary and financial institutions
- and the *statistics and metrics* used as the basis for setting policy and making decisions.
CURRENCIES AND FINANCE = CASH + CREDIT

13. EDM 408\(^2\) suggests both a new way of raising money for Government and how to spend it for the benefit of the environment through transport, energy supplies and buildings. It points out that current means of debt-financing, borrowing and taxation are not sufficient for the vast resources required to cope with climate change.

14. Government borrowing has existed since 1694 when the Bank of England was created and subsequently legalised in The Tonnage Act of 1696, to “lend money to the Government”. Concern over this dubious practice was such that Section 9 of the Bank Charter Act of 1844 required that any profit accruing to the Bank of England (then a private bank) from the creation of currency was to be paid to Government.

15. It is for this reason that EDM 408\(^2\)—as a matter of urgency and in face of apathy due to lack of analysis and understanding from Parliament—demands some restoration of the public’s right of seigneurage,\(^{12}\) also spelled seignORAGE\(^{14}\) or seigniorage,\(^{15}\) from the creation of both cash and non-cash money, as was their right and privilege bestowed by the Crown many hundreds of years ago.

16. To assess the economics of climate change, success measures of the human economy need to be combined with measuring planet earth as a natural system while taking ethical considerations into account.

17. In this context, “economic growth” needs to be questioned—when measured by GDP and inflation. For they are short-term indicators that do not take into account the long-term effects of exponential growth.

18. Measures and Parameters for the Economics of Climate Change:

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<th>Stern Report</th>
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<td>(a) Contraction &amp; Convergence(^4)</td>
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<td>— integrated assessment models</td>
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<td>— world consumption</td>
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<td>— support innovation and deployment of low-carbon technologies</td>
<td>— increase the minute share of interest-free cash through green credit for funding green projects</td>
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<td>— remove barriers to energy efficiency</td>
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<td>— inform, educate and persuade individuals</td>
<td>— use the cash/credit ratio(^5) as a monetary measure.</td>
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<td>(e) In terms of metrics</td>
<td>(e) In terms of metrics</td>
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<td>— GDP per head</td>
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<td>— CO(_2) emissions per head.</td>
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19. The mathematical rather than economic approach to the analysis of complex systems is illustrated by a series of charts and graphs. They begin with the exponential growth of compounding interest. This growth is the driver in a money supply that depends fundamentally on interest-bearing debt and credit.
Compounding Interest over Time—short- and long-term

No matter what the interest rate is – here 8, 10 and 12% - growth is exponential - whether for profit or for debt. But exponentiality kicks in only after over 20 time intervals – whether months, years or decades.

Money Stock (M4) and Domestic Debt 1963–96

This graph is taken from page 15 of Michael Rowbotham’s book “The Grip of Death” and illustrates the growth of the money supply through the national debt between 1963 and 1996.

The Exponential Rise of the National Debt: 1855–2002

This graph has been downloaded from the website of the UK Debt Management Office to show the exponential rise of the national debt since 1855.
The Money Supply Rising Exponentially since 1982

The money stock or supply comprises M0 (cash or ‘narrow’ money) and M4 (credit or ‘broad’ money). M4 is provided by Banks and Building Societies or MFIs (Monetary & Financial Institutions).

This graph shows data from the Bank of England with exponential growth for M4 components while M0 remains tiny.

Supplying Money into the Economy as Cash and Credit: 2006

Cash & Credit: MFIs lending to OFCs, PNFCs, the Private and the Household Sector - November 2006

To illustrate the power of lending money at interest, this graph shows interest-free cash (M0) and non-interest bearing (NIB) deposits on the top right. Next is credit (M4) from Monetary and Financial Institutions (MFIs) to Other Financial Corporations (OFCs), Private Non-Financial Corporations (PNFCs), the Private Sector and private households.
Is the Government Running UK plc?\textsuperscript{10}

Taking Budget data from the Treasury’s website, this graph compares the financial power of the Government with the influence of MFI’s supplying the economy with money through credit. Every budget includes debt interest payments.

Money: from Medium of Exchange to Means of Control\textsuperscript{11}

\textbf{GREEN CREDIT AS A “GREEN CARROT”}

20. Greening our environment means funding environmentally beneficial activities such as
   — the energy efficiency of buildings;
   — the transformation of energy supplies; and
   — and the energy quality of transport systems.

21. Instead of using taxation as a “green stick”, it is proposed to use “green credit” as a “green carrot”. Green credit would not only combat climate change but other social problems relating to unemployment, over-indebtedness, bankruptcies and bank scandals besides the perpetual lack of funding for public services.
22. When considering money as a means to encourage change, it has to be exercised at source before consumer level. Originally designed as a medium of exchange, money has become a “carrot of consumption” and a “stick of bank charges” besides the “whip of governmental taxation”.

23. Due to the dominance of credit, producers create environmentally questionable products and need ever more credit for interest payments.

24. In contrast, green taxation would be a “non-clean” instrument that blurs the costs between energy producers and consumers while taxpayers are not given cost-efficient choices between renewable energies. At the same time, corporations use tax heavens at the cost of Government. See www.taxjustice.net

25. For Government and politics to regain some of the credibility lost, it is paramount that renewable sources of energy are funded before consumers are taxed, eg financing research into hydrogen fuels, nuclear fusion and the neutralisation of radio-active waste.

26. In terms of social impact and public opinion, it is more advantageous for Government to use green credit to fund not only the creation of environmentally meaningful jobs but also the products and services of SMEs. This would lead to energy efficient behaviour among producers and consumers that are socially acceptable on ethical as well as financial grounds.

FROM ECONOMIC TO SYSTEMIC ANALYSIS

27. The analysis of the Stern review results in a clear message: not taking strong action now would be too costly.

28. The analysis of the submitter results in new system parameters that could be fed into “3dM modelling software”. This new visualization of multi-dimensional, multi-scale and multi-variant data would allow for understanding the correlations between short-term and long-term processes better. It would provide a tool for not only modelling the future but also monitoring progress—in economics as well as climate change.

FROM ECONOMIC TO SYSTEMIC MODELLING

29. The model used for the Stern report is based on probabilities. The proposed “3dM software”, however, can be used to predict time series of any application. This means that all the parameters that contribute to the PAGE 2002 model—and more—can be fed into the “3dM software” that not only visualizes many dimensions but also forecasts them. As a result, new correlations and ratios can be derived for measuring.

30. “3dM forecasting” has so far only been tested for financial data, with remarkable results for Dow 30 and 16 UK shares. Below is a juxtaposition of Stern parameters and the approach offered by 3D Metrics. Its general methods can be tailored such that correlations can be shown between different economic parameters and between climate data as well as between the two systems together.

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SCENARIOS FOR MEASURES OF CLIMATE CHANGE

The Global Commons Institute—London

31. In the graph below, the logo of the Global Commons Institute shows the exponential rise of emissions in giga tonnes of carbon since 1800. For the USA, China, India, the Rest of the World and the Rest of OECD the logo shows the past growth—and the limits that need to be achieved by 2200, if we want our planet to provide life for future generations.

Contraction and Convergence—A Global Framework

32. Within the internationally widely supported framework called Contraction & Convergence, the North and West of our globe have to contract their emissions so that, together with the South and the East, we can converge towards sustainable levels.

33. It should be obvious to every caring and thinking human being that Business As Usual can NOT go on perpetuating the exponential growth of our past behaviour, but that a limited Earth demands thinking “limits”.

34. Curbing the exponential growth of carbon emissions means curbing the exponential growth of credit in the West that has expanded its economic thinking by calling it “globalization”.

35. Curbing the exponential growth of credit means
   — increasing the money supply through “cash” rather than credit;
   — letting the Government control this growth through the demand for “green credit”; and
   — using the cash : credit ratio as an ethical and green rather than economic money measure.

36. Using money not as a policy-making measure but to marshal human and natural resources should be our primary commitment—not only all over the country but also in Westminster and the City.

RECOMMENDATIONS FOR ACTION

Green Credit for Green Purposes

37. Sir Nicholas said at the launch of his book at the RSA on 15 January that he recommends to double public funding. But he did not specify over which time period or the source of funding.

38. In addition to taxation and borrowing, HM Treasury is recommended to use the not-interest bearing notes and coin measure to raise revenue and fund effective actions to protect our environment.

39. To maximise social impact, effective actions can consist of Government funded job creation besides grants to SMEs and voluntary and non-profit organisations that have 100% probability of being awarded.

40. The urgency of stopping climate change asks for innovation and growth at all levels, including money stock, policy means and money measures.
Publishing the Cash/Credit Ratio of the Money Supply

41. In the spirit of parliamentary scrutiny and freedom of information, the Bank of England is recommended to publish:

— the total money supply;
— the cash/credit ratio in the money supply, and
— the Not Interest Bearing (NIB) share in the money supply.

— the PSBR share in the credit supply;
— averaged interest of M4 and M4 lending as a guideline for Not Interest Bearing green credit limits; and
— not only in monthly and quarterly but also yearly and five-yearly intervals.

Monitoring Budgetary Ratios between Government and City

42. In the spirit of a Labour Government, the Treasury Select Committee is recommended to monitor economic constraints for Government by monitoring the purpose of supplying, spending and making money:

— The Government’s budget (HM Treasury);
— for spending cash or “narrow money” into the economy,
— for Public Spending Borrowing Requirements (PSBR).

— M4 from Monetary and Financial Institutions (MFIs);
— for supplying the economy with credit or “broad” money.

— M4 lending;
— from Private Non-Financial Corporations (PNFIs);
— and Other Financial Corporations (OFCs); and
— for making money out of money through interest-bearing credit.

Evaluating Correlations between Economics and Climate Change

43. The Treasury Select Committee is invited to investigate the advantages of new software methods that can model and monitor the economics of climate change by quantifying its parameters and ratios in new ways.

44. Such “joined up statistics” regarding economics and climate change are likely to lead to new measures and ratios for clarity of understanding.

References


46. Tables are published in weekly, monthly and quarterly intervals, generally starting in 1982, distinguishing between “narrow” money or M0 and “broad” money or M4. Every data series is identified by a 7-letter code such as LPMVQKT.

47. M0 ceased to be published in April 2006.

2. Early Day Motion 408

48. Since 2002, the Forum for Stable Currencies has created a history3 of seven Early Day Motions to recommend investigations into the economics of “public credit” and Government actions for using it.

49. Tabled on 5 December 2006 by Austin Mitchell MP (Grimsby), the latest Early Day Motion is entitled “Public Credit for Public Purposes”. The full text of the EDM is as follows:

“That this House

— knowing that enormous sums of money are necessary to improve public services;
— build a better infrastructure and provide for the well-being of the people;
— and recognising that further huge additional expenditure will now be necessary to combat global warming, reduce carbon emissions and make public buildings, housing and transport carbon neutral;
— points out that there is no prospect of raising such huge but necessary sums through normal channels of taxation and borrowing;
— therefore suggests that the time has come to supplement these by using the power of public credit to increase the amount of publicly-funded money;
— particularly since this has fallen from 20% of the money supply in 1964 to 3% today because the banks have largely taken the issue of credit and taken the seigneurage arising from credit creation for themselves;
— and calls on the Government to use the power of public credit for public purposes; and
— particularly for the huge expenditure necessary to finance the development of carbon neutrality in a good society.

**Won’t Public Credit Mean Inflation?**

50. There is a widespread fear of governments “printing money” because it is believed to cause inflation. However, that is exactly what we have at the moment: the supply of “bank money” keeps growing, while the supply of interest-free “Government money” dwindles.

51. Fortunately, the creation of both cash and credit money is not inflationary, provided it is not-interest bearing. The reason is simple: loans, whether to Government, corporations or individuals, are interest-bearing. But whereas the lender has found means of creating the capital, no separate provision is made for the creation of the interest which has to be found out of an expanding money supply.

**The Inflation Factor**

52. The mechanism of borrowing money to pay interest is inherent in any debt-based money supply and can confidently be described as the inflation factor. When measured in terms of price changes, it changes dramatically depending on the length of time taken into account. A cash/credit ratio, however, would remain a constant guideline for sustainable growth and could also relate to price measures over long time periods.

3. **History of Early Day Motions**

26/06/2002 Using the Public Credit
10/03/2003 Publicly created Money and Monetary Reform
17/12/2003 Public Credit for Public Purposes
07/12/2004 Use of Public Credit for Public Works
22/02/2005 Interest Free Money
22/06/2005 Publicly-Created Money

4. **Contraction & Convergence or C & C**

53. “C & C” is the rights-based, global climate policy framework that has been proposed to the United Nations since 1990 by the Global Commons Institute (GCI), London. It proposes a contraction budget with the goal of equal shares per person globally. http://www.gci.org.uk/links/detail.pdf

5. **The Cash/Credit Ratio**

54. Including the money measure as a basis for setting policy and taking budgetary measures requires considerable changes to current procedures. Above all, people will want to know limits. But it is the unlimited nature of the exponential growth of credit that needs to be counteracted. The sky with its atmospheric deterioration is, in this case, a metaphoric and actual limit.

6. **Michael Rowbotham, The Grip of Death**


7. **The Exponential Rise of National Debt since 1855**

8. The Money Supply Rising Exponentially since 1982

Measuring “economic growth” by comparing the supply of Government money with the supply of bank money would be novel. This transparency has become possible thanks to computers and necessary due to climate change.

9. Supplying Money into the Economy as Cash & Credit: 2006

This graph shows how a mere 3% of the money in circulation consist of interest-free cash, while all other “money” which is supposed to facilitate trade, is credit. Since “interest” is not created separately, more and more credit is required to cope with interest payments.

10. Is the Government Running UK plc?

By comparing M0 and M4 components with the Government’s Budget over a number of years, it becomes apparent how financial institutions increase their influence in terms of financial power. As stated on http://www.bankofengland.co.uk/about/parliament/index.htm, the Bank of England is wholly-owned by Government and thus accountable to Parliament. It further states that the principal means of accountability is via the House of Commons Treasury Select Committee.

11. Money: from Medium of Exchange to Means of Control

What money is, what money values, how it is used and how its usage is measured depends fundamentally on the context. Individually, it has become a means of survival for food and shelter. And it is shocking that all “rich” countries have to cope with homelessness. Nationally, money determines priorities for funding as a policy means. But now we need to think “money” globally—not only across financial institutions thanks to cash machines but also across governments due to climate change.

12. Seigneurage

The difference between the value of money and the cost to produce it. Seigniorage may be counted as revenue for a government when the money that is created is worth more than it costs to produce it. This revenue is often used by governments to finance a portion of their expenditures without having to collect taxes. If, for example, it costs the US Government $0.05 to produce a $1 bill, the seigniorage is $0.95, or the difference between the two amounts.

From http://financial-dictionary.thefreedictionary.com/Seigneurage

13. Seignorage

Seignorage is “The amount of real purchasing power that [a] government can extract from the public by printing money.”—Cukierman 1992 Explanation: When a government prints money, it is in essence borrowing interest-free since it receives goods in exchange for the money, and must accept the money in return only at some future time. It gains further if issuing new money reduces (through inflation) the value of old money by reducing the liability that the old money represents. These gains to a money-issuing government are called “seignorage” revenues. The original meaning of seigniorage was the fee taken by a money issuer (a government) for the cost of minting the money. Money itself, at that time, was intrinsically valuable because it was made of metal. From http://economics.about.com/od/economicsglossary/g/seignorage.htm

14. Seigniorage

Seigniorage, also spelled seignorage13 or seigneurage,12 is the net revenue derived from the issuing of currency. It arises from the difference between the face value of a coin or bank note and the cost of producing, distributing and eventually retiring it from circulation. Seigniorage is an important source of revenue for some national banks. From http://en.wikipedia.org/wiki/Seigniorage

January 2007

Memorandum submitted by the Commission for Integrated Transport

1. The aim of the CfIT research on transport and climate change is “to establish transport’s role as part of wider efforts across the economy to deliver the most cost-effective carbon reductions consistent with the Government’s 2050 aspiration.”
2. The final report will provide what we believe to be the most robust, cost-effective and deliverable policy response to transport and climate change. It will achieve this by:
— Simplifying a complex area.
— Examining the degree of consistency in strategic direction (a coherent plan for the medium- to long-term).
— Examining issues related to aviation (trends and willingness to pay).
— Examining the cost-effectiveness of a range of measures (including how they interact).

SIMPLIFY A COMPLEX AREA
3. The final advice will provide a picture of transport’s current CO₂ contribution (alongside other sectors), and an overview of short- and long-term projections and possible scenarios. It will attempt to condense what is generally considered a complex and confusing topic into simple and easily understood language before examining what more could be done.

EXAMINE THE DEGREE OF CONSISTENCY IN STRATEGIC DIRECTION
4. The report will consider the degree of consistency between existing strategies to mitigate CO₂ emissions within the transport sector, and whether the programmes provide a coherent plan for the long-term.

ISSUES RELATED TO AVIATION
5. The CfIT report will provide an overview of demand and carbon emission trends within the aviation industry (current and forecast), and the impact of this industry on the transport sector’s contribution to climate change. CfIT recently commissioned research on public attitudes towards aviation and climate change (including leisure and business air travellers and non-air travellers). This new research will provide an understanding of, among other things:
— the trade-offs which air travellers are prepared to make (in what way might they change behaviour);
— the key drivers/motivators behind changing attitudes and behaviours; and
— the public’s views on willingness to pay for carbon offsets, either on a voluntary or compulsory basis.

EXAMINE THE COST-EFFECTIVENESS OF A RANGE OF MEASURES
6. The CfIT report will identify which existing measures need to be strengthened to achieve projected emission reductions in the short- to medium-term; which future measures need to be put in place (and when) to achieve more significant long-term reductions; and the interaction between both sets of measures. This analysis will examine the cost-effectiveness of measures both within the transport sector and across other sectors.
7. The measures to be considered will include:
— policy options such as fiscal measures, regulation and trading;
— development of technological solutions; and
— behavioural approaches.

TIMING
8. CfIT will advise Commissioners in spring 2007 on how transport might raise its game on climate change through cost-effective changes to technology, fiscal levers, fuel mix and behaviour.

January 2007

Memorandum submitted by the Joint Nature Conservation Committee
1. The Joint Nature Conservation Committee (JNCC) is the statutory adviser to Government on UK and international nature conservation, on behalf of the Council for Nature Conservation and the Countryside, the Countryside Council for Wales, Natural England and Scottish Natural Heritage. The JNCC’s work contributes to maintaining and enriching biological diversity, conserving geological features and sustaining natural systems.
2. We welcome the opportunity to provide evidence to this inquiry on matters relevant to our statutory remit. We stand ready to provide additional support and advice to Government on climate policy and the conservation of biodiversity, as required.

ENVIRONMENTAL TAXATION

3. We support the use of environmental taxation and other market mechanisms as part of the overall policy package required to conserve and enhance the natural environment. We believe taxation that places an appropriate price on environmental externalities should be a fundamental element of Treasury policy in order to correct various market failures. Environmental taxation is a valuable tool for encouraging sustainable behaviour by government, businesses and individuals.

4. In order to tackle climate change, we recommend that the Treasury should consider using environmental taxes that are specifically targeted at pricing the release of carbon into the atmosphere. Carbon prices must be raised to ensure that the social costs of greenhouse gas (GHG) emissions are incorporated into wider decision making. Carbon taxation has the potential to be a highly efficient policy option, which would help to alter unsustainable behaviour and to stimulate research and development in low-carbon technologies.

5. Environmental taxation provides an opportunity to fund government expenditure to achieve natural environment objectives, particularly to deliver a resilient natural environment and thereby reduce vulnerability to the unavoidable impacts of climate change. Adaptation to climate change is particularly crucial in developing countries and the UK Overseas Territories, and funds from taxation should be channelled accordingly.

ADDITIONAL NATIONAL AND INTERNATIONAL POLICY MEASURES

6. Environmental taxation is not the only means of correcting environmental externalities and ensuring that people pay the full social cost of their actions. Environmental taxation alone will not be sufficient to deal with the critical environmental issues we face nationally and globally. We therefore recommend that the Treasury, working closely with other Government departments, should view taxation as part of an overall environmental policy package, in conjunction with other market- and non-market-based measures, such as emissions trading, education, information dissemination, regulation and technology policy. Many of the additional policies required are covered in the Stern review.

7. Environmental tax policies need to be supplemented by positive incentives that create viable alternatives to unsustainable behaviour. For example, the Treasury should support subsidies to encourage environmentally sustainable land management and research into, and development of, low-carbon technologies.

8. Any future emissions trading scheme for the agriculture, forestry and land management sectors should incorporate a value for enhancing carbon sinks, in order to provide land managers with the financial incentive to become carbon managers, and thereby contribute to the mitigation of GHGs.

9. Many environmental problems are global in nature, such as the loss of biodiversity, degradation of ecosystems, the loss of goods and services that ecosystems provide to human communities, and climate change. Environmental taxation nationally must therefore be strongly supported by innovative measures at the international level. The UK is well positioned to address global climate change adaptation and mitigation policies through an array of mechanisms, including the UN Framework Convention on Climate Change, European Community initiatives, the Gleneagles Dialogue of G8 states and, perhaps most effectively, bilaterally, for example through encouraging other states to align with global policies and providing support for developing countries.

ECONOMIC VALUATION

10. Economic valuation of the benefits of the environment to human well-being can provide a useful foundation for environmental taxation and other market-based policy approaches. As highlighted in the Millennium Ecosystem Assessment, ecosystems provide a wide range of provisioning services, such as food, water, timber, and fibre; regulating services, such as the regulation of climate, floods, disease, wastes, and water quality; cultural services, such as recreation, aesthetic enjoyment, and spiritual fulfilment; and supporting services, such as soil formation, photosynthesis, and nutrient cycling. Treasury policy, including environmental taxation policy, needs to account for the full range of services provided by ecosystems and, where possible, the total economic value of these services.

12 www.maweb.org
11. The JNCC is working with Defra on its Ecosystem Approach Project. This project seeks to understand the multifunctional benefits provided by ecosystems, and includes research into the value of England’s terrestrial ecosystem services. We recommend that the research should be used to support the development and delivery of policies that maintain and enhance the provision of ecosystem services.

Stern Review on the Economics of Climate Change

12. We welcome the findings of the Stern review, and appreciate the use of the tools and language of economics to engage a broad range of stakeholders, both nationally and internationally.

13. The economic analysis of the Stern review was innovative and brought fresh and valuable perspectives to the climate change debate. In particular, we are pleased that the approach explicitly takes into account the role of uncertainty, risk and equity in dealing with climate change. We see this as an essential basis for providing a meaningful and robust economic analysis of the risks of major, irreversible changes to the climate system with non-marginal economic impacts.

14. The approach undertaken in the Stern review is welcomed for its explicit consideration of requirements for inter- and intra-generational equity. We applaud the egalitarian approach to discounting over time.

15. We support the core insight of the economic approach employed by Stern, and encourage the Treasury to act on the risk of potentially catastrophic climate outcomes, rather than on the basis of the expectation of the most likely outcome from climate change.

16. We strongly support the central recommendation of the Stern review for tough, immediate action on climate change.

Interactions between Biodiversity and Climate Change

17. The Millennium Ecosystem Assessment cited climate change as one of the most important direct drivers of global biodiversity loss and changes in ecosystem services, and predicted that its impact would increase over the coming century. Furthermore, interactions between climate change and other direct drivers of biodiversity loss (including habitat transformation, invasion by non-native species, over-exploitation and pollution) are likely to exacerbate the impact of climate change on global biodiversity. The Millennium Ecosystem Assessment concluded that an unprecedented effort will be needed to achieve the World Summit on Sustainable Development target of significantly reducing the rate of global biodiversity loss by 2010. This effort needs to be taken beyond the ‘biodiversity community’ and be mainstreamed into policies addressing all of the drivers of biodiversity loss.

18. Biodiversity and climate interdependencies and interactions are numerous. The Millennium Ecosystem Assessment noted that biodiversity, which underpins ecosystem services, provides a critical climatic regulatory function, thus benefiting human well-being. The Stern review identified that over 18% of global GHG emissions arise from land use change, predominantly deforestation in developing countries. GHG emissions also arise through the degradation of peatlands and wetlands. Global biodiversity is thus an important element for carbon storage and sequestration.

19. There are multiple interdependencies, socially, economically and environmentally, in addressing climate change, and future policy making should capitalise on these potential synergies. Possible benefits from a joined-up approach include:

— reduced impact of climate change on coastal areas due to the role of biodiversity within coastal ecosystems (in particular, intact salt marshes, coral reefs and mangroves) in buffering the impact of, for example, storminess and sea level rise;

— reduced GHG emissions by protecting ecosystems that are significant sinks of carbon dioxide (including oceans, peatlands, wetlands and tropical rainforests) against loss or degradation;

— increased opportunity to reduce poverty and support human development by protecting the ecosystems upon which communities depend for their livelihoods from climatic changes; and

— economic gains by diversifying industry and developing innovative technologies to increase efficiency and support GHG mitigation.

20. Treasury policy on environmental taxation and other measures for addressing global climate change should take into account the interdependencies and interactions between biodiversity and climate.

Ecosystem Approach

21. The JNCC advocates the use of the ecosystem approach in managing natural resources. The core concept of the ecosystem approach is to integrate and manage the range of demands that humans place on the environment, so it can indefinitely support essential goods and services and provide benefits for all without deterioration of the natural environment.
22. The ecosystem approach places people squarely in the centre of environmental decision making, and expects economic valuation of environmental services to be incorporated within the policy process. Application of the ecosystem approach to policy making in the UK and internationally encourages the valuation of ecosystem goods and services, taking change into account (including that arising from climate change). The JNCC encourages the Treasury to use the ecosystem approach to inform the development of climate change policies, thereby stressing the interactions between societal choice, economic valuation, incentives, ecosystem function and thresholds, and promoting the need for adaptation.

OVERSEAS TERRITORIES

23. The UK Overseas Territories are of global importance for their biodiversity. They hold significant numbers of globally threatened species, many of which are endemic and hence are found nowhere else in the world. They also hold regionally or globally important assemblages of species, including seabirds, turtles, cetaceans and corals. However, because of their environmental characteristics, limited human capacity and sector-restricted economies, they are particularly vulnerable to the effects of climate change, including sea level rise, coral bleaching, increased storminess and other extreme weather events. This is likely to impact severely on the UK’s ability to contribute to the WSSD biodiversity target, as well as having damaging social and economic consequences.

24. We believe it is essential that the Treasury’s framework for climate and environmental policy incorporates enhanced support to the Overseas Territories as part of the UK’s wider international engagement, especially to increase their adaptive capacity.

January 2007

Memorandum submitted by D1 Oils plc

SUMMARY

1. The Stern Review urges the UK to take strong action now to avoid the worst impacts of climate change. The Government has taken steps to encourage both consumers and industry to help in this task, but it is clear that policy and fiscal incentives will be necessary to accelerate development. Within the transport sector, the Renewable Transport Fuels Obligation (RTFO) is the key mechanism by which the UK Government intends to deliver its greenhouse gas emissions (GHG) targets.

2. D1 Oils plc (D1) is building a business in the agronomy, refining and trading of inedible vegetable oils to produce biodiesel. D1’s primary feedstock is Jatropha curcas, an oilseed-bearing tree that grows in tropical and semi-tropical climates. D1 is the first and largest global operation involved in the research, cultivation and production of jatropha for sustainable biodiesel. D1 also designs, builds, owns, operates and markets its own proprietary biodiesel refinery technology. D1 currently operates 32,000 tonnes of biodiesel refining capacity in Middlesbrough.

3. D1 supports the Government’s announcement of the RTFO. We recognise that this innovative policy method, which builds on the government’s earlier reduction of the duty paid on biofuels, will be fundamental to supporting the development of an efficient UK biofuels market. However, we would recommend a number of adjustments to the implementation of the RTFO to improve the potential for growth, competitiveness and sustainability of the UK biofuels industry:
   — To revise its biofuel blend targets upwards from 5% in 2010 to 10% in 2015 and 20% in 2020.
   — To amend the current plan to reduce the levels of tax derogation that are the lever to encourage adoption of the RTFO targets.
   — To ensure that the design of the scheme does not discourage the use of higher biofuel blends by large users such as road hauliers, bus companies and local authorities.
   — To ensure that the carbon saving features of each biofuel are recognised commercially within the design detail of the RTFO.

We would also recommend that the Government take the following actions:
   — To support moves at EU level to ensure that sustainable biofuel feedstocks imported to member states, including jatropha, are exempt from import duty.
   — To engage with the auto industry to ensure progress is made to allow vehicle engine warranties to cover use of biofuels blends higher than 5%.

INTRODUCTION TO D1 OILS

1. D1 is a UK-based global producer of biodiesel from renewable crops. We are building a global supply chain that is sustainable and delivers value from “earth to engine” via agronomy, refining and trading of biodiesel and biodiesel feedstocks. Our core belief is that to develop an efficient long-term biodiesel business, we should not rely solely on traditional edible vegetable oils as raw materials for making biodiesel. Edible
oils are an important food source and require good quality arable land, which is increasingly short supply particularly in developing countries. Rather we should develop new crops that can supply biodiesel feedstocks from plants, shrubs and trees producing inedible vegetable oils that will not compete with food crops for available arable land. These oil crops typically grow on a wider range of soil types and therefore need not displace food crops. Our long-term strategy is to import sustainable inedible oil feedstocks into Europe to use for biodiesel production. We are planting our preferred energy crop, *Jatropha curcas*, in a range of countries in the developing world.

2. In addition, we have developed our own biodiesel refinery technology in the UK. We commissioned four refineries in Middlesbrough in 2006. We plan to install further biodiesel capacity during 2007 at Middlesbrough and at our new site at Bromborough on Merseyside. All development and commissioning work was, and continues to be, UK-based.

3. Production of biodiesel commenced last year and this has all been sold into the UK transport market.

**Why Jatropha curcas?**

4. Traditional feedstocks for European production of biodiesel are rape seed and soya oil, which are also used extensively in the food industries. Prices of these two core feedstocks have increased substantially over the last two years and are driven by events far removed from biodiesel or energy use. D1 embarked on a search for alternative feedstocks so as to reduce the risk of food market demand adversely affecting biofuels’ prices in this way.

5. D1 identified *Jatropha curcas* because it produces seeds with a high oil content. Under optimum conditions jatropha seeds can yield up to 40% oil content. Crude jatropha oil (CJO) is inedible and its price is not distorted by competing food uses. Jatropha also has the ability to tolerate a wide range of climates and soil conditions, and has a productive lifespan of over 30 years. The extracted CJO can be refined into high quality biodiesel. D1 Oils is committed to enabling developing countries to benefit from growing energy crops such as jatropha for the production of biodiesel. Developing countries have millions of hectares of land, currently unused, marginal, waste or degraded, that could be suitable for growing jatropha. We believe that *Jatropha curcas* has the potential to become one of the world’s key energy crops.

**RTFO Targets**

6. The RTFO obligates fuel sellers to include a percentage of renewable fuels within their total fuel sales by volume. Fuel sellers will buy renewables (biodiesel for blending into diesel and bioethanol into petrol) from producers like D1. The percentage of renewable fuels required under the RTFO increases over time to reach 5% by 2010.

7. D1 believes that the UK’s target of a 5% blend by volume from 2010 is not sufficiently ambitious. The UK target is less than the target of 5.75% by energy content by 2010 set by the European Commission. When calculated on the basis of energy content, the present UK target percentage amounts to only 3.5%.

8. The Government has not yet published its long-term targets for beyond 2010. We believe that higher long-term targets for biofuel blends are essential for market development and we would urge Government to set more challenging goals for the uptake of biofuels. The European Commission announced on 10 January 2007 its recommendation that biofuels constitute a minimum of 10% by energy content of all transport fuels consumed in Europe by 2020. D1 would suggest that the Government consider altering its biofuels targets from a requirement of percentage by volume to a percentage by energy requirement and revising its targets upwards into line with Commission targets. Short of this, we would recommend that the Government raise its biofuels targets more aggressively to at least 10% by volume by 2015 and set a more ambitious long-term target of 20% by 2020.

**RTFO Scheme Design**

9. The principal mechanism to ensure fuel sellers comply with their obligation is a combination of excise duty relief and penalty payments, designed to reward biodiesel sellers with up to 35 pence per litre (ppl) of biodiesel or ethanol sold to fuel suppliers. This incentive is the encouragement to the renewable fuels industry to produce an alternative to mineral fuels and sits at the heart of the RTFO. It is the key element that will encourage or discourage investment in renewable fuels. However, it is already been announced that the level of the incentive will reduce to 30ppl within two years.

10. The fundamental economic issue influencing the development of the UK biofuels market is the differential between feedstock prices and biofuel sale prices. In the case of biodiesel, at current price levels for mineral diesel and edible vegetable oils biodiesel production and sales margins are under pressure. To encourage and sustain long-term investment in the UK biodiesel industry and minimise market risk, D1 believes that it is essential that the incentives incorporated into the RTFO are maintained at the highest possible level for a longer period than is currently envisaged.
11. D1 believes that it is essential that the biofuels industry receives further clarification on duty incentives. HM Treasury has announced that the excise duty incentive for biodiesel will be maintained at 20 pence per litre (pl) in 2008–09, the first year of the RTFO, with a penalty/buy-out price of 15p in 2008–09, providing a combined incentive of 35ppl. It has been announced that this will fall to 30ppl in 2010–11. A firm commitment from the Government guaranteeing the 35p price for a longer period would better enable the industry to continue to plan, develop and expand and would encourage market stability. D1 would therefore encourage HM Treasury to clarify further how the excise duty incentive and buy-out price package will be split for the year 2010–11. We believe that the UK is in danger of not meeting its GHG emission reduction targets for transport because the incentive may not be sufficient to incentivise biodiesel producers.

12. D1 is also concerned that the design of the RTFO may stifle development of the market for biodiesel blends above 5%. D1 is one of the few companies currently making biodiesel and selling into the UK road transport market and we believe there is a significant appetite for high blend ratios, possibly up to 100%, from UK companies and public bodies running large fleets of lorries, buses and other vehicles. D1 is keen to develop this market and is actively working with road haulage companies in particular to identify the most efficient biodiesel blends. If encouraged, this sector could expand the total UK biofuels market substantially. However, as the RTFO is currently configured, biofuels producers who directly supply fuel to this market rather than working through oil companies and fuel distributors will be forced to bear a greater risk over the future price of buy back certificates. As a result there is concern that the RTFO actually could discourage the direct supply of higher biofuels blends.

13. We find it odd that a scheme aimed at reducing GHG should have this negative impact. A dual policy of promoting both low- and high-blend biofuels has been pursued successfully in other parts of Europe, specifically in Germany and France, and we would welcome similar high blend initiatives in the UK. We believe that this design flaw should be remedied during the system design stage, as it has the potential to expand the total UK market for biodiesel beyond the 5% level if encouraged.

RTFO AND IMPORTED FEEDSTOCKS

14. Imported feedstocks will play a key role in the UK meeting its targets under RTFO. Currently UK agriculture can produce a significant proportion of the UK’s demand for biodiesel and bioethanol, however it will be impossible to meet all demand from domestic agriculture. A mix of home production and imports will be needed.

15. The blends of renewable fuels required by the RTFO should create a demand for biodiesel of around one million tonnes per annum. Currently the UK has the capacity to produce around 720,000 tonnes of rape seed biodiesel from the 570,000 hectares currently growing rapeseed in the UK. However, this does not take into account the food industry’s demand for rape seed oil as a food product. Some 40% of rape seed oil currently goes to food uses. There is potential to increase production using set-aside land to grow rape seed oil. However, it is widely recognized that even with the use of set-aside land, UK agriculture will not be capable of meeting fully the 5% biodiesel target from domestic feedstock production. Furthermore, there are concerns around the expansion of rape seed cultivation, particularly its sustainability as a monocrop, its need for frequent rotation and intensive use of fossil fuel fertilizers. Yields for set-aside lands are also questionable.

16. Imports of biodiesel and biodiesel feedstock will be a major part of the UK biofuels market under the RTFO regime. D1 believes that significant imports will be required to fulfill the 5% target and that blends of up to 20% can only be achieved under the RTFO using imports of sustainable fuels.

CARBON AND SUSTAINABILITY

17. The initial design of the RTFO considers all biodiesels to be equal. The reality is that producing biodiesel from alternative feedstocks from different countries results in different levels of carbon and GHG savings and different environmental impacts. This issue is particularly important, given concerns over the sustainability of producing biodiesel from palm oil, particularly palm oil produced from South East Asian plantations located on land cleared of rainforest. D1 does not support the production of green fuels at the expense of rain forest that has its own intrinsic value not only as a source of biodiversity but also as an essential carbon sink and climate regulator. D1 is a member of the Roundtable on Sustainable Palm Oil (RSPO).

18. We believe that it is important that producers of biofuels which produce the greatest net environmental benefits should be rewarded most. We believe that net environmental benefits should be reflected in the commercial benefits under the RTFO, for example in the value accorded to certificates for fuel supplied. D1 is working closely with other companies and industry bodies to develop relevant criteria to evaluate carbon savings and sustainability of different feedstocks and is keen to introduce new, sustainable feedstocks such as jatropha for testing and evaluation.
**Import Duties on Biofuel Feedstocks**

19. D1 Oils believes that jatropha offers a viable and sustainable raw material for biodiesel and we expect imports of CJO for refining to begin in volume from 2008. Jatropha is an inedible feedstock that can be produced from a sustainable crop and as such matches the criteria for a number of the Government’s environmental policies. We believe that under current EU customs codes, imports of crude jatropha oil are likely to be charged a duty rate of 2.7%. However, palm oil imported into the EU for refining into biodiesel is currently exempt from duty. D1 intends to apply for a similar exemption for jatropha and other sustainable inedible vegetable oils and would look for Government support in applying for this exemption. By facilitating duty free status, jatropha will be able to compete with other feedstocks and benefit considerably the agricultural sectors of developing countries. The import of high volumes of low-cost jatropha oil could contribute significantly towards meeting the UK’s RTFO targets.

20. Furthermore, D1 urges the Government to consider the anomalous position whereby soya oil imported for refining into biodiesel is subject to duty while palm oil is exempt. At the current price levels for mineral diesel and vegetable oils, every additional feedstock cost further weakens the likelihood of the RTFO delivering the Governments targets. D1 believes the EU should instate a level playing field for biodiesel feedstock imports that accords soya and inedible oils, including jatropha, the same exempt status as palm oil.

**Need for Improved Vehicle Warranties for Biofuels**

21. In order for the RTFO targets to be achieved, it follows that regular engines must be able to run effectively on biofuels and that vehicle and engine manufacturers cover such use in their warranties. Many diesel vehicle and engine manufacturers and distributors continue to either completely discourage the use of biodiesel in their engines or to limit the warranty cover to only 5% blends. Vehicle manufacturers in the USA have already raised the level of biodiesel covered by their warranties to up to 20%. Many European manufacturers also warranty vehicles up to this level in the US market, but identical models of vehicle are only warranted to 5% in the EU market.

22. D1 would therefore urge the Government to encourage vehicle and engine manufacturers to be more proactive in developing and modifying engines and parts to enable regular engines to use greater proportions of renewable fuel.

**Conclusion**

23. Currently biodiesel and bioethanol production is a fledging industry in the UK. The success of the RTFO and the extent to which the UK government succeeds in delivering its GHG reduction targets for transport depends to a very great extent on whether the incentives contained within the RTFO are sufficient to persuade companies to invest in new biodiesel and bioethanol capacity.

24. The UK biofuels industry has made significant strides in attracting development and building capacity. However, we believe that more ambitious targets for biofuels blends beyond 2010, coupled with a commitment to retain tax derogation levels at the higher level for longer, would be a significant additional encouragement to the industry. We would also like to ensure that important market sectors, particularly the higher blend market among road haulage companies, are not discouraged by the mechanism, and that sustainable feedstocks are given due commercial weight by the scheme.

25. We would also like to see the Government act at EU-level to ensure that sustainable feedstocks are exempt from import duty. Furthermore, we would welcome greater encouragement by the Government of vehicle and engine manufacturers to enable the same blend levels under warranties in the EU that are now common in markets such as the US.

January 2007

Memorandum submitted by Virgin Atlantic Airways

**Introduction**

1. Virgin Atlantic welcomes the opportunity to contribute to the House of Commons’ Treasury Committee inquiry into climate change and the Stern Review. The timing of this inquiry is particularly apposite, given the recent doubling by HM Treasury of Air Passenger Duty and the publication of the European Commission’s proposed Directive to include aviation in the EU Emissions Trading Scheme. We will not comment on the Stern Review’s assumptions about the science of climate change, or the economics of its global impact, limiting our response to this inquiry to the use of taxation as an instrument to change consumer behaviour and mitigate the environmental footprint of this sector of industry, and alternative international frameworks set out in the Review.
2. Virgin Atlantic is broadly supportive of the main conclusions of the Stern Review; we agree that climate change is best tackled internationally, given the limited impact that can be made by individual national governments acting unilaterally. We too have argued for aviation’s inclusion in an international emissions trading scheme as the best way to achieve emissions reductions in a cost-effective manner. Sir Richard Branson, Chairman of the Virgin Group, has committed to significant investment in renewable energy sources and alternative technologies. We welcome the Stern Review’s recognition that this should be a focus of international spending.

“GREEN” TAXES TARGETED AT TACKLING CLIMATE CHANGE

3. A purely long-haul carrier, operating from Heathrow, Gatwick, and Manchester airports to 28 destinations all around the world, Virgin Atlantic’s five million passengers have seen an increase in Air Passenger Duty from £20 to £40 for Economy travel, and £40 to £80 for Premium Economy and Upper Class travel as a result of the APD rises set out in the 6 December pre-Budget Report. Notwithstanding the legal questions surrounding the application of such an increase to existing bookings, Virgin Atlantic has very real concerns around its efficacy as an “environmental tax”.

4. Air Passenger Duty (APD) was introduced in November 1994, and is referred to by HM Treasury as an “environmental” tax, although at a House of Commons Environmental Audit Committee inquiry in 2004, Treasury Minister John Healey acknowledged that:

5. “The problem with Air Passenger Duty as it stands is that it is a blunt instrument for anyone interested in environmental policy and environmental improvement, essentially it is a per passenger head charge. A plane with the same number of passengers that has the most modern engine technology and the cleanest set of emissions is charged exactly the same rate as the oldest, dirtiest plane in the sky. So clearly if you are interested in environmental policy and objectives then Air Passenger Duty as it stands is not an instrument that is likely to be useful or relevant to the environmental ends.”

6. The Stern Review’s findings would reinforce this opinion. It suggests that environmental taxation can be a useful interim measure (until such time as an international mechanism such as emissions trading can be introduced) but that it should be linked to the external cost of an industry and used to encourage emissions reductions and investment in more environmentally-friendly technologies. APD as a putative “green” tax achieves neither of these objectives. As it bears no relation to the actual emissions generated by a given flight, and is in fact based on a fixed rate per passenger carried, it does not offer any incentive to operate more efficiently or invest in new technologies. Indeed, it does not even cover all flights ex-UK. As a per-passenger charge, it does not apply to freight-only flights, a growing sector of the industry. With freighters, as a generalisation operating older, less fuel efficient aircraft and more polluting aircraft, this would appear to be underline the unsuitability of APD as a “green” tax seeking to address the environmental impact of aviation.

7. Although HM Treasury argues in the December 2006 pre-Budget Report that the new APD rates will deliver carbon emissions savings of around 0.3 million tonnes a year by 2010–11 (or the equivalent of 0.75 million tonnes if the relative impact of non-carbon dioxide emissions are also taken into account) they are not forthcoming on how this would be achieved. For example, if the £2 billion which will be generated annually via the new APD were to be used to invest in carbon set projects at the going commercial rate of £7.50 per tonne, it would more than cover the carbon offsets for the whole of the EU aviation industry, not merely those from flights departing the UK. If the Treasury has based its calculation on the potential impact on consumer behaviour of the increased APD, then this too is open to debate. The Treasury should explain what models of price elasticity of demand it has used in its calculations, particularly given many airlines’ recent experience with the introduction of fuel surcharges.

THE SOCIAL IMPACT OF USING ENVIRONMENTAL TAXATION TO ENCOURAGE BEHAVIOUR CHANGE

8. In its pre-Budget Report, HM Treasury recognised the need to “strike the right balance between economic, social and environmental factors” given aviation’s considerable contribution to the UK. This is also a theme of the Stern Review, which foresees considerable expansion in the air travel sector as part of socioeconomic growth in the developing world.

9. Spokespeople from the Treasury have argued, since the recent tax increase, that APD is a tax on aviation charged on a per passenger basis, not a tax on air passengers per se. If it is the Treasury’s intention that APD should be absorbed by air carriers and included in the price of a fare, then it will do little to educate passengers on the environmental impact of their travel choices or to encourage behaviour change. As the Stern Review argues, “Putting an appropriate price on carbon—explicitly through tax or trading, or implicitly through regulation—means that people are faced with the full social cost of their actions.” APD in its current form is not the right instrument to do this.

10. Although much research shows that it is higher income sections of society that are travelling by air with increasing frequency, it is lower income groups that are most immediately affected by increasing costs. A family of four travelling to Florida for a “once in a lifetime” holiday or to the Far East to visit friends and relatives will have seen the price of their tickets rise by £80 as a result of the APD increase. If it is the Treasury’s intention to dissuade people from travelling long-haul, then it is these groups that will be affected rather than regular business passengers or more affluent leisure travellers.

“GREEN TAXATION” IS A BLUNT INSTRUMENT; WHAT OTHER ECONOMIC INSTRUMENTS CAN BE USED TO ENCOURAGE INDUSTRY TO REDUCE THEIR CONTRIBUTION TO CLIMATE CHANGE AND TO INFLUENCE CONSUMER BEHAVIOUR?

11. The Stern Review sets out a strong case for international aviation’s inclusion in a global emissions trading scheme as an effective way of reducing emissions from air transport and encouraging companies to invest in less polluting technologies, a position which Virgin Atlantic supports. The UK Government is also supportive of the EU Emissions Trading Scheme as the most efficient and cost-effective way for aviation to meet its external costs. By setting caps on the total emissions which can be produced by all sectors of industry, and allowing companies that are better able to reduce their emissions to sell carbon allowances to other companies which may find it more difficult, the overall objective of halting the growth in carbon emissions is achieved. The European Commission’s proposal to extend the scope of the existing EU Emissions Trading Scheme was broadly welcomed by the aviation industry, although there is some concern that by going beyond just intra-EU flights it might become embroiled in lengthy legal wranglings with third countries that would delay its launch.

12. We accept that emissions from aviation are expected to grow substantially over the next few decades, although as a signatory of the UK Sustainable Aviation Strategy we are committed to substantial improvements in the fuel efficiency of our fleet, but the industry will only account for a very small proportion of global greenhouse gas emissions even by 2050. Mechanisms such as Emissions Trading, by effectively rewarding companies which have been able to reduce their emissions over time, encourage research and investment in new, innovative technologies and alternative fuel sources. This is another key conclusion of the Stern Review. Virgin Atlantic’s own Chairman, Sir Richard Branson, has himself committed his profits from the Virgin Group’s transport interests (estimated to be some £3 billion over the next 10 years) to renewable fuel sources and their application to the travel sector. However, by overburdening industry with taxation and other costs, this not only stifles growth but also limits companies’ ability to invest in emerging technologies in this way. Given the considerable socioeconomic benefits associated with air travel and its contribution to the UK economy, this should also be a focus for Government R&D spending. As far as we are aware, none of the estimated £2 billion that will be generated by the new APD rates will be devoted to an environmental cause, although 20% of APD is set aside to fund socioeconomic development in Africa. This in itself demonstrates that the principle of hypothecating APD is accepted by Treasury, so it should be straightforward to hypothecate the remaining 80% for research into more environmentally-friendly aeronautical technologies or measures to mitigate the impact of aviation on climate change.

13. In addition, the Stern Review recognises that the aviation industry has set itself, through the Advisory Council for Aeronautics Research in Europe (ACARE), some very ambitious targets for making aircraft introduced after 2020 at least 50% more fuel efficient per seat kilometre than their equivalents in 2000. This will require significant technological breakthroughs which, as set out in last year’s Sustainable Aviation Strategy, are likely to be met. In the interim, it advocates opportunities for air carriers to operate more efficiently that could go hand in hand with an emissions trading scheme, including “realising the potential to reduce emissions through enhanced air traffic management improvements”.

January 2007

Supplementary memorandum submitted by Virgin Atlantic Airways

Along with representatives of British Airways, easyJet and the British Air Transport Association, I appeared before your Committee on 23 January. While we were pleased that the Committee had decided to conduct an Inquiry into the impact of the Stern Report, I believe we were all surprised at the tone and general direction of the questioning. I thought, therefore, that it might be helpful if I set out in more detail than was possible at the hearing Virgin Atlantic’s own commitment to sustainable development in the airline industry.

Virgin Atlantic believes strongly that it is essential for the public and politicians to recognise that the relationship between the airline industry and the environment is highly complex and to understand the importance of striking the right balance between the growth of the industry and its impact on the environment. No objective observer would dispute that the projected growth of the airline industry will have

a significant impact on the environment. However, nor should anyone ignore the critical importance of aviation in sustaining UK and global economic growth (a theme addressed in Sir Rod Eddington’s recent Transport Review) and enabling people to extend their horizons by undertaking airline travel.

Contrary to the implications of the Committee’s questioning and your letter of 30 January to the Financial

Times, it is simply not the case that all airlines are adopting the same “head in the sand” approach, nor that the industry is resting on its laurels. As I will explain below, Virgin Atlantic is taking a prominent lead in addressing aviation’s environmental sustainability. I am pleased to say that our role is being increasingly recognized. Only last week, research carried out by TripVision found that “Virgin Atlantic is perceived to be the most eco-friendly airline by consumers.” We should not all be judged by the statements of one Irish airline Chief Executive.

Virgin Atlantic is certainly not burying its head in the sand. Quite the reverse, we are leading the way. All the staff of the airline are as worried about the state of the environment as everyone else. We know that aviation accounts for a significant amount of CO2 emissions and other harmful materials. We believe that action must be taken as a matter of urgency to address the impact of climate change and mitigate the contribution made by transport.

Permit me to mention just some of the initiatives we have launched to reduce our environmental impact:

— we have invested heavily in one of the youngest and most fuel efficient aircraft fleets in the industry;
— we have launched an experiment, in co-operation with certain airports and air traffic control providers, to tow aircraft on the ground rather than have them taxi for lengthy periods. If the experiment is successful it will result in significant fuel savings, and therefore a major reduction in emissions at airports;
— we are working with air traffic control providers to introduce “continuous descent” by aircraft on landing, which again potentially will save both fuel and emissions; and
— Sir Richard Branson has undertaken to invest all the profits from his transport companies, estimated to be some $3 billion over the next 10 years, in research to develop alternative fuels. He has also launched a major prize to encourage research into the removal of harmful emissions from the atmosphere.

It is easy to be cynical about these types of initiatives, and there are some environmentalists (and apparently the Bishop of London) who refuse to believe that aviation is anything other than evil. But at least we are trying to do something, as indeed is the UK aviation industry as a whole through the Sustainable Aviation programme. We would be delighted to consider any constructive ideas you and your fellow Committee members might have.

I referred earlier to the need for a properly informed public debate. Like many others in the aviation industry, I am very concerned by the fundamental errors in much public discussion of the impact of aviation on the environment. This is not an “either/or” situation. It is wrong to assert the need for a limit on the growth of airlines to protect the environment. A sensible balance can, indeed must, be struck which allows aviation to remain a driving force of economic growth and social development without unacceptable environmental damage.

It is too frequently overlooked that airlines have an excellent record of improving their environmental performance. Gloomy predictions about future emissions make no allowance for the likelihood that the airline industry will sustain that progress. Virgin Atlantic remains fully committed to achieving this goal, and will continue to play a leading role.

As I made clear in our written submission and at the hearing, Virgin Atlantic believes that future policy must focus on mechanisms which stimulate beneficial change, such as emissions trading. We therefore warmly welcome Sir Nicholas’ Stern’s strong endorsement of an expansion to this process. We believe that the EU Emissions Trading Scheme will be the best way to bring about meaningful change in the aviation industry, as it will provide positive encouragement, via an effective market mechanism, for companies to invest in more fuel-efficient and environmentally-friendly technologies to reduce fuel consumption. In this respect especially, emissions trading contrasts with crude taxation measures such as the UK’s APD.

I hope you will conclude from this brief account that all airlines are not the same, and that Virgin Atlantic is in the vanguard of action to minimise the impact of the growth of the airline industry on the environment. We are fully committed to sound principles, and will do all that we can to help ensure that they become enshrined practice throughout the industry. We would be pleased to provide any further information you and the Committee might find helpful.

February 2007

Memorandum submitted by PricewaterhouseCoopers LLP

This paper covers the following:

— It sets out what we believe the overall objectives on climate change to be, and the tools that are available to help achieve these objectives.
—— It summarises what has been implemented by Government in recent years with a focus on environmental taxation.

—— We raise a number of issues that we think are relevant in the context of the current fiscal and regulatory environment.

—— We briefly review the most recent announcements made in the Pre-Budget Report.

—— We offer some final conclusions and comment.

WHAT ARE WE TRYING TO ACHIEVE AND HOW?

1. Recent economic studies undertaken at PwC which were published last year in our report, “The world in 2050: implications of global growth for carbon emissions and climate change policy”, show that emissions might more than double by 2050 on certain baseline assumptions. To protect the climate we estimated that global emissions would need to peak by 2025 at levels no more than around 10% above 2004, and then to reduce to at least 15% below 2004 levels by 2050.

2. Our report indicates that a viable strategy to achieve the reductions mentioned needs to involve three broad strands:

   — a greener fuel mix with more focus on natural gas, nuclear and renewables;
   — energy efficiency and conservation particularly for vehicles and buildings; and
   — investment in carbon capture and storage.

3. Government policies are therefore required to assist with these measures, and environmental taxes are certainly one way of helping with the methods outlined above. In its statement of intent, Government says that it believes that environmental taxes and other economic instruments are key tools for achieving environmental improvements.

4. The Stern report on the economics of climate change underlines predictions of dire social and financial consequences if mankind continues to produce greenhouse gases at the current rate. It highlights three key policy elements available to Government: Carbon pricing, technology policy and the removal of barriers to behavioural change. In the light of the Stern report, PricewaterhouseCoopers supports the view that Government needs to actively consider the instruments which are at its disposal and should reassess how best to deploy them to tackle climate change.

5. The principal economic instruments available are:
   
   Carbon taxes (and hybrids such as taxes on energy).
   
   Carbon emission trading.
   
   Induced technological change.

6. In principle, carbon taxes are designed to impose tax on the source of pollution at a level which represents the cost to society of the pollution (the externality). Assessing the level of cost that should be applied is not easy for various reasons, including predicting the environmental impacts and the need to set the tax on a national basis when the externalities occur on a global basis.

7. Carbon emissions trading sets the overall quantity of what is perceived to be an acceptable level for emissions, and allows the market to set the price. Trading arises between those who individually have a surplus of allowances and those who have a shortfall.

8. Induced technological change includes implementing a wide mix of policies to assist with investment, and encouraging private investment, promoting research and development and the sharing of technology.

9. HM Treasury is responsible for reviewing the appropriateness of these economic instruments and possible hybrids, to encourage each of the three fundamental strands specified and so facilitate the reduction of emissions as outlined above. The emphasis must be on encouraging behavioural change, although to the extent that funds can be raised by taxing pollution and waste, and ring-fenced for use in connection with the climate change agenda, then that could be a justifiable policy to pursue from an environmental perspective.

WHAT HAS BEEN DONE IN RECENT YEARS?

10. Over the last few years a number of additions and changes have been made to the tax and regulatory system. These changes have forced business to address environmental issues by having an obligation to understand and comply with the new legislation and regulation.

11. The new elements include a number of new taxes such as landfill tax, aggregates levy and climate change levy, which have added to existing environmentally related taxes such as vehicle excise duty, fuel duties and air passenger duty, while noting that these existing taxes would probably not have been labelled “environmental taxes” when they were first introduced.

12. There are also now a number of specific incentives within the fiscal system. The list includes Enhanced Capital Allowances and reduced VAT rates for environment related expenditures, Land Remediation relief, reliefs for Micro generation technology, and tax differentials for the use of more environmentally friendly
cars and biofuels. More general reliefs such as Research and Development credits may also be considered helpful to environmental objectives. A general observation on tax incentives is that business generally considers that increased incentives are needed to encourage “good” behaviour. Existing incentives should be reviewed to ensure that they are properly publicised and adequate in providing relief for environmentally beneficial expenditures. Our research suggests that, especially for privately owned business, very few companies are aware of, or access, the corporate tax reliefs currently available.

13. In addition to this tax-related legislation, there is voluminous regulation that companies now have to manage and comply with. The EU Emissions Trading Scheme is probably the most well known example of these, but substantial obligations also arise under the Waste Packaging regulations, Renewable Obligations and Building Regulations to name just a few with a new European Directive on Waste Electrical and Electronic Equipment and the potential for new road pricing policies also to bear in mind.

WHAT ARE THE ISSUES?

14. Complexity—Even before we consider the additional environmental taxes, incentives and regulations that have been mentioned, the UK tax system is voluminous and is growing relentlessly with each passing Budget and PBR.

15. Resource—The current regime requires companies to invest in IT and knowledgeable personnel (potentially whole departments), dedicated to dealing with environmental obligations.

16. Competitiveness—If other countries are not implementing similar systems to deal with climate change and environmental issues, we run the risk of industry leaving the UK and/or Europe. This might lead to the migration of industries which pollute so that they can pollute elsewhere—a short-term “win” for the UK, perhaps, but not really achieving the aim of the provisions.

17. Certainty—In order for business to fully engage and commit to an environmental strategy implemented by Government, they need certainty and long-term consistency in policy decisions that stretch beyond the term of a parliament or indeed of a particular Government. The environment needs long-term investment and certainty to encourage such investment.

18. Trust, confidence and effectiveness—Business needs to buy into Government policy, to believe that it is seriously trying to change behaviour and that its policies are not just designed to raise more revenue or, if they are, that they are assisting the achievement of environmental goals by funding bespoke Government environmental objectives and projects.

19. Who to speak to—This is becoming more difficult to establish in view of the number of Government departments now interested and working on these issues. There are also numerous initiatives, programmes and associations which have been set up in recent years. There is now perhaps a perception that the setting of Government policy needs to be more focused.

THE IMPACT OF THE LATEST PBR ANNOUNCEMENTS

20. There was extensive comment on environmental issues in the most recent PBR, but we remain to be convinced that the measures announced will really be effective in helping to achieve the changes required.

21. There is a focus on the EU Emissions Trading scheme and generally we think that industry welcomes this mechanism as one which can deal with the competitiveness issues if applied consistently in an international context. We should not forget however the administrative burdens and the complexity that comes with the scheme, and if it is perceived that there is duplication of effort here by an overlap with other elements of the tax and regulatory regime, then simplification and rationalisation will be matters to seriously consider. Uncertainties, inconsistencies and anomalies on both accounting and taxation continue with regard to the scheme and need to be resolved. The current consultation on the Energy Performance Commitment, which would extend emissions trading to industries not currently within the EUETS, should focus on the lessons learned from the first two years of the EUETS.

22. The measures announced in connection with carbon capture and storage are welcome in light of the enormous potential for storage of CO₂ in the depleted oil and gas wells and saline aquifers of the North Sea. Currently there is no agreed basis for the taxation of Carbon Capture Storage (CCS) in the UK. Government policy in the tax arena here needs to be stable, coherent and consistent if industry is to make the long term investment that CCS will require. The consultations and engineering studies announced to evaluate associated costs, and collaboration with Norway in relation to a joint study are good initiatives as is the opportunity to convene a joint HMRC/ industry work group to provide clarity on the tax position where oil and gas fields in the North Sea undergo a change in use of infrastructure to one of carbon storage.

23. Air Passenger Duty was introduced in 1994 at £5, increased in 1997 to £10, reduced again to £5 for economy class in 2001 and now doubled to £10 for EU flights and £40 for long-haul flights. The change adds to the cost for business and personal travel but it is doubtful that it will change behaviours. The change creates more uncertainty and the tax is not well targeted to carbon emissions, being a largely undifferentiated tax on travel. The proposed inclusion of aviation in the EUETS will perhaps be more effective.
24. The increase in fuel duty by 1.25p per litre is unlikely to significantly impact traffic volumes and fuel consumption and for this reason alone is unlikely to meet the test of an effective environmental tax. To promote it as such undermines trust and confidence in the underlying objectives of the policy.

25. Zero carbon housing and the proposed related time limited stamp duty relief is a good idea but raises at the same time the question of whether sufficient incentive is provided for energy efficiency in the far larger existing housing stock.

OVERALL CONCLUSIONS

26. With environmental issues clearly claiming a large part of the political agenda, and in light of recent economic reports including Stern, we could expect the recent PBR statement to have announced and implemented more strategic measures to provide business with the long term policy framework required for business to help in tackling climate change. Clarity and certainty are required along with a system which encourages and incentivises environmentally beneficial business behaviour and investment. The regime we have at present arguably does not provide that, and the most recent changes have done little to move us in the right direction, but at least we know that the technologies to achieve the goals exist, and that Government does have the issue firmly on its agenda. There seems to be a commitment to looking at the issues with an international perspective, and this will be important to ensure that the US and the rapidly growing economies of China and India are drawn into setting international policies which are then able to achieve the necessary goals.

January 2007

Memorandum submitted by the Micropower Council

1. 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

2. The Micropower Council is not in a position to respond to all of the questions posed by the committee and does not have an in-depth understanding of the wider aspects of economics of climate change investigated and reported so thoroughly in the Stern Report and so has limited its submission to the more practical issues of where the current fiscal regime acts as a barrier to the installation of zero/low carbon technologies in the small business/domestic sector and how it could be used to create a positive incentive to encourage businesses and individuals to make the right carbon/energy decisions.

EXECUTIVE SUMMARY

3. The creation of a fiscal regime that gives the right energy/carbon incentives in the form of carrots and sticks to businesses, communities, and the individual is an essential element of any effective strategy for tackling climate change. We therefore welcome the Treasury Committee’s very timely inquiry into this issue.

4. The domestic energy sector accounts for 28% of total carbon emissions within the UK; it is therefore essential that Government uses the full suite of policy measures available to it to maximise the use of low and zero carbon energy solutions within the domestic sector. We therefore call on Government to develop and implement a comprehensive “Fiscal Strategy for the promotion of low carbon solutions within the domestic sector” that would cover energy efficiency and microgeneration (heat and power) measures.

GENERAL OBSERVATION

5. The personal engagement of individuals in energy and climate change decisions is crucial if Government is to meet its long-term climate change objectives and microgeneration is an important element of any strategy for achieving that engagement.

17 The Energy Review July 2006 (taken/derived from section 2 Charts 4 and 5).
6. Microgeneration not only offers the consumer real choice about where the energy they use comes from, and its carbon impact, it also reconnects consumers with their use of energy and results in positive behaviour change. We note the comment of the Sustainable Consumption Roundtable on the results of a recent study:

“The most striking finding is the difference in ‘energy intelligence’ between mainstream households with no micro-generation and those who have acquired the technologies passively .... Having come from a similar starting point, these new DIY energy generators exhibit in general a wholly new grasp of energy issues and control over their energy use”.

7. The fiscal regime is a key element of the strategy for creating an environment in which individuals will be encouraged to install these technologies.

RESPONSE TO THE QUESTIONS POSED BY THE COMMITTEE

8. Our submission attempts to address aspects of the following three questions in the context of the domestic/small business microgeneration sector:

— the Government’s use of environmental or “green” taxes that are specifically targeted at tackling climate change;
— the extent to which the Government uses environmental taxation to encourage behavioural change, rather than solely to raise revenue, and the social impact of such taxation; and
— looking forward, the appropriate role of environmental taxation, in the context of the range of means by which the Government can seek to achieve its environmental policy aims—for example, by means of regulation, a voluntary agreement or a spending measure.

9. We agree with the Government’s view, as stated in the recent Energy Review, that the “principle that fiscal measures can play a part in achieving our environmental goals has been established”.

10. Fiscal measures can be used to:

— reduce the cost of low carbon-energy solutions to consumers;
— raise awareness of clean, low carbon, microgeneration/energy efficiency options; and
— provide effective mechanisms for reflecting the cost of carbon into energy decisions and rewarding those that opt for low carbon solutions or penalizing those that choose the high carbon options.

11. All of which are effective drivers for behavioural change. Equally, badly designed fiscal arrangements can act as a drag on the development of the clean energy market and/or limit the sectors able to make an environmentally friendly choice.

12. In light of this we welcome Government’s first tentative steps to use fiscal measures to promote uptake of low carbon solutions and address existing fiscal barriers, within the domestic energy sector, that were announced in the Pre-Budget Report (exemption from stamp duty on zero carbon new build housing and clarification of the rules on income tax liability for the sale of exported excess electricity). However, these measures are relatively minor in their coverage and effective and urgent action is needed to remove other existing fiscal barriers to the widescale deployment of zero and low carbon energy solutions and to use the fiscal regime more creatively in order to promote low carbon solutions across the whole domestic sector.

13. In this context we wish to draw the committee’s attention to two fiscal barriers that could severely affect the uptake of low/zero carbon microgeneration within some sectors and seven fiscal incentives that could be used to encourage low carbon/energy solutions.

14. There may also be other measures that could be used to deliver cost-effective incentives to make the “right” energy/carbon choice. We suggest that Government needs to consider all the options and develop and implement a comprehensive fiscal strategy for the promotion of low carbon solutions within the domestic sector.

Barrier 1—tax treatment of companies installing, and leasing, microgeneration in domestic premises

15. Businesses installing microgeneration in their business premises are able to claim capital allowances (and often enhanced capital allowances) against the cost of the installation and are then taxed on any profits generated through the sale of the energy produced or cost savings from reduced energy purchases.

16. However, where a business installs microgeneration within domestic customers’ premises but retains ownership of the equipment and either leases the equipment to the customer, or is paid for the energy
delivered, it is liable for tax on any profits generated but does NOT have access to any form of capital allowances to allow it to offset the capital cost of the installation that would normally be available for business investments.

17. This limits the evolution of cost-effective mechanisms for delivering low/zero carbon microgeneration technologies to the less well-off sectors of society.

**Barrier 2—rateable value of premises with microgeneration**

18. The installation of microgeneration equipment in business premises can lead to an increase in rateable value.

19. Prior to 2006 the measure used to establish the magnitude of the increase for electricity generating equipment (prescribed assessment) would have resulted in relatively low increase in rateable value (for example the rateable value of for wind installations was £5/kW). 20 However, in 2006 the prescribed assessment methodology fell away. The new methodology that we have been advised is being used (the “contractors basis”) is likely to result in an increase in rateable value of 5% of the replacement or, for new installations, the installation cost of the microgeneration equipment. Based on a very rough figure of £4,000/kW 21 for a small free standing turbine this equates to £200/kW. This is a 40 fold tax increase for a zero carbon technology at a time when estimates of the social cost of carbon are increasing.

20. Rates payable are approximately 43p in the £ and this increase in annual costs can erode much of the value of the energy produced reducing, very substantially, the attractiveness of such investments. The potential for rate increases of this magnitude could act as a major deterrent to the uptake of microgeneration.

21. We are unsure how, or whether, installation of heat based microgeneration are subject to similar problems and whether there are any implications for council tax liability for domestic installations and suggest that these also need to be investigated.

**Incentive 1—Council Tax**

22. We believe that Council Tax liability should be based on both property value and energy/carbon rating—this is analogous to current arrangements for vehicle excise duty. Changes could be implemented so that the net amount of council tax revenue is unchanged.

23. In the short- to medium-term, council tax rebates could be given for households installing energy efficiency and/or microgeneration (with higher rebates or rebates over a number of years for higher cost measures). Experience of the Centrica/Braintree initiative, where a rebate is available for certain energy efficiency measures, suggests that this could be a particularly effective and potent measure.

**Incentive 2—Stamp Duty Exemption/Rebate**

24. New build is a relatively small proportion of the total housing market and the implications of only allowing stamp duty exemption on first sale and not resale need careful consideration. Consequently, we suggest that the new time-limited measure to exempt zero carbon new build from stamp duty should be extended to the entire housing sector to provide a strong incentive to promote low carbon solutions across the whole housing market. We also suggest that the threshold for qualification should be lower in existing homes market because of the higher cost of improving the energy performance of existing buildings.

**Incentive 3—Tax exemption on employer supported green loans**

25. Allowing employers to provide loans to employees to cover the cost of measures Government wishes to promote (home computers and bicycles) repayable via “salary sacrifice”, without requiring any benefits accruing under such loans to be declared for tax and NICs purposes have, in the past, proved enormously successful in promoting uptake and could easily be extended to the green energy/microgeneration sector.

**Incentive 4—Tax allowances on capital expenditure**

26. Allowing individuals installing microgeneration to claim tax relief on the capital cost of the installation. This measure would have the major benefit of reducing the capital cost of purchasing/installing some of the more costly technologies in a similar way to business which already benefits from similar allowances.

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21 This figure is based on private discussions with a manufacturer and should be treated as only broadly indicative of installed costs. The actual cost will depend on the make/model and size of installation and how it is installed.
Incentive 5—Tax credits against loans

27. Allowing individuals obtaining loans (or mortgage extensions) specifically for the purposes of funding major energy efficiency/microgeneration installations (above a de minimis level) to off-set the cost of the annual loan repayments against their annual tax liability). Such mortgages are particularly attractive where any increase in mortgage repayment costs to cover investment in energy efficiency and microgeneration are, in effect, self-financing because they can be offset by lower annual energy costs.

Incentive 6—Measures to incentivise landlords

28. The “Landlord’s Energy Saving Allowance” currently provides up-front relief, for landlords, on capital expenditure for installations of loft, cavity, and solid wall insulation in rented accommodation. Equivalent measures are now needed for investments in other forms of energy efficiency and microgeneration if we are to be able to tackle carbon emissions from the rented sector and give access to lower cost energy solutions to tenants.

Incentive 7—Reduced Planning Gain Supplement

29. Kate Barker’s 2004 report on housing supply recommended that the Government should actively pursue measures to share in the windfall development gains accruing to landowners when they sell land for housing. She suggested the introduction of a “planning gain supplement” as a way of doing this. Developers could be incentivised through liability for a reduced supplement for new build that reaches certain sustainability criteria (including microgeneration).

January 2007

Memorandum submitted by CPRE

CPRE is pleased to make a brief submission to your inquiry on Climate Change and the Stern Review: Implications for HM Treasury Policy for Tax and the Environment. We campaign for the long-term protection of the beauty, tranquillity and diversity of the countryside and for sustainable rural communities. We wholly endorse the Stern Review’s conclusions about the need for urgent, substantial action to stabilise greenhouse gas emissions.

In particular, we welcome the Review’s recognition of the importance of spatial or land use planning to balance “a complex range of economic, social and environmental objectives” and to help stabilise climate change by maximising spatial efficiency in urban development, reducing energy consumption and the need to travel. We note that, in this regard, the Review identifies the need for “land use controls such as restrictions in the availability and pricing of parking spaces”, and land use zonal strategies to support integrated public transport and reduce the need for cars.

By contrast, the Barker Review of Land Use Planning fails to make any connection between the climate change imperative and the consequences of its main recommendations. CPRE’s critique of the Barker Review of Land Use Planning, which will soon be publicly available, finds that the implementation of many of the Barker Review recommendations would be likely to make climate change worse.

A serious response to climate change should require a different approach to planning policy changes to those proposed by the Barker Review. For example, these changes should strengthen economic localism, reduce travel and transport, strengthen the containment of towns, resist urban sprawl, promote energy-efficient built forms such as terraces and flats, and prioritise low carbon neighbourhood combined heat and power. Other changes should involve prioritising low carbon alternatives such as provision for cycling, buses and trains while stemming the increase of air and long-distance car travel.

We agree with the Stern Review that any fiscal scheme or tax should target the aviation industry’s full contribution to climate change. We urge that you consider removing the tax breaks which aviation enjoys, including tax-free fuel and zero-rated VAT on all aspects of aviation. Calculations by Brendon Sewill of CPRE in Fly Now, Grieve Later (2003) assess the value of these tax breaks at £9 billion a year. Removing such exemptions would have a significant impact on reducing the demand for air travel and air freight.

We also urge you to recommend that the Kyoto Protocol should include the aviation industry. There can be no justification for the aviation industry’s continuing exemption from the Protocol. Air travel is the fastest growing source of greenhouse gases in the UK. If it is committed to stabilising the climate change, the Government should seek to control air travel and review its airport expansion plans.
We note that the Stern Review presents fuel taxes as a “close proxy for a carbon tax because fuel consumption closely reflects emissions”. Since the fuel duty escalator has already been implemented in the UK, we advocate the immediate re-instatement of the escalator to check the increase in carbon dioxide emissions from transport.

January 2007

Memorandum submitted by EEF, the Manufacturers’ Organisation

INTRODUCTION

1. EEF is the representative voice of manufacturing, engineering and technology-based businesses with a membership of 6,000 companies employing around 800,000 people. Comprising 11 regional EEF Associations, the Engineering Construction Industries Association (ECIA) and UK Steel, EEF is one of the leading providers of business services in employment relations and employment law, health, safety and environment, manufacturing performance, education, training and skills.

2. This note is a submission in response to the House of Commons Treasury Select Committee’s call for evidence on the implications of climate change and the Stern Review for HM Treasury tax policy.

EXECUTIVE SUMMARY

3. In 1997, HM Treasury published a “Statement of Intent” in which it undertook to reform the tax system to “increase incentives to reduce environmental damage”. Since the statement, the government has increased the rates of some pre-existing environmental taxes and introduced new taxes.

4. The Climate Change Levy (CCL) is a tax on energy consumption by businesses. The tax is a blunt instrument which is in urgent need of reform. It fails to differentiate adequately between the carbon intensity of fuels, does nothing to tackle the significant emissions from the domestic and transport sectors, and has a disproportionate impact on certain sectors of the economy such as manufacturing.

5. Determining the impact and purpose of environmental taxes can be difficult. Businesses make decisions based on an array of factors and are subject to a number of competing influences. In addition, based on recent experience in the UK, there is no clear relationship between government rate setting, the trend in tax revenues or the environmental outcomes of taxation.

6. The Stern Review identified the establishment of an international carbon price as an essential part of climate change policy. However, compared to emissions trading, taxation lacks the flexibility to respond to changing circumstances and any government determined rate would run the risk of significantly under- or over-estimating the cost of carbon. In addition, harmonising a carbon tax across multiple jurisdictions could be very challenging.

7. Considerable scope for improvement exists in environmental taxation. Efforts should be focused on aligning tax rates with environmental objectives, ensuring that the incentives provided by taxation are consistent and spreading the burden of taxation across the economy.

8. Taxation is not an effective tool through which to establish an international carbon price and its role in internalising the cost of carbon should be limited, at most, to those areas of the economy for which emissions trading would be too onerous.

EXISTING ENVIRONMENTAL TAXATION

9. In 1997, the government issued a “Statement of Intent on Environmental Taxation” in which it undertook to “reform the tax system to increase incentives to reduce environmental damage”. A commitment was made to deliver environmental objectives through ‘good taxation’ that avoids “undesirable side-effects” and to shift the burden of tax from “goods” to “bads”. The examples of “undesirable side-effects” cited included unacceptable distributional impacts and negative implications for international competitiveness.

10. Since 1997, the government has increased the rate of some pre-existing environmental taxes, introduced new taxes and reduced VAT on several energy-related goods and services.

Pre-existing Taxes

11. The “Landfill Tax”, introduced by the previous government in 1996, is a tax on the disposal of waste in landfill sites. Since its introduction, receipts from the tax have risen significantly in real terms, the standard rate has trebled and total waste reported has declined. However, the tax does not appear to have been the most significant factor in the recent reduction in landfill disposals. For EEF members, regulation has been the main driver—primarily the ban on “co-disposal” and the introduction of hazardous waste regulation. These regulations have had a greater impact on the economics of waste disposal than the Landfill Tax.

22 See www.eef.org.uk for further information.
23 See HMRC’s www.tradeinfo.com website.
12. A portion of the receipts from the Landfill Tax is currently hypothecated to the ‘Business Resource Efficiency and Waste’ (BREW) programme. BREW funds a number of schemes that help businesses minimise their waste (eg R&D) and improve their resource efficiency (eg recycling infrastructure). However, EEF understands that the original sum identified for BREW funding could be cut as part of DEFRA-wide budget tightening. If our understanding is correct, this is disappointing and counter to the way in which BREW was promoted to industry (ie that the funds would be ring-fenced for support to business).

New Taxes

13. The Aggregates Levy, introduced in 2002, is a tax on the quarrying of primary sand, gravel and rock—ie “aggregates”. Since its introduction, receipts have declined slightly in real terms, the rate has remained unchanged and the total volume of material extracted has increased.24

14. The Climate Change Levy (CCL), introduced in 2001, is a tax on the consumption of energy by business. Receipts peaked in 2002 but have gradually declined in real terms since. The rates on all fuels were frozen when the CCL was introduced, but in Budget 2006 it was announced that the levy would rise annually in line with inflation starting from 1 April 2007. UK green house gas emissions have remained relatively stable between 2001 and 2005. However, the CCL is a blunt instrument in urgent need of reform.

15. The CCL does not adequately differentiate between fuels on the basis of their carbon content and hence does not send a clear and consistent signal in favour of lower carbon technologies. First, whilst renewable energy and combined heat and power (CHP) are exempt, nuclear energy is not. Second, natural gas and coal are taxed at the same rate, despite the latter being significantly more polluting. Third, the rate at which electricity is taxed is fixed and based on the non-renewable generation mix prevailing in 1999—meaning that the CCL takes no account of any subsequent decarbonisation of electricity, a major policy objective for government.

16. The CCL also fails to address greenhouse emissions arising from energy consumption in the domestic and transport sectors, which each account for approximately a third of national consumption. Both sectors are completely exempt and the full burden of the tax falls on business.

17. Finally, the CCL was introduced as part of a supposedly “revenue neutral” package in which it was accompanied by an “offsetting” rebate to employers’ national insurance contributions. However, not only was the “offset” not maintained over time because national insurance contributions have increased significantly in the interim, but the package discriminated against certain sectors of the economy. For example, manufacturing, which tends to be relatively energy-intensive but not labour intensive, has been a net loser from the “package”.

18. One successful aspect of the CCL approach is the Climate Change Agreement (CCA), whereby energy intensive sectors have the opportunity to benefit from a rebate of up to 80% on their CCL bills in exchange for entering into binding agreements to improve their energy efficiency. Research carried out by EEF indicates that not only are businesses party to a CCA more likely to invest in energy efficiency measures than those who are not, but that they have also developed a more energy conscious culture throughout the company as a result.

19. However, as with the Landfill Tax, EEF has concerns with the manner in which revenues hypothecated from the CCL are used. Arguably, it discriminates against smaller businesses. The Carbon Trust, funded largely through the CCL, only offers free energy audits to those companies with annual energy bills in excess of £50,000.

VAT

20. Government has reduced the rate of VAT on a number of energy-related goods and services. However, these reductions have not been consistent and have sent out confusing environmental signals. Since 1997, reduced VAT rates have been extended to the installation of energy saving materials and to domestic energy consumption. Reducing VAT on domestic energy consumption dampens incentives to be more energy efficient. EEF acknowledges that fuel poverty is a serious issue that needs to be addressed, but does not believe that a blanket reduction in VAT on energy consumption across all households is the answer. Environmental and social objectives might be better achieved by providing targeted financial support (as the Winter Fuel Payment does) and energy efficiency advice to fuel-poor households.

Conclusions

21. Isolating the impact of taxes from other factors influencing company behaviour is difficult, particularly in the context of climate change. Both company behaviour and greenhouse emissions are driven by a wide array of complex and often interrelated factors—including the general economic climate, a company or sector’s particular economic situation, a wide range of government policies and the availability

24 See HMRC’s www.tradeinfo.com website.
of abatement options to name but a few. For example, isolating the impact of the CCL from that of energy inflation and other energy efficiency policies is not easy. Moreover, it can never be conclusively proved what behaviour would have been in the absence of a particular tax or rate change.

22. Moreover, the data on trends in environmental tax rates, receipts and the associated environmental outcome do not provide a clear picture as to the primary purpose of these taxes. There is no clear relationship between government decisions on rates and either tax receipts or environmental outcomes. For example, the Landfill Tax has been characterised by rising revenues, rising rates and declining volumes of waste whereas the Aggregates Levy by declining receipts, static rates and increasing extraction. Hence it is difficult to conclude whether environmental taxation has been used predominantly to induce behavioural changes or to raise revenue.25

23. In summary, government has retained and implemented a number of taxes designed to discourage environmentally damaging behaviour. However, their impact is unclear and there is considerable scope for improving a number of these taxes to make them both fairer and more effective.

**Implications the Stern Review for Taxation**

24. The Stern Review identifies the establishment of a credible and broadly based carbon price as an essential part of climate change policy. Taxation is cited as one of several policy instruments through which such a price signal could be generated. However, EEF believes that taxation would not be an effective mechanism through which to establish a carbon price—it could lead to significant under- or over-estimation of the cost of carbon, would lack flexibility and would not be a practical tool through which to secure international cooperation.

25. The complexity, scope and uncertainties of climate change make establishing an accurate cost for carbon emissions difficult; the wide range of estimates contained in Stern is testament to this. The problem is likely to be particularly acute for taxation—any tax set by government would run the risk of significantly under- or over-estimating the cost of carbon. This would undermine both the effectiveness and credibility of the carbon price by sending out an inaccurate signal.

26. The cost of carbon will vary over time as, amongst other things, technology evolves, the concentration of greenhouse gases in the atmosphere changes and our understanding of climate change improves. A carbon price established through taxation would lack the necessary flexibility to respond quickly enough to changing circumstances. The rate of a carbon tax would probably only be reviewed on annual basis as part of setting the Budget. In any case, it is extremely unlikely to be as responsive as a carbon price established through a well-designed emissions trading scheme, which could vary on real-time basis.

27. Finally, harmonising a tax across multiple jurisdictions to establish a consistent international carbon price could be very challenging. Stern cites the example of Scandinavia where several countries established carbon taxes in the 1990s, but, despite significant efforts, failed to achieve harmonisation. Not only would the difficulty of harmonisation act as a barrier to the development of an international carbon price, it could also undermine the competitiveness of industry in jurisdictions with higher tax rates.

28. Therefore, EEF agrees with the Stern Review that climate change is best addressed through a broad package of policies, of which taxation is just one potential element. Other essential measures include supportive technology policy, well-designed emissions trading schemes and regulation (eg product regulation and standards).

**Role of Taxation in Climate Change Policy**

29. Future environmental taxation should be designed so as to avoid the problems that have undermined current environmental taxes. In particular, the following considerations should be taken into account:

(a) Tax rates should be consistent with their environmental objectives;
(b) Taxes (or tax rates) should not provide conflicting incentives;
(c) The burden of taxation should be spread across the economy as broadly and equitably as possible;
(d) Taxes should be designed such that their impacts are more easily measurable (eg by carrying out regulatory impact assessments and setting quantifiable goals at the outset); and
(e) Any hypothecation of revenues should be as fair as possible and geared towards supporting those subject to taxation improve their environmental performance.

30. It is crucial that these considerations are taken into account when implementing any environmental tax, whether or not it has been introduced specifically to address climate change. Most existing taxes relate either directly (eg CCL) or indirectly (eg VAT on energy consumption) to greenhouse gas emissions.

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25 Another example is excise duty on petrol, both leaded and unleaded. Despite having the highest rate in the EU, car usage in the UK is second only to that of Slovenia.
31. EEF believes that, in general, taxation is not a suitable instrument through which to establish a credible international carbon price. As discussed previously, it is relatively inflexible and inaccurate compared to market-based mechanisms such as emissions trading. Moreover, the difficulties of harmonising a tax across multiple-jurisdictions mean that achieving consistent and widespread international implementation would be very challenging.

32. However, there may be a specific role for taxation in those areas of the economy where the regulatory burden associated with emissions trading schemes would be too onerous. For example, a broadly based carbon tax could be a more effective alternative to the CCL or emissions trading for the domestic sector and smaller businesses.

33. Experience with the CCL suggests that any future climate change related taxation might be more effective if accompanied by schemes offering positive financial incentives or support to reduce greenhouse gas emissions. Those targeted by taxation need support addressing the barriers they face in implementing abatement policies. Support could, for example, take the form of an immediate financial benefit in the form of a tax rebate (as is the case with CCAs), enhanced capital allowances for energy efficiency measures or increased support for energy-related R&D.

CONCLUSIONS

34. Considerable scope for improvement exists in environmental taxation. Efforts should focus on aligning tax rates with environmental objectives (eg CCL), ensuring that the incentives provided by taxation are consistent (eg VAT reductions) and spreading the burden of taxation across the economy. The CCL is especially flawed and most urgently in need of reform.

35. In the specific context of climate change, EEF believes that taxation is not an effective tool through which to establish an international carbon price and that its role in internalising the cost of carbon should be, at most, limited to those areas of the economy for which emissions trading would be too onerous.

January 2007

Memorandum submitted by the Royal Society for the Protection of Birds

EXECUTIVE SUMMARY

— In concluding that mitigating emissions is the most economically sensible response to climate change, the Stern Review has brought an important new perspective to the issue of climate change and has emphasised the critical importance of action now.

— Far greater use must be made of the fiscal regime to drive the necessary behavioural changes and technological innovation to establish the UK economy on a sustainable, low carbon footing.

— To analyse trends and developments in the UK Greenhouse Gas emissions, the Treasury should publish a Carbon Budget for the UK, which specifies carbon reductions of at least 3% per annum.

— The Stern Review recognizes that we are already committed to some degree of climate change and that in natural systems, there are clear limits to the speed with which species and ecosystems can migrate or adjust.

— The Government should adopt a new habitat creation target, that would conserve many species that are currently declining and/or threatened, improve the extent to which biodiversity adapts successfully to climate change, and deliver significant benefits in terms of ecosystem services and quality of life.

— To protect the UK environment, some of the revenue from taxes on carbon emissions should be used to help the UK’s wildlife adapt to climate change, (including through the creation of significant new areas of habitat).

INTRODUCTION

1. The RSPB is Europe’s largest wildlife conservation charity, with over one million members. Our work to protect wild birds and the environment includes research on many environmental problems and we make contributions to a wide range of Government policies that impact on biodiversity and the environment. The RSPB were involved in scientific research in 2004 which predicts, on the basis of mid-range climate-warming scenarios for 2050, that 15–37% of species in sample of regions covering 20% of the Earth’s terrestrial surface, will be “committed to extinction”. 26 We were also involved in the HM Treasury’s consultations during 2002 that developed the “Tax and Environment” document, and submitted evidence to the Stern Review team.

2. The RSPB warmly welcomed the Stern Review as both ground-breaking and momentous and hope it will now represent a turning point in responding to climate change. The Review has emphasised the need to mitigate climate change, dispelling the belief that the world can simply rely on human ingenuity and adapt to change as it occurs. It has served to underline the urgency of the issue and set out, in clear economic terms, that the earlier we take meaningful action, the better off we will be. Furthermore, the Review has been important in emphasising that climate change is global in its causes and consequences, that its impacts are long-term and persistent and that that those least responsible will be hardest hit. This last fact was frequently ignored in earlier economic analyses of climate change. This response centres on two areas where the UK Government can take meaningful steps to address climate change; firstly though the fiscal regime; secondly through land-use management.

FISCAL ISSUES, THE STERN REVIEW, TAXATION AND A CARBON BUDGET

3. The Stern Report identified the serious consequences of climate change for people and wildlife—in particular in developing countries. It clearly established the need to establish a carbon price equivalent to the damage done by emissions of carbon and other greenhouse gases (GHGs). The RSPB supports the Review’s ultimate aim of establishing a carbon price through effective caps at the European and Global levels. However, we believe a 450ppm stabilisation level is achievable, with action now, and significantly more prudent than either 500ppm or 550ppm. The Review itself suggests that, at 550ppm, there is a 50% chance of temperature increases above 3°C. Current science suggests that limiting the stock to below 450ppm is required to limit temperature increases to 2°C thereby preventing the worst impacts of climate change which are projected to increase exponentially with temperature increases beyond 2°C. While the Government must continue to pursue cap and trade schemes, agreements at both the European and Global levels will take years to implement. The Stern Review made it clear that there are cumulative costs for every day we fail to take meaningful action. In the near term, greater use must be made of the domestic tax system to ensure polluters begin to pay for the damage they cause. At current rates of GHG emissions, Stern tentatively estimates the damage done of one tonne of carbon dioxide to be £85 (£43), or £311 (£159) per tonne of carbon. Such rates are not reflected in the UK’s transport, energy, industrial or household sector taxation regimes. Far greater use must be made of the fiscal regime to drive the necessary behavioural changes and technological innovation to establish the UK economy on a sustainable, low carbon footing.

4. To analyse trends and developments in the UK Greenhouse Gas emissions, the Treasury should publish a Carbon Budget for the UK, which specifies carbon reductions of at least 3% per annum. As well as highlighting the effects of selected individual policy instruments, the Treasury should publish an overall assessment of the likely changes to the UKs Carbon Budget at each Pre-Budget Report and Budget. This should include updates on the current carbon emissions, and the expected future effects of the policy measures in each PBR and Budget. Such an analysis would be instructive as to the combined effects of: changes to the forecast growth of the UK economy; higher world oil prices; and announced policy measures such as changes in taxation. It would also encourage discussion on the links between oil and energy prices, UK economic performance and innovation, and Carbon emissions targets.

5. The UK should also work to ensure that efforts to develop biofuels as a low-carbon energy source do not damage biodiversity and other environmental resources. For this purpose a full Strategic Environmental Assessment of biofuels policy should be carried out. The UK should lead concerted international efforts to regulate the biofuel market and develop a full mandatory certification scheme. Such a scheme is necessary to prevent a dash to unsustainable biofuels causing the destruction of tropical forests, natural grasslands, wet-lands, biodiversity loss and soil or water pollution. Also, no biofuels must be used unless they are shown to have lower life-cycle greenhouse gas emissions than the petrol or diesel they replace.

LAND-USE ISSUES, A PSA TARGET AND CLIMATE CHANGE

6. Mechanisms to support the conservation and rehabilitation of habitats that are believed to be rich carbon stores (such as peatlands, and tropical forests) should be pursued as a priority by the UK Government. Deforestation and other land-use changes account for 20% to 25% of annual emissions of CO2 and the Stern Review identified avoided deforestation as a cost efficient form of carbon savings. Recent research has also identified re-wetting degraded peatland as a further potential source of economic carbon gains. We believe the Government should assess such benefits in terms of a total economic valuation framework, which takes into consideration the full range of benefits respective land-use practises can yield. Globally, avoided deforestation and peatland restoration yield important biodiversity benefits beyond the global benefits of contributing to a habitable climate. This principle should also be applied at home, as the protection, restoration and recreation of natural habitats (such as peatlands) within the UK could also have a significant role to play in helping prevent further emissions.

7. The Stern Review recognizes that we are already committed to some degree of climate change and, that in natural systems, there are clear limits to the speed with which species and ecosystems can migrate or adjust. The UK is committed to ensuring the survival and recovery of biodiversity threatened by human activity, including climate change. It has an international commitment to halt biodiversity loss by 2010. Defra’s current domestic biodiversity targets relate to the condition of Sites of Special Scientific Interest (or
SSSIs—which are our most precious wildlife sites) and farmland birds (representing one particular group of species whose fortunes reflect wildlife and land use in the wider countryside). Threats to the environment and biodiversity are not static, and climate change already presents a major new threat to the UK’s wildlife.

8. The actions required to deliver the Farmland Bird and SSSI PSA targets are necessary, but insufficient, measures to specifically address two issues of rapidly growing importance to human well-being and biodiversity conservation: (1) the provision of ecosystem services from natural and semi-natural systems and (2) enhancement of the resilience of the UK’s biodiversity to the effects of climate change. Therefore, we believe that a new Government target should be set to help the UK’s biodiversity adapt to climate change through substantial habitat creation. A new habitat creation target would conserve many species that are currently declining and/or threatened, improve the extent to which biodiversity adapts successfully to climate change, and can deliver significant benefits in terms of ecosystem services and quality of life.

9. The UK, as a significant polluter, should devote spending to help wildlife adapt to new climatic conditions in the future. To protect the UK environment, some of the revenue from carbon emissions taxes should be used to help the UK’s wildlife adapt to climate change, including through the creation of significant new areas of habitat.

January 2007

Memorandum submitted by the Association of British Insurers

INTRODUCTION

The Association of British Insurers (ABI) is the trade association for Britain’s insurance industry. Our 400 member companies provide over 94% of insurance business in the UK and a sixth of all investment on the London Stock Exchange. We have also taken a major role in promoting increased investment and improved management of flood risk in response to climate change.

THE IMPORTANCE OF ADAPTATION AS WELL AS MITIGATION

The ABI believes that macro-economic stability will only be achieved by ensuring that climate-proofing measures, which Stern estimates will cost 0.05%–0.5% of GDP each year, are taken in the UK and promoted elsewhere in both the developed and developing world.

The measures taken by the Government must address both the causes of climate change and its already inevitable impacts. Stern considers that, whilst mitigation measures can reduce much of the longer-term risks, “adaptation policy is crucial for dealing with the unavoidable impacts of climate change, but has been under-emphasised”.27 Even if current international plans to reduce emissions are successful, climate change will continue for some decades. So we need to take action on adaptation as well as mitigation. This means action needs to be taken now on land-use planning, resilience and investment.

The Government has shown considerable international leadership on mitigation issues and set out significant plans to address energy use and emissions in the Pre-Budget Report and its planned legislative programme. However, we believe that it is thus far failing to tackle adequately the social and economic impacts of escalating climate risks; for example, through not ensuring that new homes are resilient to changes in climate and not investing sufficiently in flood and coastal defences. Policy statements consistently fail to address these issues despite the clear warnings set out in the Stern Review.

IMPLEMENTING AN ADAPTATION APPROACH

Adaptation measures must be forward-looking. Infrastructure, including housing, has a long legacy (around 1% of the housing stock turns over each year) so we need to build houses that are sufficiently weather-proofed to meet the likely severe weather conditions of 2050 and beyond.

The Code for Sustainable Homes is a missed opportunity as it fails to give sufficient weight to adaptation measures, has relatively modest mitigation targets and is to be introduced over a prolonged period. Similarly, the Climate Change Planning Policy Statement (PPS26) gives too little weight to climate proofing, even though there are well-known technologies available which are already being used elsewhere. Whilst we applaud the ambition of achieving carbon neutral homes, we question whether the incentive offered is adequate. Insurance costs, which must reflect risk, may provide some additional incentive to owners and occupiers.

Mitigation technologies must also not be adopted if they increase the cost of repairs after a flood or other bad weather. For example, the cost of replacing cavity wall insulation in flood areas, or secure external cladding or roofing systems will increase unless adaptation issues are considered at the same time as mitigation.

We also need to look well ahead in planning flood defences. Britain is one of the few countries where flood insurance is widely available from the private market. Insurers want this to continue, but it is dependent on adequate risk management. Some 570,000 homes are now at high flood risk, compared with the estimate of 220,000 when current flood defence spending levels were set in 2002. This is despite considerable recent efforts to reduce the size of the problem. Expenditure peaked in 2004 and is now falling in real terms—indeed the Government cut the Environment Agency’s flood management budget by £15 million in 2006.

The ABI also believes that proper “future proofing” requires policy-makers to incorporate financial assessments of the impacts of extreme weather, as well as on average weather, in cost-benefit analyses of options. As New Orleans witnessed, low probability, high impact events cannot be ignored.

THE USE OF MARKET AND FISCAL MECHANISMS

The ABI supports the Government’s market-based approach to tackling energy use and emissions. But short-term cost considerations and market failures create barriers to adopting measures that are cost-effective in the long-term. We support the Government’s conclusion that “climate change is the most widespread market failure the world has faced”.28 We believe that the response to such market failure must deploy a full range of policy measures. The Comprehensive Spending Review (CSR) and other policy measures should take account of the likelihood of increased flooding risks and drought.

Any steps taken by the Government should include proportionate and well-targeted regulatory and fiscal instruments and spending commitments. The right set of policies will enable UK business to become world leaders in adaptation technologies in addition to the global role in carbon trading envisaged for London.

FISCAL INCENTIVES

The scale of climate change, together with uncertainties over the cost-effectiveness of the technological solutions available, means that a diverse and flexible programme of measures must be developed. Fiscal incentives should promote blended fuels (ie existing vehicles being able to use a proportion of biofuels distributed through the conventional fuel network) as well as supporting large-scale users investing in their own distribution networks. Insurers are also playing our part and some companies are encouraging the purchase of environmentally-friendly cars through lower premiums.

Additionally, where employers wish to offer incentives to promote action by their employees at home, Government should ensure that there are no fiscal disincentives to action. Employer funding for micro-renewables or energy efficiency measures should be non-taxable benefits, analogous to the time-limited waiver on computer equipment designed to promote the uptake of IT. Such measures could both reduce the pressure on publicly-funded grant schemes and assist in the early development of markets, leading to reduced production and distribution costs as critical mass is achieved.

REGULATION

Increasingly, a number of industries are showing that efficient markets enable companies and others to respond to the effects of climate change. Regulatory intervention should be restricted to those areas where market failures are evident, for instance because they prevent “public goods” from being adopted. Where regulation is introduced, business needs clear, long-term signals of regulatory requirements to ensure the smooth adoption of higher standards.

INNOVATIVE ASPECTS OF STERN’S ECONOMIC ANALYSIS

Stern uses a lower discount rate than those typically used by economists when discounting future costs (or benefits) in policy evaluations. The Treasury Green Book indicates a time preference rate (to reflect that money is worth more now than money later) of 1.5%. Stern’s equivalent is 0.1%. Stern justifies this on ethical grounds: people’s welfare should not be valued less simply because they live in a different time. We agree with Stern’s approach, as using a high discount rate ignores the impacts of current decisions on distant future generations.

January 2007

28 Long-term opportunities and challenges for the UK: analysis for the 2007 CSR, Chapter 7 Pressures on Natural Resources and Global Climate.
Memorandum submitted by Flybe

1. ABOUT FLYBE

Flybe welcomes the opportunity to respond to the Treasury Select Committee inquiry into Climate Change and the Stern Review.

Flybe is one the leading low cost airlines in the UK and Europe’s largest regional airline following the proposed acquisition of BA Connect. 80% of our flights are domestic and our low cost services focus on providing point-to-point routes connecting regions in Britain and the rest of Europe.

Following the proposed acquisition, Flybe will operate 159 routes from 22 UK and 35 European airports with passenger numbers doubling to around 10 million each year.

Based in Exeter, Flybe began life in 1979 as Jersey European Airways, later British European. Relaunched as a low cost brand in July 2002, Flybe has become one of the UK’s most innovative and dynamic regional low-cost carriers.

Flybe is a low-cost airline committed to providing new opportunities for people from all walks of life to enjoy the convenience of accessible air travel. We are driven by the Flybe differentials which mark us out from many of the other leading players in the industry by providing our customers with many of the “frills” of premium carriers including pre-assigned seating, lounges for our business customers, and additional passenger legroom in our aircraft.

With many of our core services based on inter-regional activity, Flybe has led the way in delivering greater consumer choice and economic growth in the regions we serve. And as the UK’s most important non-London-based carrier, Flybe is dedicated to bringing low fares to the regions, making a valuable contribution to the spread of economic prosperity on a truly nationwide basis.

2. OPENING COMMENTS

Flybe does not underestimate the scale of the challenge faced by the impact of climate change, and accepts that aviation must play an important role in the global effort to control carbon emissions.

Flybe is committed to reducing the environmental impact of air travel. We have expressed our strong support for the principle of emissions trading and shortly plan to launch an eco-labelling scheme to improve passenger’s knowledge of the carbon emissions of different airlines. Flybe has recently accelerated its current fleet renewal programme with a £1.2 billion investment in Bombardier Q400 and Embraer 195 aircraft that will be complete by 2009. At that time Flybe will have a fleet of 77 aircraft, which will be one of the youngest and most environmentally sensitive fleets in the world. In line with its environment policy Flybe will by then have reduced fuel consumption by over 50% per seat.

We also believe that the contribution of aviation to climate change should be set in context, in terms of the emissions from other forms of transport—including private cars, trains, buses, and the road haulage industry, and indeed power generation and other industries—and the level of taxation (combined with minimal subsidies) that airlines and passengers are already subject to each year.

The aviation industry in Britain, and much of Europe, is a success story for jobs and investment, and this has been driven by the growth of highly-efficient low cost airlines operating in a liberalised market and bringing air travel to people from all social backgrounds.

Unlike roads and railways which consistently fail to meet the demands of customers, the airline industry now provides affordable fares and does not depend on the Government for operational subsidies or funding for infrastructure.

There is a dangerous myth perpetuated by opponents of the industry, that air travel is enjoyed by an elite minority who do not pay their own way, when in fact the reality is very different. The low cost revolution has made air travel accessible to all socio-economic groups and has allowed many people to fly regularly for the first time.

Air travel does make a contribution to global carbon emissions but it is important to set this in context, particularly in comparison to power generation, road transport, and the agricultural sector.

The effect of carbon dioxide emissions from aircraft is indistinguishable from that of carbon dioxide emitted by other sources, including alternative forms of transport.

As the Stern Report confirmed, the emissions from aircraft are currently less than 2% of total carbon dioxide emissions from human activities, with this share expected to reach up to 3% by 2050.

This provides a useful background for the arguments for aviation to be labelled as a major contributor to climate change. Flybe does not believe that this is an excuse for inaction, but it does clearly demonstrate that many of the claims of environmentalists are exaggerated, and that other industries should also be a priority for Governments to target when seeking to control emissions.
3. SUMMARY

— We do not believe that Air Passenger Duty provides the best mechanism to promote sustainable growth in the industry.

— Flybe is a strong supporter of emissions trading, but the proposals from the European Union to introduce a scheme that only includes intra-EU flights (only 20% of emissions) is unacceptable and unfairly discriminates against low cost airlines.

— The successful introduction of emissions trading will ensure that the external costs of air travel are determined by the market for carbon, and will make APD a redundant form of taxation.

— The aviation sector has introduced a number of innovative mechanisms to reduce emissions and combat climate change, including Flybe’s eco-labelling scheme for the industry due to be launched shortly.

— Aviation fuel tax can only be effective at a global level due to practical issues that may increase overall emissions and discriminate against short-haul operators, and as such efforts should be focused on creating a workable and effective ETS system.

4. AIR PASSENGER DUTY

Flybe strongly opposes the 100% increase in Air Passenger Duty announced by the Chancellor of the Exchequer in the Pre-Budget Report.

We regard Air Passenger Duty as an anomaly that serves no purpose other than a revenue raising mechanism for HM Treasury. Air travel uniquely, unlike any other form of transport, is subject to APD which amounts to an estimated £1 billion per year in contributions (projected to rise to £1.8 billion) to the Treasury.

Flybe accepts that the aviation sector should be responsible for the external environmental costs of its activities, provided that this principle is extended to all other alternative forms of transport.

Flybe welcomes the Department for Transport’s plans in the Review of the Aviation White Paper for an “emissions cost assessment” to consider whether the aviation sector is meeting its external climate change costs.

We do not believe that APD provides the best mechanism to cover the external costs of air travel and promote sustainable growth in the industry.

Firstly, there is no commitment from the Government that the revenue from APD will be ringfenced for carbon abatement measures, offsetting or other environmental purposes.

Secondly, climate change will never be solved by increasing taxation, even if this revenue is used for environmental purposes. It will be solved by providing incentives to promote low carbon air travel to reduce emissions in the first place. It is far more effective to reduce the emissions of aircraft than to seek to put an end to low cost air travel, which provides jobs, innovation and investment in the British economy, or to invest in carbon abatement projects.

The low cost air travel revolution has transformed the industry and brought new opportunities for the UK’s regions. We are seeing the low cost model which began in the United States, and has thrived in Europe, expand to Australia, India, China, and South East Asia. It has brought jobs and investment, and transformed an elitist pursuit into an activity accessible for all social classes.

Now is not the time to restrict growth and impose new taxation, but to make sure that future growth is sustainable. This will be achieved with cleaner fuel, green aircraft, more efficient air traffic control management, and creating a market for carbon where there are clear incentives for reducing emissions.

Flybe fully supports market-driven innovative options available to improve the environmental standards in aviation including emissions trading and eco-labelling.

We are confident that EU Emissions Trading Scheme will generate significant reductions in the carbon emissions produced by each flight and will represent a more efficient means to control the impact of aviation on climate change. This market-driven mechanism will provide clear economic incentives for emissions reductions by creating a market for carbon.

This will add significant costs to airlines and passengers, and the level of APD must be reduced and ultimately eliminated in order to reflect this additional cost. It is unacceptable to increase the level of APD on the basis that it will cover the external cost of aviation, and then introduce emissions trading with the same objective. Britain’s airlines face being forced to pay twice for the external cost of emissions if APD continues when ETS is introduced. ETS is a more efficient option to achieve this objective and it must replace APD, not be added as a further cost.
5. EMISSIONS TRADING

Flybe believes the EU Emissions Trading Scheme offers the most effective solution available for controlling the carbon footprint produced by aviation sector and avoids the severe economic effects of tax increases that do not provide incentives for reducing emissions.

Flybe is a strong supporter of carbon trading, but the latest proposals from the European Union published in December 2006 do not go far enough.

The compromise deal means that initially only intra-EU flights, accounting for 20% of carbon emissions, will be covered by the scheme.

Flybe believes that to have any impact it must include long-haul flights in and out of Europe. The watered-down proposals from the Commission will hit low cost airline passengers disproportionately and will not affect long haul carriers which are responsible for 80% of emissions.

We are very concerned that unless all flights are included from the start, there is a danger that the timescale could slip as non-EU long haul carriers seek to avoid the scheme leaving ordinary people who take short affordable flights to pay for the carbon emissions of international business travellers.

Emissions trading is the best solution to reducing the impact of air travel on climate change. We are committed to making it work but there must be a level playing field for all airlines if the scheme is to be successful.

6. ECO-LABELLING

We believe that much greater informed consumer choice is the most effective force to drive environmental standards in the aviation industry.

This is why Flybe will shortly be announcing a new eco-labelling scheme for aircraft—a concept of establishing a system using a labelling scheme where aircraft are graded based on fuel burn, carbon emissions, noise footprints and total environmental cost. In doing so consumers would be informed about each flight they take. Such an eco-labelling system has transformed the domestic appliance (so-called white goods) market, and a similar scheme has recently been introduced for cars by the Department for Transport.

Flybe now wishes to extend this successful scheme to airlines and we have been developing this concept with independent technical advisers.

In our view eco-labelling is an effective option as it provides an incentive for airlines to offer green flying as consumers will be more aware of the choices available with a simple graduated system to label to noise and air pollution of aircraft. It will encourage the aviation industry to reduce emissions, rather than simply providing resources for carbon abatement mechanisms. This will also improve the knowledge and understanding of consumers’ individual contribution to global carbon emissions, and provide a creative market-based solution to the need to include the external costs of air travel in consumers’ decision-making process.

7. AVIATION FUEL TAX

The introduction of a tax on aviation fuel at a national or European Union level will create an unfair market and the practical implications of such a levy could potentially lead to increased global emissions.

Flybe does not object to a levy on aviation fuel in principle, but this is unworkable as the only option is to introduce this system at a global level which is unrealistic.

If this were introduced at a national level, then all airlines could simply refuel aircraft at non-UK destinations. This would require a heavier fuel load, and produce higher emissions per aircraft.

Similarly if it were introduced at an EU-level the major global airlines operating in and out of Europe, accounting for 80% of EU emissions, will refuel in non-EU countries and carry more fuel.

This will leave the major contributors effectively exempt from the tax and unfairly penalise low cost short haul operators. As with an emissions trading scheme that only includes intra-EU flights, this will leave ordinary passengers to pay for the emissions of international business travellers. The only solution would be to make this a global system which remains an unrealistic ambition.

A tax on aviation fuel at a national or EU level is unworkable, and will unfairly discriminate against low cost operators and leave the major airlines effectively exempt. It is disingenuous to compare a tax on aviation fuel with petrol duty, as drivers to do have the option of refuelling elsewhere. A more accurate comparison is with the road haulage sector where operators have an incentive to refuel in the country with the lowest diesel duty. Similarly unless there is a global system, the aviation fuel tax will act as an economic incentive for long-haul carriers to increase fuel loads and produce higher carbon emissions.

The emissions trading scheme is a far more effective system for airlines to contribute the external costs of flights, and unlike fuel tax will provide a direct economic incentive to reduce carbon emissions.

January 2007
Memorandum submitted by Feasta, the Foundation for the Economics of Sustainability

EXECUTIVE SUMMARY

1. Taxes are unsuited to bringing about the major reduction in emissions required to limit climate change. They cannot guarantee that an emissions target will be achieved and the tax rate would be a political football since it would need constant adjustment in line with the economic cycle.

2. Quotas are a much better economic tool since they guarantee that an emissions target will be met. Moreover, if equal, tradable shares of the quota were given to each individual, the income from their sale would compensate people for the higher prices that any method of restricting emissions will involve. As a result, a much faster rate of emissions reduction would be politically feasible.

1. The use of taxation to tackle climate change

1.1 Feasta strongly advises against the use of taxation as a tool to limit climate change. This is because a tax, however structured, cannot guarantee that any particular level of emissions will be achieved at any given date in the future. A carbon tax rate which would bring about the emissions reduction required by Stern in a booming economy would have a depressing effect on a depressed one. As a result, for a tax to work well, its rate would need to be adjusted regularly to conform with the stages of the business cycle, thus making setting the rate a perennial source of conflict between the government, the consumer and business interests.

1.2 A quota system, on the other hand, would be able to guarantee that a target was met and, as the market would adjust the price paid for the quota automatically, there would be no scope for debate about what was the correct price. A quota would also be much more compatible with international emissions trading arrangements, particularly if long-run ones involving very deep cuts in emissions are devised for the post-Kyoto period. The profound cuts in fossil fuel use required to stop atmospheric concentrations of greenhouse gases rising cannot be accomplished without profound social, political and economic turbulence unless individuals are able to fulfill their own designs and purposes most effectively by participating in actions that promote the public good. Conditions that achieve such a synthesis of private and collective advantage do not usually happen by accident. The connection needs to be explicitly made by adopting a system which would set an emissions quota—in other words a cap—and then share out the emissions permitted under the cap on an equitable basis. Such a system would tend to bind people together whereas taxes, because of their uneven impact, would tend to set one group against another. We do not believe that it is politically feasible to set a tax rate high enough to bring about the emissions reductions required by Stern. Setting a quota that eventually became tight enough to reduce emissions by the same amount is a much more realistic possibility.

1.3 Feasta believes that the right to emit greenhouse gases is a human right and that, consequently, every adult has an equal right to an equal share of the emissions permitted under the cap. We do not regard the right to emit as belonging to any nation or as being available to be “grandfathered” and issued to companies and other bodies on the basis of their emissions in the past, as is the case with the EU’s Emissions Trading System. Under the system we advocate, if the cap was set nationally, it would be the adult residents of the country who were allocated their share; if the cap was EU-wide, every adult EU resident would benefit, and if a global cap was agreed, every adult human. The system is thus very flexible and potentially compatible with international climate treaties.

1.4 Under the system we envisage, people would receive a paper certificate annually showing their entitlement according to the cap set for that year. They would sell their certificate to a bank at whatever the price was on the day they chose to sell, just as if the certificate was a foreign currency note. The banks would assemble the certificates and sell them on to companies introducing fossil fuels into the economy concerned, whether by importing the fuel, mining it, or pumping it out of the ground. Details of the system can be found on www.capandshare.org

2. The use of taxation to bring about change rather than to raise revenue

2.1 The emissions quota set under a cap could be auctioned to produce a revenue for the state. This would make it a very effective tax, since the tax rate (that is, the price of a unit of the quota) would always be at the optimum level required to hit the emissions target. However, Feasta believes that, even if one does not accept that the right to emit is a human right and that emissions rights therefore belong to individuals, it is more efficient economically for the state to forgo the revenue that it could obtain by auctioning emissions permits and to give the permits to the people. This is because, as the number of permits issued under the cap declines year by year, their price will rise and this will push up the cost of fossil energy. This will drive people into fuel poverty and the state will be forced to spend larger and larger sums on relieving hardship. Because of the administrative cost of such measures and the political backlash, it would be better for the state to give everyone their permit and to gain revenue for itself by making the income received from the sale of the permits liable to income tax.
3. The appropriate role of environmental taxation

3.1 Feasta thinks that environmental taxes have a valuable role to play in limiting climate change by removing any distortions left by a quota system. For example, emissions from diesel engines are a greater hazard to human health than petrol-engine emissions because of the fine carbon particles in diesel fumes. This could be corrected by adjusting the tax differential between the two fuels. In short, quotas are for major corrections, taxes for minor adjustments.

January 2007

Memorandum submitted by beacon dodsworth

EXECUTIVE SUMMARY

The UK generates a small percentage of the world’s CO₂. The best role for the UK is to show the rest of the world that pleasant environmentally friendly lifestyles are possible. Economic mechanisms such as earmarked taxes are necessary but it will be necessary to go beyond purely economic disciplines.

Large budgets for education and promotion are necessary to gain public acceptance. So are large environmental lifestyle projects such as model settlements. The finance can be found within the planning system. It should be recognised that the planning system creates very large amounts of wealth, which can be traded on an international scale. It is possible that existing development corporation legislation can be used to this effect.

1. Environmental leadership means drastic changes in lifestyles

The UK generates a small percentage of the world’s CO₂e, although, per capita, its citizens produce much more than the world average. The useful role that the UK can play is one of leadership to show the rest of the world that pleasant yet sustainable lifestyles are possible. Sustainable lifestyles might require a cut in the generation of CO₂e of a factor of three or more. Technological advances may help but personal rationing of CO₂e will be needed. If the personal allowance is to be set at the level currently thought to be necessary to achieve world sustainability significant changes in lifestyle will be inevitable. The Fishergate Environmental Panel is currently engaged in an assessment of a reasonable figure for a daily ration of the individual production of CO₂e. The panel has accepted, for the time being, that 10 kg of CO₂e per day (3.65 tonnes CO₂e per year) is a target that fits with current thinking on climate change.

The panel is assessing the impact of everyday goods and services against this daily ration, for example; champagne, contained in a bottle weighing 1kg, represents a day’s allowance. A return car journey from York to London is approximately two weeks’ allowance. A return flight from London to Melbourne is over three years’ allowance (this figure takes account of the fact that CO₂ released in the upper atmosphere has three times the effect as CO₂ released at ground level).

Showing that pleasant lifestyles are possible at such levels of CO₂e ration is a challenge that will require the deployment of skills that go beyond those that can be provided by economists. It needs a new breed of planners who can fit their work into an economic framework by postulating practical models of lifestyles that are consistent with sustainability. To this end, they will require the skills of environmental scientists, sociologists, architects, transport planners, in short, the whole gamut of specialisations that help to shape and control our society.

2. Earmarked taxes and campaigning needed for public acceptance

Earmarked taxes, for well-meaning theoretical reasons, have often been deprecated by economists. But, in important cases, they have been used to gain public acceptance. The largest example in the UK is National Insurance, which is widely recognised as an earmarked tax. Another example is the National Lottery. It raises funds for “good causes” and has widespread acceptance. However, by certain cynics, it is called “The Stupidity Tax”. However, one typical lottery player, an intelligent person, says: “The tax on the lottery is generally a good thing, particularly when the money goes to good causes”.

With an earmarked tax there is greater scope for publicising the associated “good news” message. For example, it is part of the National Lottery’s pitch that it raises money for good works. One of the main barriers to environmental understanding is the size of advertising budgets promoting environmentally unfriendly products and services such as cars, air-travel and champagne. These budgets dwarf those for educational efforts by governments or NGOs. If those administering earmarked environmental taxes were able to explain the environmental benefits, using an appropriate promotional budget, there may be some redress.
In general, public acceptance of “green” taxation will be easier if the link between tax and expenditure are conceptually linked or limited to a specific geographical locality. The following are examples of possible earmarked taxes:

(a) Road tolls to subsidise local public transport (i).
(b) A tax on supermarket car parks to give a turnover subsidy to local and high street shops (ii).
(c) Air freight landing charge to finance environmentally friendly development projects (overseas and in the UK).
(d) Progressive taxation of electricity, gas and oil consumption to subsidise building improvements (iii).
(e) Taxation of primary energy, based on CO₂e, to develop environmentally friendly energy sources(iv).
(g) A tax on wine bottles and a cut in the tax on wine (v).
(e) A tax on new construction to subsidise building conversion (vi).

Notes

(i) In 2003, a study by York Council calculated the impact of a £1 toll on three bridges in the centre of York, and concluded that it could cut through traffic substantially. The scheme would cost about £1 million to introduce, but raise £7 million in revenue. Such revenues could transform public transport in York.
(ii) The means of subsidy needs careful design and testing. A subsidy on turnover is likely to be more effective since it encourages the shops to boost their activity so that more people walked to local shops or travelled on public transport or bicycles to the high street.
(iii) In general, the affluent have a much larger carbon footprint than the poor. With larger houses to heat and more equipment to power, their use of energy within the home will be greater. One way of cutting fuel use in a way that avoids “fuel poverty” would make an initial allocation of cheap fuel but increase the price as consumption rises. A more straightforward way would be to increase fuel prices and earmark the revenue as individual fuel allowances but this would be harder for the public to accept.
(iv) Such taxation, properly enforced by government, could have greater public support than offset schemes which have come in for deserved criticism. In addition, consumers may feel that buying energy from “green” sources leaves cheaper “dirty” energy to be sold to someone else with no net environmental benefit.
(v) It is not widely known that, when “recycled”, most green and brown bottles are not melted down to form new bottles. Many are used for hardcore under motorways. In any case, with clear glass bottles that are melted down to form new glass, only a fraction of the energy and CO₂e is saved. The main driver for recycling bottles is to reduce the weight of rubbish going into landfill thus reducing landfill tax. Preventing an inert substance like glass entering landfill is a tiny environmental plus compared to the CO₂e generated in bottle manufacture.
(vi) The construction of new buildings causes considerable amounts of CO₂e. Building a new house creates many tens of tons. The “capital CO₂e” cost is often spread over the expected life of the building and then compared to the CO₂e generated during the use of the building. This method is not correct. A discount rate should be used to account for changes in building technology or positive feedbacks in climate change. However, this topic is too large for this note.

3. The built environment determines sustainability and is a generator of wealth

The built environment determines much of our sustainability. At home, workplace and holiday destination, we create large amounts of CO₂e. Our journeys between these places create more. However, in the UK particularly, the built environment is a generator of enormous wealth not properly considered in traditional economics. Over little more than a decade property values in the UK have risen by £2 trillion. The most important factor in this rise has been the supply of planning permission.

It is possible to separate two factors that comprise the value of property. These factors are the value of the structure and the value of the “continuing” planning permission. “Continuing planning permission” means the right to keep a particular structure in a particular place. For most of the property in the UK, continued planning permission over the land on which it is situated is more valuable than the replacement costs of the bricks, mortar and labour by which it is built (note 3a). It is the increase in value of this scarce commodity, planning permission, which has put two GDPs of wealth into the UK economy in little more than a decade.

It is the planning system in the UK that restricts the supply of buildings and other developments. This makes existing buildings as well as new developments more valuable. This wealth has not been fairly shared; it lies at the disposal of property owners. It is spent by people who inherit property, people who downsize and by the multitudes that are able to borrow against the value of this serendipitous form of wealth generation.
Many property owners deny that they are benefiting from these increases in value and, of course, they may not benefit: the value may be realised after their death. This means that property taxes are difficult for politicians to sell to their voters.

A planning gain supplement is one tool for recouping for society some of the wealth generated by a restricted supply of planning permission. It has the advantage that the public perceives planning gain as an undeserved windfall. But this tax has two drawbacks. First, developers might postpone new building in anticipation of a change in the legislation that would give them a more profitable business climate. Secondly, it does nothing to address price changes within the pool of existing property. A planning gain supplement needs other mechanisms in its support.

4. Funding environmental projects using the wealth from planning permission

A proposal that is worthy of further investigation is to use the wealth generated by the planning system to fund environmental and social projects. This would enable the UK to fund projects which would be an example to the rest of the world. This may be achieved using existing legislation on development corporations.

GUIDELINES

(d) Despite the unfair transfer of wealth that the planning system has engendered, it would be foolhardy to allow a substantial fall in property values. The example of Japan in the 1990s shows the economic damage that this can cause.

(b) House prices should be stabilised throughout the country. This means adjusting the supply of planning permission in any particular area to control property prices. Statutory bodies should be created whose remit should be to create a steady flow of planning permission to achieve price stability, ideally without the use of compulsory purchase. The MPC may be seen as a model for this.

(c) Statutory bodies could simply sell planning permission to suitable bidders or they might buy suitable land (or other development opportunities) and give themselves planning permission before selling them on, thus capturing planning permission wealth for the community.

(d) The some of the wealth captured by these mechanisms should be earmarked for the development of sustainable lifestyles. Few people notice that something of this nature already happens. For example, in York, both all three institutions of higher and further education (York Colleges, the University of York St John and the University of York) are benefiting from the grant of planning permission to build houses and offices worth many tens of millions of pounds. These wealth generated by these grants of planning permission go largely unnoticed. In my view they have the nature of a stealth earmarked tax, earmarked for education.

(e) The statutory bodies should use a proportion of the wealth they create to fund advances in sustainable technologies and sustainable communities. Since few people notice the wealth generated by the grant of planning permission, the objections to such expenditure would be limited.

(f) In a few cases, such as London, it may be that there is limited opportunity for the expansion that the grant of planning permission implies. In such cases it may be possible for these statutory bodies to fund relocation and transport links, following the model of the Metropolitan Railway in the 19th century.

5. Existing development corporation legislation, a possible mechanism

It may be possible that the statutory bodies mentioned above could be set up using existing development corporation legislation.

New development corporations (note 5a) might be created, which would have the power to grant planning permission over significantly larger areas than they intend to develop. This would enable the corporations to buy up land before definitely identifying where planning permission is to be granted. Thus land could be bought at or near agricultural prices. The value of the planning permission could then be captured by the development corporations on behalf of society with little or no use of compulsory purchase.

6. The good life; a source of wealth

We have a country that, for many, is a pleasant and safe place in which to live and, in urban areas in particular, that offers plentiful employment (albeit that much of this is low paid and insecure work within service industries). These benefits are reflected in the demand for property. Towns and cities that are attractive have experienced the highest rates of increase in property values. This is not simply a tautological and self-evident truth. The factors that contribute to “attractiveness” can be estimated independently from the value that they add to property stock. In addition, it is likely that impending environmental change will
leave this country with a relatively benign climate. If a mechanism were to exist that could develop the UK as a leader in the provision of environmentally friendly and sustainable communities its attractiveness in a world that is beset with insecurity, fear and actual environmental degradation would be assured.

7. Planning permission is an internationally tradable commodity

If it is to be viewed as a commodity at all, planning permission would appear to be one, which cannot be traded across international borders. But “continuing” planning permission (note 7a), embodied in property, can be sold or rented to foreign nationals as migrants or visitors. The UK has only about 10% of its land area developed and in many cases existing developed land could be developed more intensively. Consequently, given the factors set out in paragraph 8, we have a large store of a valuable commodity. We should husband it wisely (note 7b).

8. Planning sustainable communities

The wise husbandry of the commodity represented by planning permission would not be achieved were it simply to be used to create the kind of unsustainable development that currently blights much of our new build. The primary concern for the statutory bodies that we propose would be to ensure that all new schemes have as their first planning criterion, the need to produce radical solutions for environmental sustainability. The factors that make our region attractive to settlers must be nurtured and of these the provision of an environment that is relatively secure from future degradation is the most precious. An opportunity exists to create a haven within our region. This is not simply an expression of Utopian green thinking but an economic necessity. As our manufacturing industries decline it would make sense to view our islands and their social and physical infrastructure as a wealth generating resource. To do this we must focus on creating an environment that will offer security in the face of the turmoil that will follow the change in global conditions consequent upon predicted climate change.

9. Model settlements

There is an opportunity for using planning wealth to develop model settlements, in which it will be possible to live comfortably as a sustainable human. Whilst there are pioneering examples of settlements designed to attain sustainability like Findhorn (note 9a) or Bedzed (note 9b), a wide range of radical examples is needed to show the world that worthwhile sustainable lifestyles are possible. It should be pointed out that neither of these two model settlements yet achieves a sustainable lifestyle (note 9c).

Notes

3a. A simple example shows this: Imagine a building that falls off a cliff in circumstances where the problem was not anticipated and the threat not reflected in its market value. If the owners had movable planning permission that allowed them to build on any land they could buy within 10 kilometres, they would lose a fraction of the value of the doomed building.

5a. As an example, a corporation with the remit to develop, say, three percent of the area within 20 kms of York would be in a position to purchase between 3,000 and 4,000 hectares of land. It would ask for offers from landowners who wished to sell suitable land. Informal enquiries of farmers in the York area suggest that some farmers would sell land at less than twice agricultural prices. The development corporation would own the most valuable asset, the planning permission, and could capture its value on behalf of society.

7a. This is the sum of historically granted planning permission including permission that has been granted by default.

7b. This commodity is already traded internationally. UK nationals have sold houses in order to emigrate to farms in France whilst Polish workers have come here to rent property. Expensive parts of London have apartments bought as holiday homes for wealthy people from many countries. We should perhaps learn from the way in which De Beers controls the diamond market.

9a. Findhorn, see http://www.ecovillagefindhorn.com


9c. One measure of sustainable lifestyle is ecological footprint measured in “global hectares”. A sustainable human would have a footprint of 1.9 hectares. Findhorn’s residents claim they have reduced their footprint to “2.78 hectares, a little over half the UK national average (5.4 hectares)”, which is the lowest footprint in the industrialised world and “13% lower than those at the London eco-housing development, BedZED.”


January 2007
Memorandum submitted by Natural England

1. INTRODUCTION

1.1 Natural England is a new organisation that was established under the Natural Environment and Rural Communities Act 2006. We are a non-departmental public body formed by bringing together English Nature and parts of the Rural Development Service and the Countryside Agency.

1.2 Natural England has been charged with the responsibility to ensure that England’s unique natural environment including its flora and fauna, land and seascapes, geology and soils are protected and improved.

1.3 Natural England’s purpose as outlined in the Act is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

2. EXECUTIVE SUMMARY

— The Government’s initial commitment to the use of environmental taxation as a mechanism to protect and enhance the natural environment is welcomed. However, its strategic commitment to the Statement of Intent has become weaker in recent years and the scale of coverage of economic instruments remains insufficient to deal with the environmental challenges we face;

— The climate change challenge demands a more radical approach to environmental taxation if the scale of the problem is to be properly addressed;

— HMT should consider dedicated adaptation resource investment that will improve the natural environment’s ability to withstand the impacts of unavoidable climate change;

— HMT should also examine the case for establishing new market mechanisms that will enhance the contribution that land managers can make to climate change mitigation; and

— The Stern Review has played a pivotal role in developing the climate change debate and requires a comprehensive response from HMT in fiscal policy. We support its overall analysis.

3. NATURAL ENGLAND AND CLIMATE CHANGE

3.1 Formulating effective responses to climate change, its causes and its effects, is a strategic priority for Natural England. Annex 1 outlines the scope of our climate change policy.

4. GOVERNMENT PROGRESS ON ENVIRONMENTAL TAXATION

4.1 Despite the introduction of a number of environmental tax measures since 1997 (most notably the Climate Change Levy and Aggregates Levy), progress against the Government’s 1997 “Statement of Intent on Environmental Taxation” and more recently 2003 “Tax and the Environment” has been mixed.

4.2 Since the introduction of the Aggregates Levy in 2002, no major new environmental tax measures have been implemented although various existing measures have been tweaked to improve their environmental effectiveness (eg Air Passenger Duty, Vehicle Excise Duty) and there has been an expansion of modest tax incentives such as the ones included in the 2006 Pre-Budget Report.

4.3 More generally, there appears to be a growing sense of timidity on environmental tax matters despite their well documented efficiency advantages over alternative approaches. As a result, progress has been limited in recent years over potential new environmental tax instruments to deliver improved environmental outcomes. Equally, there is a sense that existing environmental taxes are not being used to their full potential. For example, rates of fuel duty have been frozen over recent years to compensate for increasing petrol prices, which has contributed to the underlying trend of declining real cost of motoring. In addition, the 2006 Pre-Budget report announced a revalorisation of the Climate Change Levy for the first time since its introduction almost five years ago. In real terms, the tax rates have fallen.

4.4 In terms of revenue raising versus behavioural change, maintaining a balance is difficult. Natural England agrees with the conclusions of the Environmental Audit Committee that enhanced levels of communication around the various tax instruments is likely to assist further behavioural changes. In addition, using supplementary expenditure (hypothecated or otherwise) could facilitate enhanced responses to environmental tax instrument, particularly where they aim to reduce carbon emissions or improve efforts to adapt to the inevitable impacts of climate change.

4.5 In summary, the current suite of environmental tax measures and the extent of their use so far seem not to reflect the scale of the environmental problems we face—particularly in relation to climate change.
5. **Government’s Use of Environmental Taxation to Address Climate Change**

5.1 We welcomed the Government’s previous initiative to establish the Climate Change Levy to address energy production and usage. We would prefer ultimately to seek an incentive based more explicitly on carbon usage. The decision to exempt the domestic sector from the Levy made it more difficult to design a true carbon levy. We believe that other ways of avoiding the social impacts of the Levy could have been investigated. We also suggest the levy rates need to be kept up with inflation.

5.2 We welcome the government’s initiatives to introduce incentives to encourage switching to better fuel types. However, we suggest a more strategic approach to road and air transport incentives is still required. Road travel remains an ever-cheaper mode of transport and we would want to see more fiscal measures to ensure that this sector pays its full environmental costs. The very recent moves on air passenger duty signal a step in the right direction, but we believe that these initiatives could have started much earlier and remain concerned about the “predict and provide” approach governing airport capacity development.

5.3 We welcome recent moves to encourage more sustainable house building. Again, it is essential that recently suggested measures are in place in time to influence the major housing growth which is imminent from the current growth area and growth point initiatives—we must ensure ambitious sustainability standards in those areas and elsewhere.

6. **New Areas for Fiscal Policy to Address Climate Change**

6.1 Natural England recommends that HMT consider two new areas of fiscal policy that we believe would make important contributions to the climate change challenge. These are:

1. undertaking dedicated adaptation resource investment that will directly improve the natural environment’s resilience, so that it is more able to withstand the impacts of unavoidable climate change; and
2. establishing market mechanisms that will enhance the contribution land managers can make to climate change mitigation, especially the unique role they can play as “carbon managers”.

**Investment in Adaptation for the Natural Environment**

6.1 The Stern Review has reinforced the fact that we will experience unavoidable global climate change for at least the rest of the century. Adaptation is therefore crucial for dealing with the inevitable impacts of climate change and must be recognised as an integral part of climate change policy.

6.2 The global impacts on the natural environment of exceeding a 2°C rise in temperature are likely to be severe. Ecosystems are highly sensitive to climate change and the rate of warming will be too rapid for many species to withstand. In Section II of the Stern Review, research is highlighted that predicts 20%–50% of global land species will be committed to extinction with a 3°C rise.

6.3 In our view, there is now an urgent need for new policy thinking focused on how to ensure that the natural environment is able to adapt to the impacts of unavoidable climate change. Natural England is currently undertaking research to estimate the likely level of species loss from changing temperatures over the next few decades. Previously, English Nature had assessed the implications of changing temperatures for species “climate space”, so that we have an understanding of where species might move to in order to be able to withstand new climatic conditions.

6.4 Some of England’s most important areas of natural value are currently protected as Sites of Special Scientific Interest (SSSIs) and Special Areas for Conservation (SACs). Many of these areas are, however, geographically isolated with sharp boundaries between them and adjacent farmland. The result is that many of our important species are effectively trapped in relatively small, isolated sites surrounded by inhospitable land use. They are unable to move in response to a changing climate, which makes them increasingly vulnerable to extinction. Map 1 attached with this submission depicts the scale of fragmentation of the English landscape.

6.5 A new “landscape-scale” approach will reduce fragmentation by creating linkages across the landscape, allowing ecosystems, species and habitats to adapt. Farmers will be crucial partners in delivering these outcomes. However, current land use designations, incentive schemes and regulations provide very few mechanisms which can implement such an approach. In Natural England’s view, there is a need to plan for, enable and resource the land use changes needed to implement a landscape-scale approach. The development of a landscape strategy for the UK, describing a vision for the social, economical and environmental uses of land, would catalyze and accelerate positive action for climate change mitigation and adaptation.

6.6 Natural England recommends that HMT consider mechanisms to undertake dedicated resource investment in adaptation. This could in part be done by encouraging and co-ordinating sympathetic land management practices in areas that link existing “patches” of semi-natural habitat to deliver connectivity at the landscape-scale. Natural England is developing maps for the whole country that identify these “ecological networks”, which could be used to target incentives and advice.
6.7 There are other levers and mechanisms that could, theoretically, deliver adaptation at the landscape-scale, such as the Environmental Stewardship scheme. However, in practice existing schemes are not delivering connectivity as they instead tend to focus on enhancing existing sites and do not have the levels of resource needed to deliver landscape-scale adaptation. In our view, there is a compelling case for new investment and refocusing existing investment to deliver adaptation for wildlife.

Enhancing the contribution of land managers to climate change mitigation

6.8 In Natural England’s view, the agriculture sector has a pivotal role to play in meeting the climate change challenge. We agree with the Secretary of State for the Environment’s recent statement that the “future of farming is more about environmental security than food security”.29

6.9 Farmers and land managers can make a significant contribution to mitigating greenhouse gas pollution by reducing their own GHG emissions. The sector is currently responsible for around 7% of UK emissions. Land managers can also play a very important role substituting the wider use of fossil fuels by other sectors, especially through energy crops such as biofuels and biomass for heating and expanding the use of timber and woodfuel.

6.10 It is also important to recognise that increasing investment for adaptation would also result in land manager’s delivering direct carbon savings, through increasing sequestration of carbon in soils and vegetation. There is evidence that undisturbed semi-natural habitats, such as peatlands, woodlands, heathlands and saltmarsh, can effectively remove carbon from the atmosphere and store it in “carbon sinks”.

6.11 Similarly, farmers can probably reduce the loss of carbon to the atmosphere by improving soil conservation and restoration. For example, there is emerging evidence that the continued degradation of upland peatlands is resulting in the release of stored carbon leading to a substantial increase in GHG pollution. Scientists at the University of Durham have estimated that, for England alone, up to 400,000 tonnes of carbon per annum could be lost, much of it to the atmosphere as carbon dioxide. By contrast, if all of the upland peatlands were restored to good condition, they could become a modestly significant sink for up to 40,000 tonnes of carbon per annum.30

6.12 Land managers have the potential, therefore, to act as “carbon managers”. However, there is still some uncertainty as to the scale of contribution enhanced carbon management by land managers could make to the overall mitigation challenge, especially in England. We are keen to assist Government and the sector to develop the evidence base to better understand the role of carbon management as a mitigation measure, especially in highly organic soils such as peat.

6.13 The Stern Review endorses the role that land managers must play in mitigation in two ways. Firstly, Stern suggests that land managers can, at the global scale, annually save up to 950 million-tonnes of CO2e through enhancing carbon management, especially in England. We are keen to assist Government and the sector to develop methodologies to account for carbon sequestration at the farm-scale, which will be necessary in order to obtain a “carbon balance” for trading. This would, in theory, present a financial incentive for land managers to conserve and enhance carbon sinks on their land, which would not be reliant on public subsidy.

6.14 Secondly, Stern emphasises the need to take action on non-energy emissions, which are mainly from land use and agriculture and are responsible for 32% of total global GHG pollution.

6.15 Stern suggests that land managers can, at the global scale, annually save up to 950 million-tonnes of CO2e through enhancing carbon sequestration, reducing deforestation and expanding bio-energy. This is would represent a contribution of around 20% of the minimum annual reductions needed to achieve a 550 ppm CO2e stabilisation trajectory.

6.16 There are at present no economic instruments that directly encourage or reward land managers who contribute to climate change mitigation. Natural England believes that HMT should investigate how fiscal measures can be used to improve mitigation by land managers. One possibility is the use of emissions trading for the sector, which Natural England supports in principle. However, we recognise that substantial work needs to be undertaken to scope the practicalities of how emissions trading would work for UK agriculture and possibly link to a future, expanded EU-ETS.

6.17 We are encouraged by the Government’s commitment to scope the feasibility of emissions trading for the agriculture sector and are keen to contribute to this exercise. We are especially interested in helping to develop methodologies to account for carbon sequestration at the farm-scale, which will be necessary in order to obtain a “carbon balance” for trading. This would, in theory, present a financial incentive for land managers to conserve and enhance carbon sinks on their land, which would not be reliant on public subsidy.

7. IMPORTANCE OF THE STERN REVIEW

7.1 Natural England welcomes the publication of the Stern Review and commends the Government for commissioning such an important and necessary report. The central finding of the Review, that inaction will be more costly to the global economy than immediate action, has sent a strong signal to the international community and further demonstrated the UK’s global leadership on this issue.

29 Rt Hon David Milliband MP, speech to the Oxford Farming Conference, 3 January 2007.
30 Dr Fred Worral, University of Durham. Presentation to Natural England workshop on carbon management, 28 November 2006.
7.2 We fully agree with Stern that climate change is “market failure on the greatest scale the world has seen” and so look to HMT to now demonstrate how Government must intervene to correct this failure. A lack of concrete action on climate change in fiscal policy will not demonstrate the international leadership taken by commissioning the review.

7.3 We support the importance Stern places on non-energy emissions and the role of land managers and are pleased that Stern recognises the challenge facing the natural environment and the need to re-think traditional conservation policy.

7.4 Finally, despite the stark warning we believe that the Review is inherently optimistic. It clearly outlines that there is a portfolio of available options to respond to climate change, such as reducing energy demand, increasing energy efficiency, adopting clean energy technologies, enhancing the role of land managers and adapting to unavoidable impacts. Clear public service agreement targets in respect of both climate change mitigation and climate change adaptation, reflecting Governments commitment to make progress in implementing these options, would galvanise action across the public and private sectors.

**Annex 1**

**SCOPE OF NATURAL ENGLAND’S CLIMATE CHANGE POLICY**

1. The scope of Natural England’s policy on climate change is focused on two areas:
   — developing and implementing adaptation strategies that will help the natural environment to be able to withstand the impacts of unavoidable climate change; and
   — contributing to the mitigation of greenhouse gas pollution through land management practices and Natural England’s own operations.

2. Natural England will seek to be a recognised leader in climate change adaptation and a major contributor to mitigation.

3. Natural England’s focus on adaptation will be to increase the resilience, therefore reducing the vulnerability, of the natural environment to unavoidable climate change based on the following key principles:
   — continuing to conserve existing biodiversity, particularly on protected sites;
   — adopting a landscape-scale approach to conservation management in which protected sites are the building blocks;
   — reducing habitat fragmentation by increasing landscape connectivity and building resilient natural systems, so that wildlife is more able to withstand changing climatic conditions; and
   — demonstrating what adaptation for wildlife looks like and how it can be delivered through exemplar projects and actions.

4. Natural England’s mitigation work will seek to enhance the role of the natural environment in helping to reduce greenhouse gas pollution and will focus on three areas:
   — supporting, through planning processes, increased investment in clean energy technologies using a risk based approach which balances any short term impacts on the natural environment with the long term imperative to reduce the threat of dangerous climate change;
   — identifying and promoting the contribution that land managers can make as ‘carbon managers’, by enhancing the ability of the natural environment to remove (sequester) greenhouse gas pollution from the atmosphere and store it in “carbon sinks”; and
   — leading by example through the target to halve Natural England’s own greenhouse gas pollution by 2010 through our choices about energy use, transport and carbon off-sets.

5. Natural England will play a leading role in marshalling the evidence on the potential impacts of climate change on the natural environment in order to continue to build the case for action. Work to develop Natural England’s science and evidence base will also be increasingly focused on developing on-the-ground strategies and action to improve the resilience of landscapes, ecosystems and species.

*January 2007*

**Memorandum submitted by Friends of the Earth England, Wales and Northern Ireland**

Question 1—progress made by the Government on the undertakings set out in its Statement of intent on environmental taxation, published in 1997, and subsequently endorsed in its 2002 paper, Tax and the environment: using economic instruments

Friends of the Earth lobbied for and welcomed the 1997 Statement of Intent on Environmental Taxation with its underlying principle that “quality of growth matters not just quantity” and its recognition of the important role to be played by taxation in managing the economy according to that principle.
The statement itself sets out broad undertakings including “Over time, the Government will aim to reform the tax system to increase incentives to reduce environmental damage. That will shift the burden of tax from “goods” to “bads”; encourage innovation in meeting higher environmental standards”.

We will look at each of these three in turn.

(a) Increasing incentives

The Government has attempted to do this in three ways, differentials within a tax, changing the basis for tax relief, and increasing or introducing a tax rate.

The differentials policy has been applied to a number of taxes but only in some of these cases can it be considered to have increased the incentives in a way that led to a substantive impact. It has been used to reduce pollution, other than CO\textsubscript{2}, from road fuel. Previously this has been used successfully to remove lead from petrol and since 1997 this policy approach has been successful in speeding the uptake of low sulphur petrol and diesel. In these cases the greener fuel targeted by the incentive policy was commercially available and required no change in vehicle technology or fuel distribution.

The Government has also used the differential approach less successfully in relation to road fuels that reduce CO\textsubscript{2} emissions (for example LPG) that typically require some change in vehicle technology and fuel distribution. Given the changes involved and the consumer perception of the changes involved the scale of the differential needed to be far greater and backed up by a wider policy approach. The low level of incentive and lack of policy integration both have a negative influence of the ability of the policy to stimulate innovation.

The Government has also used this differential approach with VED. Friends of the Earth and other groups had long made the case for the previously flat rate of road tax to be differentiated to provide an incentive to use more fuel efficient cars. The Government’s response has been poor in two respects—the differential has been limited to cutting the rates for more efficient cars with no increase in the low top rate for the most inefficient cars and in 2001 weakening the lower rate impact by increasing the engine size it was applied to. Once again although an incentive was installed it is inappropriately weak and therefore prevented from stimulating innovation.

One clear success in increasing incentives was the reform of company car allowances. This installed an incentive by changing the basis for tax relief which for many was a no-brainer. Shifting the basis of this tax relief so that rather than increasing if you drove more it increased according the efficiency of the vehicle used simultaneously removed an incentive to drive further and installed one to drive cars that emit less CO\textsubscript{2}. This clear shift in Government policy in an important market for new cars is likely to have a positive impact on innovation and it is therefore no surprise that the nascent market in hybrid cars is dominated by vehicles that also fit into the company car market.

Incentives have also been increased by raising the rates of existing taxes. Since 1997 the most prominent examples have been road fuel duty and the landfill tax.

With the Landfill Tax the Government has followed a policy of a gentle annual increase in the rate. It has provided an incentive for those waste producers who pay that are hit hard by the tax but this is not many. Research published by Friends of the Earth after the Government’s early rounds of increases showed that the modest increases in the rate was failing to encourage more than two-thirds of companies to reap the financial and environmental benefits of waste reduction.[1] It found that a major barrier to the effectiveness of the tax is the small size of the tax in relation to overall company costs (typically less than 0.05% of total costs). Soon after the Government had set a tax escalator to reach £15 per tonne by 2004 the waste industry itself identified a rate of at least £30 a tonne to bring about significant increase in waste minimisation and recycling.

The Government has attempted to do this in three ways, differentials within a tax, changing the basis for tax relief, and increasing or introducing a tax rate.

The other important point about the fuel duty policy was that although in 2002 the Chancellor did commit to using any revenue from future increases in the rate to invest in and stimulate sustainable transport up to that point this was a fiscal stick that neither paid for nor was integrated with any tax or spending carrots.

The Government has also used the differential approach less successfully in relation to road fuels that reduce CO\textsubscript{2} emissions (for example LPG) that typically require some change in vehicle technology and fuel distribution. Given the changes involved and the consumer perception of the changes involved the scale of the differential needed to be far greater and backed up by a wider policy approach. The low level of incentive and lack of policy integration both have a negative influence of the ability of the policy to stimulate innovation.

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The Government has so far missed the chance to install a meaningful incentive promptly enough that would stimulate innovation. The potential for doing so is highlighted in those few sectors who were significantly impacted upon where companies facing more significant increases and who in general already considered waste as an important cost took a variety of actions including innovation for waste minimisation and seeking markets for recycling their waste products.

In the case of road fuel duty the 1997 Government inherited a policy of increasing its rate on an annual basis. It did so partly because of the incentive but because of the income raised—far greater than any other environmental tax to date. It stuck with the escalator while oil prices remained low. But the Chancellor faltered in his commitment to the policy at the point where it started to have a more significant impact upon emissions and in all likelihood innovation. According to the IFS “a 10\% rise in the price of fuel reduces fuel consumption by around 2.5\% and the volume of traffic by 1\% after a year.” They show that “had the real rates of duty been maintained at their peak values since 1999, we might expect current fuel consumption to be around 4–5\% lower (and as much as 9–12\% lower in the long run).”

The other important point about the fuel duty policy was that although in 2002 the Chancellor did commit to using any revenue from future increases in the rate to invest in and stimulate sustainable transport up to that point this was a fiscal stick that neither paid for nor was integrated with any tax or spending carrots.
Finally the Government since 1997 has installed incentives by introducing two new green taxes the Climate Change Levy and the Aggregates Levy.

The climate change levy package has been effective in changing behaviour.\textsuperscript{31} The tax itself has been designed in a policy package that includes negotiated agreements for sectors to benefit from an 80% rate cut, exemptions for on-site renewable energy, an enhanced capital allowance scheme for investments in energy efficient products and a information and advice provided through a new Carbon Trust. A survey of businesses completed 18 months after the introduction of the Levy found that it had helped increased the use of renewable energy by businesses, helped increase energy efficiency and raised awareness amongst senior managers about the needs to address energy use and climate change. Crucially the survey found that many of these changes had been considered before the Levy but it was the financial incentive that provided the immediate stimulus to take action. Yet despite its success the Chancellor froze the rate.

The Aggregates Levy was reviewed in the 2004 Pre Budget Report which put forward evidence that the Levy was achieving its objectives.\textsuperscript{32}

\begin{itemize}
\item[(b)] Shifting the Burden of Taxation
\end{itemize}

In addition to installing specific incentives the statement of intent also commits to the broader aim of shifting the burden of tax off “goods”, or things that need to encouraged in the economy such as employment and onto to “bads” such as environmental damage that need to be discouraged. This was not a new concept, the Government in 1996 introduced the landfill tax with an equivalent cut in employers’ NIC claiming that it was shifting the burden tax from employment to pollution. Both the new environmental taxes introduced since 1997 have also included cuts in employers NIC as part of the design.

Overall, however, since 1997 employers NIC has grown as a percentage of the tax take and environmental tax takes fallen. To use the statement of intent’s language the shift, overall and over the 10 years, has been off bads and onto goods. Fuel duties accounted for 16% of receipts in 1996–97 and 15.1% in 2005–06\textsuperscript{33} for the same period NIC increased, from 16.3% to 17%.

Although the income from environmental taxes increased by 28% in the first seven years since 1997 it increased by 66% in the seven years previous to that. As proportion of total tax take environmental taxes have also fallen from contributing 9.4% in 1997 to 7.7% in 2005\textsuperscript{34}. Coincidently eight years before 1997 the contribution of green taxes was 7.8% marginally more than it was 16 years later.

\begin{itemize}
\item[(c)] Encouraging Innovation
\end{itemize}

There is a clear body of evidence that innovation can be encouraged by achieving higher environmental standards.\textsuperscript{35} Since the Statement of Intent of Environmental Taxation however significantly higher environmental standards have not be achieved most notably in respect to emissions of CO\textsubscript{2} which have increased since 1997. It is worth considering two issues: the importance of clear, strong, ongoing commitment to higher environmental standards from Government for encouraging innovation; and the extent to which the design of environmental tax reforms aimed at encouraging innovation.

Where Government clearly has a commitment to higher environmental standards it helps to convince firms of the opportunities to be had in investing in innovation to meet those standards and ensuring existing innovation programmes recognise the reality of higher environmental standards. Over the 10 year period the Government’s commitment has been put in question as it has reduced the rates of environmental taxes at consecutive Budgets. The opportunities that Government can help unlock for UK businesses is also recognised by the Corporate Leaders Group: “We think that the transition to a low-carbon economy could have a profound impact on British businesses” said Neil Carson, Chief Executive of technology company, Johnson Matthey. “As Stern points out, “the innovation associated with tackling climate change could trigger a new wave of growth and creativity in the global economy. ’Britain should be at the crest of this wave’”.

The design of environmental tax policies is crucial. We have already given several examples of where the rate of the tax is simply been set to low but two other points need to be made. First, the price mechanism, powerful as it is, on its own will not be the most efficient approach to stimulating innovation in the majority of cases. Tax breaks and spending that help investment and research and increase information flows also help. The climate change levy is an example of how different elements can be packaged together. Second, in deciding on the levels of a tax rate or conditions of a tax relief it is no good for innovation if those are defined by existing commercially available technology. BP for example when setting up their own internal carbon reduction programme took the total of all actions they knew they could take and then made the

\begin{footnotesize}
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\item[31] Cambridge Econometrics and Policy Studies Institute for HM Customs and Excise cited in Budget 2005, p 159.
\item[32] HM-Treasury 2004, Pre-Budget Report Para 7.68 and Box 7.5.
\item[33] IFS, 2005, Taxation, Election Briefing Notes, BN 58.
\item[34] http://www.statistics.gov.uk/statbase/tsdintro.asp
\end{itemize}
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target 10% tougher because they new that innovation would deliver the gap. Yet when the Government negotiated its agreements for tax relief on the climate change levy it simply took the available technology figure.

Question 2—*Government’s use of environmental taxes to tackle climate change*

Overall, we believe that the Government’s progress, after some real achievement in 1997–2000, has stalled and in many areas gone into reverse. The bottom line is that taxes are a major component of a successful strategy to tackle climate change, yet in 10 years emissions have not fallen. It is our belief that the Government has been paralysed by unsubstantiated claims that action would be bad for the economy (which the Stern Review roundly refutes), and by fears of political back-lash. Where it has introduced measures it has failed to back them up, and in general leadership has been lacking. Of course, increased taxes have the potential to be politically difficult, but they have not been sold well. In particular, the link between tax rises and either tax cuts or increased spending elsewhere has not been made. The Government continues to be extremely timid, even when—as now—there is increasing public acceptance that climate change must be tackled. We hope that the Stern Review’s conclusions will give the Treasury in particular the confidence to implement a strong, positive strategy to cut carbon emissions—as Stern says, it is imperative that this starts now.

Use of taxes in specific sectors:

Aviation

Aviation emissions have risen heavily in recent decades, continue to rise, and are predicted to rise way into the future. Total emissions doubled from 1990 to 2004, and are predicted to more than double again by 2030. This is because demand growth for flights heavily outstrips technological improvements to plane efficiency. Demand growth is in turn heavily influenced by flying falling in price (see graphs below). These low and falling prices are in large part due to aviation’s continuing exemption from many taxes—notably the zero tax on aviation fuel and exemptions from VAT. Both are anachronisms, but have proved difficult to remove.
Air Passenger Duty (APD) could be used as an environmental tax—as a proxy for VAT and fuel taxes. It affects the cost of flying to the consumer and as such affects marginal flights. We note however that APD rates have been low. On EU flights APD was introduced at £5 for economy flights in 1994, raised to £10 in 1997, dropped to £5 in 2001, and raised to £10 again as from February 2007. The DfT’s December 2006 Progress Report on its Aviation White Paper notes that current rates of progress on taxation will not stop the massive predicted growth in flights. Oxford University’s Environmental Change Unit states that APD escalators will be needed to stem this growth—ie far greater progress than the occasional increase every fifth year. We note that, contrary to Government pronouncements, such escalators would not stop people flying, but would stop the growth in flying. Moreover it does not “price poor people off the airlines”—the evidence of the last five years is that the falls in the cost of flying in that period have led to more flights by richer people. The average household income of people flying from Stansted is £50,000. Taxing aviation is progressive taxation.

Green Cars

The Government’s decision to differentiate Vehicle Excise Duty (VED) levels by carbon emissions should in theory give an incentive for people to buy less-polluting vehicles. However, in practice the difference between these levels is far too low to make any practical difference to people’s purchasing patterns. The difference between Band F and Band G is £20—around the cost of replacing one windscreen-wiper. The decision to make the least-polluting Band A pay zero VED is welcome, but the differentials, particularly between the higher bands, need to be made far wider for the policy to be effective.

Fuel Duty

Fuel Duty is the largest and most controversial green tax. The Fuel Tax Escalator, introduced by Norman Lamont in 1993 and increased by Kenneth Clarke and Gordon Brown, had a clear environmental effect. The Treasury reported in 1999 that it “…has given a clear signal to motorists and manufacturers to design more fuel efficient vehicles, avoid unnecessary journeys and consider alternatives to the car”. Gordon Brown scrapped the escalator in November 1999, and the received wisdom is that the fuel tax protests of 2000 are a major cause of the freezing (and hence real-terms fall) in fuel duty in almost every year since. This has been a major contributory factor to the cost of motoring falling in recent years, and to the increase in road transport emissions.

We believe that fuel duty increases would be far more politically palatable, and environmentally effective, if they were linked in spending on providing decent and cheaper alternatives to motoring. Bus and Rail prices increase heavily every year—it is no surprise that emissions of transport rise when the Government’s use of its economic instruments mean that the two more polluting modes (air and cars) get cheaper, while the two less polluting modes (bus and rail) get more expensive.
Climate Change Levy (CCL)

The CCL is the Government’s environmental tax success story. A survey of businesses completed 18 months after the introduction of the Levy found that it had helped increase the use of renewable energy by businesses, and helped increase energy efficiency. Many senior managers had been considered before the Levy, but it was the financial incentive that provided the immediate stimulus to take action. The CCL has saved millions of tonnes of carbon, and its use of a package of measures—taxes, rebates, information provision—is one that we believe should be replicated across other sectors. The rate of the CCL has however been frozen in recent years—albeit with an inflation-based rise announced in this pre-budget. It would be even more effective if the Chancellor were to announce a series of increases in the levy over the next five years, to further increase efficiency, cut emissions, and boost the take-up of renewable energy.

Domestic Energy

Simple increases to taxes on domestic energy to cut carbon emissions suffers from two main problems—doing so would not distinguish between types of energy, and would exacerbate the major problem of fuel poverty. The clear priority for the domestic sector is a major package of measures to improve energy efficiency of the UK’s housing stock, which is among the worst quality in Europe. The Government has some schemes here, such as Warm Front and LESA, but overall a far greater investment is required. It would have twin benefits—tackling fuel poverty and carbon emissions.

The Government could use the tax system far more to incentivise energy efficiency—and we advocate for example the use of council tax rebates for people who install cavity wall insulation or loft insulation. A £1.4 billion fund could help all the 14 million households in the UK currently without these basic measures.

With a major effort on energy efficiency, targeted at the poorest households, it may be possible in a number of years to implement a domestic carbon tax. Dresner and Ekins (2006) argue that if the revenues raised were recycled at least partly in the form of increasing pensioner’s winter fuel allowance, higher income support, and working and child tax credits, etc, then a carbon tax can be progressive while reducing carbon emissions.

Waste

The treatment of waste does have a large impact on climate change, as for example recycling saves massive amounts of carbon from not having to mine, process and transport virgin resources. Such savings wouldn’t accrue to the UK carbon accounts (as it would save carbon emissions in other countries), however they are still carbon savings, and UK policy should—in line with its waste hierarchy—try to incentivise reduce, reuse and recycling above worse options such as incineration and landfill.
The Landfill Tax Escalator is having an effect on reducing the proportion of waste going to landfill. However, we note the Environment Secretary’s letter to the Chancellor from October 2006 stating that “our analysis suggests a rate of £75 per tonne by 2013 makes alternatives to landfill sufficiently financially attractive to tip behaviour significantly”. To get to this rate from the current £21 per tonne needs a higher escalator than £3 per year.

Question 3—behaviour change or revenue raising?

We believe that too often green taxes are used solely to raise revenue, and this can backfire spectacularly, as was seen with the 2000 fuel tax protests. We believe that Government must use green taxation as part of an overall strategy, involving packages of measures, to meet its environmental goals while also tackling distributional effects. There are two main reasons for this.

First, tax measures will be far more effective as part of integrated policy packages, as has been seen with the Climate Change Levy. However simply increasing taxes without linked measures is almost guaranteed to be unsuccessful. This was the case with the fuel duty escalator—tax rises at the same time as allowing the price of alternative transport modes to rise far higher, with the revenues just accruing to general Treasury coffers.

Second, linking taxes with spending on specific linked measures makes taxes far more politically acceptable. 2006 MORI polling showed that 60% of people support increased taxes on air travel for environmental reasons; this increases to 73% if the money were to be spent on improving the environment.

Question 4—looking forward, the role of environmental taxation

We believe that the implications of the Stern Review require a major overhaul of the Treasury’s policy on climate change. Stern argues strongly that urgent action is needed, now, that policy instruments on taxes, spending, regulation, other market mechanisms and information are all required to do this job, and that action is needed at the national as well as international levels. This contrasts with the current Treasury approach which is largely piecemeal, with some good measures (eg CCL), major holes in some areas (eg domestic and aviation sectors) and stagnation in others (surface transport). Overall, UK carbon emissions are not falling, despite repeated commitments to emissions cuts and repeated statements that climate change is “the greatest challenge we face”. A large part of this failure is down to weak or misdirected economic signals throughout almost all sectors of the economy.

The overwhelming priority is for the Government to have an overall strategy, setting out annual cuts in carbon emissions, carbon budgeting, and annual reporting on this strategy. The Treasury has a key role to play in delivering these annual cuts, using packages of measures, in which taxes have a major role.

In specific sectors, we advocate:

Aviation

— the use of APD escalators to prevent the planned growth in flights. EUETS may be an important element of a strategy to reduce emissions, however aviation’s inclusion will not happen for a number of years, and interim measures are urgently needed.
— The use of revenues to fund necessary spending measures for carbon cuts elsewhere in the economy.

Domestic sector

— A massive expansion in funding for energy efficiency measures, particularly for poorer households, funded by increases in aviation taxation.
— Medium-term development of carbon taxation, with policy design’s first focus to avoid regressive effects.

Surface transport

— The reintroduction of the fuel duty escalator, with funds explicitly used to improve the cost, reliability, safety and attractiveness of less polluting alternatives—rail, bus, tram, cycling and walking.
— A major increase in the differentials on Vehicle Excise Duty, to kick-start a massive switch away from gas-guzzling vehicles.
Industry

— Increases in the Climate Change Levy, with funds recycled to business through tax cuts on employment, and schemes for further increasing energy efficiency.

Waste

— Steeper landfill escalator, and also an incinerator tax to ensure that waste diverted from landfill gets recycled in preference to incineration. Recycling delivers far higher carbon savings than incineration.

Question 5—Stern Review

We believe the Stern Review provides a strong imperative for a new strategy to use economic instruments, including tax, to deliver major cuts in the UK’s carbon emissions.

One particular piece of the Stern Review could have major implications for UK policy making. Currently, the Government routinely uses the Social Cost of Carbon (SCC) in policy and project appraisal. It has a major effect in determining what level of carbon emissions to allow in specific policies or projects. For example in the last six months, the determination of appropriate Building Regulations; levels of recycling in the Waste Strategy; whether airports expansion is acceptable.

The figure currently used for SCC is £70 per tonne of carbon. The Stern Review is recommending a figure three times this high—using this figure would have a major effect on policy making, and on carbon emissions in the UK. At present, in a parliamentary answer from John Healey, 18 December 2006, the Treasury is “in the process of re-examining the issue of the social cost of carbon”. The detail of this process is not clear; we advocate that it should be resolved before Budget 2007, used for policy and project appraisal at Budget 2007 and beyond, and applied retrospectively to major policy areas to determine whether policy review is needed.

The new proposed SCC figure is in essence down to three changes:

— It is based on more up-to-date science—the £70tC figure is many years old.
— It is based on a lower discount rate. We note that this is not a “scientific” issue, but an “ethical” one. The Stern Review states that the lower rate used reflects “the view that this rate should be based largely on the probability that future generations exist, rather than their having some more lowly ethical status”.
— It covers a broader range of impacts. The 2002 review was based on a literature review of studies which only cover a small range of the total impacts of climate change.

There still remain difficulties with using SCC—not least that it institutionalises the trade-off of different policy objectives, which is conflict with the Government’s Sustainable Development strategy that policy objectives should be integrated. However, this higher SCC gives a more accurate reflection of the actual damage from climate change, and is far more appropriate than the current £70tC figure.

January 2007

Memorandum submitted by Centre for Sustainable Energy

1. The Centre for Sustainable Energy (CSE) welcomes the Treasury Committee’s examination, in the wake of the Stern Review of the Economics of Climate Change, of the effectiveness of steps taken by HM Treasury to tackle climate change in the context of tax and the environment.

2. CSE is a Bristol-based national charity with more than 27 years’ experience of developing, delivering and evaluating initiatives intended to stimulate individuals, households and communities to achieve sustainable energy objectives—particularly affordable warmth and lower carbon emissions. More details can be found in the Appendix and at www.cse.org.uk

3. We have recently undertaken for Defra a review of the issues associated with individual carbon trading—published in December 2006 as “A Rough Guide to Individual Carbon Trading” (see www.cse.org.uk/pdf/pub1067.pdf). We believe that our report touches on a range of subjects which are directly relevant to the Committee’s current enquiry, most particularly in:

(a) the exploration of the relative merits of taxation and cap-and-trade approaches to constraining carbon emission in the UK economy;
(b) the discussion on the unresolved questions associated with individual carbon trading (which could also be asked of carbon taxes); and
(c) the review of literature on the distributional impacts of carbon taxes vs carbon allowances.
4. For this evidence, and in the limited time available, we have focused on two particular issues in relation to environmental taxation—and carbon taxation in particular—and associated market-based instruments which we believe are fundamental to developing a coherent approach to the use of fiscal instruments to tackle climate change, particularly in the domestic sector:

(a) The limited role which price has in determining individual behaviours which cause carbon emissions (or which reduce them) (and thus the need to consider alternative approaches).

(b) The distributional impacts of carbon taxes and other instruments to constrain carbon emissions in the UK economy.

We address each of these below, drawing principally on our own experience, research activity and analysis. We therefore focus particularly on the issues raised for domestic consumers.

5. We also raise a broader question about the extent to which it is actually sensible, as many have proposed, to rely on taxing “environmental bads” such as carbon emissions to raise revenue which could then be spent on effective carbon reduction programmes. We are not convinced. In the case of climate change, a carbon tax is neither a reliable method of securing carbon emission reductions nor can it be an accurate way to internalise the externalities caused by carbon emissions since these remain highly uncertain. It is also a highly regressive means to raise funds from the citizenry.

(a) The limited role of price in determining carbon emitting or reducing behaviour

6. Economists generally sustain a conception of humans as economically rational beings who each seek to maximise their individual welfare. This is enshrined in their models.

7. However the behaviour of domestic, commercial and public sector energy consumers would suggest that this conception is off the mark. People routinely pay more for energy than it would appear to cost them to avoid the need to buy that energy. And they respond little to increases in energy prices which should improve the cost-benefit assessment of taking action to cut demand. This is apparently irrational.

8. Economists sustain their theoretically pure position by claiming that this is due to “market failures” which can be corrected. Or they resort to the notion of “hidden transaction costs” which are not being costed properly in the assessment of what is in an individual’s best interest. In the face of limited response to price increases, economists suggest that this is due to “low price elasticity” (which they assume is an explanation rather than a label since they rarely examine why price elasticity might be low).

9. While this may seem like a diversion from the matter of environmental taxes and their role in addressing climate change, it goes to the heart of how taxes tend to be conceived in their purpose and predicted in their effect.

10. Thus the Stern Review stressed the importance of correcting the market failure whereby current consumers of energy do not pay the long-term societal costs caused by the associated carbon emissions. Give those carbon emissions a price (or more precisely “its price”) by imposing a carbon tax or by requiring a permit to be bought within a capped emissions trading system and it will ensure the consumer’s cost-benefit assessment includes this cost and therefore favours lower carbon behaviours and choices.

11. Stern correctly identified other classic market failures in the energy services market (information asymmetry, the problem of primary agency or split incentives, etc) which governments should act to address. He also (correctly in our view) suggested that it would be efficient, given the urgency of action, to use regulatory controls (standards and prohibition) to improve the carbon efficiency of goods and services available in “the market”, rather than await a market pull for more efficient goods which would eventually result from improved consumer information and more perfect price signals.

12. But his analysis is ultimately (and unsurprisingly) one of an economist, where the underlying position is that, provided everything is correctly and fully priced and all market failures are addressed, the intended outcome (in this case the most cost-effective carbon emission reductions) will be achieved.

13. We do not share his optimism (much as we would like to), particularly with reference to the domestic consumer. We believe human beings and their energy consumption are both more complex and more simple than economists and their models assume. As Jackson and others36 have shown, our energy consuming behaviours and our energy-consumption-related consumer choices are not simply the result of economically rational decisions (even within an imperfect market). They are born of habit (ie past practice), of simple emotional responses to social norms, of the social and technical context in which action or decision is made (eg convenience, ease and perceived reliability of action, trust in the providers etc). They are also the product of a range of decisions in which long-run energy costs and/or carbon emissions are a minor element of the overall cost and/or not conceived at all within the decision-making frame because other priorities take precedent (eg the urgency of replacing a broken boiler).

14. Our carbon emissions are the result of a combination of:

— the carbon content of the fuel we use (or others burn on our behalf in power stations);

— the efficiency of the equipment and buildings and vehicles in which we convert that energy into the services we want (warmth, light, processing capacity, motive power etc); and
— the personal habits, knowledge and skills and the social norms which determine how much “energy service” we want or demand.

15. Our carbon emissions at any given time are therefore the result of many different transactions in a number of separate and distinct markets over many years. For domestic consumers these can be typified as follows: for buildings (at the estate agent or letting agent), electrical appliances (on the shop floor of Currys), light bulbs (in the aisle at Tesco), heating systems (when their boiler breaks down and they reach for Yellow Pages), patio heaters and domestic air-conditioning (in the “aspirational” section of the DIY store), gas, oil, electricity (when someone turns up on their doorstep offering a cut price deal) etc.

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

17. The price of energy can thus only ever be a weak signal to influence an individual’s level of carbon emissions since it only appears in some of the transactions which lead to that level of emissions. The same will therefore be true of any additional cost to energy created by a carbon tax or, in the situation where emissions trading systems embed permit costs into goods and services for end-users, a carbon-related price.

18. It is also not obvious that any price differential between high and low carbon emission products or buildings is particularly material in the relevant decision-making processes (since other factors like perceived brand value, social norms, location etc have much higher resonance for the decision-maker). This similarly limits the role which tax breaks or incentives can potentially play in changing domestic consumer behaviour and purchase decisions (though we note that the current government has provided us with precious few examples to test this assertion).37

19. That said, there is some evidence that some consumers respond to opportunities to cut their tax burden by taking up carbon-cutting measures, particularly in relation to council tax, though such schemes may be better considered as marketing schemes for insulation measures (and funded accordingly by insulation sellers) rather than as “fiscal incentives” which actually require tax revenue to fund. It is also likely that the very fact that a tax break is offered (or a grant provided) at least confers on the product or service some sense of government approval; this may increase consumer confidence and thereby take-up (rather than change significantly the fundamental economics of the decision for the consumer).

20. None of this line of reasoning is designed to suggest that the price we pay for energy should not reflect the long-term environmental and societal impact it causes. It should. It is to suggest that we should be cautious about expecting too much in terms of behaviour change and reduced emissions, particularly from the domestic sector, from efforts to achieve such fully cost-reflective pricing.

21. Where this line of reasoning does lead (we hope) is to a perspective that we need to find other ways beyond taxes of engaging consumers with the long-term carbon consequences of their energy-using equipment purchasing decisions, energy saving investments, and energy using behaviour.

22. Having undertaken a study for Defra of some of the issues associated with introducing individual carbon trading (see paragraph 3 above), we came to the conclusion that there is potentially great merit (if many challenges) in establishing a system in which people have to start making choices and behaviours based explicitly on the resulting carbon emissions (and their price) rather than just on price (even if that price has carbon costs incorporated into it by either a tax or an upstream trading system). Such a scheme would make genuine and explicit the trade-off between different carbon-emitting activities, requiring consumers actually to think differently—in effect to develop a carbon-consciousness.

23. As we said in the introduction of our report to Defra:

“Individual carbon trading is . . . attractive because it appears to reach aspects of human behaviour which seem to be immune to other policies and programmes. It can both enforce and incentivise individual responsibility amongst a population which has so far appeared unable and/or unwilling to constrain its collective urge to drive, fly, and consume more electricity.38 And by explicitly involving the entire population in reducing carbon emissions, it maximises the collective intelligence and imagination applied to the task.”

24. Trading has the added advantage of setting the price of carbon at the real marginal cost of carbon abatement—which a carbon tax would almost certainly never be able to do by design without constant tinkering. We explore this and other considerations of trading over taxation in the context of the uncertainties surrounding the real costs of climate change in Section 2.8 of our study for Defra.

37 Perhaps because the Treasury shares, but does not express, this pessimistic assessment of the potential for tax breaks to shift markets and consumer behaviours in the context of carbon emissions. It may also be because the Treasury takes the view that people should not be subsidised by other taxpayers to do something which is already clearly in their own best interests to do (such as insulate their homes and buy more energy efficient products).

38 What Tadj Oreszczyn has described as “our innate ability to think of new ways to use energy”.

25. We note in passing that Stern called for significant effort to educate consumers and school children. We do not see this reflected in current government spending priorities (For example, the total Defra budget for the Energy Saving Trust remains under £30 million per year and there are no currently funded programmes for energy education in schools). We recently gave evidence to the House of Commons Environmental Food and Rural Affairs Committee which provided details of effective energy education programmes and explained the associated funding gaps.

26. We also note in passing the desperate need for the government and others to establish and ruthlessly maintain a clear and consistent “framing” of the climate change issue for all its communications. This must leave in no doubt the need for, and value of collective action; it must create a sense of common purpose between (and clear expectations of) individuals, communities, businesses, local, regional and national government. And it must clearly and explicitly state why it matters that we do this (whatever is happening in China or the US) because it is only ever through leadership and example that international treaties are established that lead to effective global solutions.

(b) The distributional impacts of carbon taxes vs. individual carbon trading

27. In CSE’s report for Defra, A Rough Guide to Individual Carbon Trading, we reviewed analysis undertaken in 2004 by Simon Dresner and Paul Ekins of the Policy Studies Institute for a project supported by the Joseph Rowntree Foundation.

28. Dresner and Ekins (2004) modelled the distributional impacts of introducing carbon taxes and also a scheme of individual carbon trading. They found that carbon taxes were highly regressive and remained more regressive than individual carbon trading (particularly if personal air travel is included), even if a carbon tax system manages to optimise the recycling of revenues through the benefits and tax credit systems to compensate those of lower incomes. This regressive impact was on top of the existing situation where those in the lowest income decile were paying on average 37% more per unit of energy than those in the top income decile.

29. Individual carbon trading based on equal per capita allocation of allowances would be fiscally progressive without any compensatory schemes (even taking account of these higher unit costs for lower income households). This is because, in general, “the poor” emit less carbon dioxide than average (particularly if personal air travel is included) and “the rich” emit more than average. The rich will therefore need, on average, to buy allowances from the poor if they wish to sustain their more carbon-intensive lifestyles.

30. Nevertheless, there are still some poor households who lose out and some rich households who “win” in an individual carbon trading scheme. This is because there are more significant differences in expenditure on energy and travel within income deciles than between income deciles. Thus, while most poorer households emit less than average, many emit more (and vice versa with richer households).

31. However, even with this taken into account, Dresner and Ekins (2004) show that fewer than one in five of households in the lowest equivalent income decile would be worse off, and most of those would be worse off by only a small amount (depending on the price of carbon).

32. Dresner and Ekins also showed that individual carbon trading would be more fiscally progressive than a carbon tax, even if the revenues of the carbon tax were all recycled as effectively as possible through optimally targeted increases in benefits and other payments to low income households to address its direct regressive impact. In this optimised (and highly optimistic) case, 30% of households in the lowest decile were still worse off (cf 19% for individual carbon trading).

33. However, the research has not considered fuel poverty by taking account of housing energy performance and costs. By only looking at actual expenditure on fuel as opposed to required expenditure on fuel, the research may be missing significant negative impacts on fuel poor households.

34. For example, some households, in the absence of significant improvements to the energy performance of their homes, may need to be spending more on energy (and therefore need more carbon allowances) in order to be warm.

35. Thus, while only small numbers of low income households lose out financially from individual carbon trading, the introduction of individual carbon trading may exacerbate fuel poverty by making it even harder/ more expensive to buy energy for heating. This needs to be modelled and tested (using national house condition data relating to building energy performance) to refine the findings of Dresner and Ekins.

36. Of course, there may be financial distributional impacts that result simply from constraining carbon emissions in the UK economy; it is therefore important to distinguish (as Dresner and Ekins did) between effects which result from the outcome being achieved (lower carbon emissions) and the effects being caused by the policy instruments being used to achieve it.

37. In addition, financial impacts are not the only distributional impacts to consider. It is also essential to understand geographical distribution, including rural/urban and north/south. Moreover, it is relevant to assess access to opportunities to reduce emissions (information and advice, services, products and capital) since it is unlikely that provision is evenly spread by income or geography. This needs to be understood to shape future programmes to enable individual action in response to either individual carbon trading schemes or carbon taxes. Public acceptability of either scheme is likely to be related to the ease with which they can take action and the range of opportunities available to them to do so. Neither a tax nor an individual carbon trading scheme would be a substitute for policies which stimulate such opportunities and support individual action.

### Why Taxing “Environmental Bads” to Raise Revenue May Not Be Such a Good Idea

38. Many commentators and politicians have proposed shifting from taxing “social goods” (like employment) to taxing ‘environmental bads’ (like carbon emissions) to raise revenue for government spending programmes. We see a number of inherent dangers in this approach. The most obvious is that the government (and thereby society at large) becomes reliant on the revenue raised from taxing ‘environmental bads’ and therefore loses any impetus for reducing their occurrence (since every reduction in pollution is a reduction in revenue). You only need to calculate once the impact on the Exchequer of reducing car use to understand the pitiful level of public funding for car use reduction programmes (even though their consumer and environmental benefits are sizeable).

39. The second danger is that the government sets the tax level on the basis of the amount of revenue it wishes to raise rather than on any reasoned consideration of the external cost it is trying to internalise or any careful assessment of the tax level required to achieve the intended environmental improvement. In such circumstances the purpose of the tax becomes muddled and the level difficult to justify on the very environmental grounds upon which it was introduced. The aggressive public response in 2000 (and occasionally since) to the fuel duty escalator may be a reaction to such a circumstances; the government’s eventually-breached line of defence at the time revealed the difficulty it had in justifying the specific level of tax and therefore in demonstrating its legitimacy as the environmental measure it had originally been claimed to be.

40. The third danger applies very specifically to the case of carbon taxes—which is that, as identified in section c above, carbon taxes are highly regressive. This makes them (and therefore both the price signal they create and the revenue they raise) highly subject to political pressure and interference. It is not obvious to us why schools and hospitals—or even effective energy advice and education schemes—should be funded from revenues raised in such a regressive manner.

41. In conclusion, we consider that there is often an unduly heavy emphasis on the role of fiscal instruments in stimulating reductions in carbon emissions, combined with a tendency to overstate their likely impact. We believe that, in this field, the role best played by fiscal instruments is to demonstrate government approval (and disapproval) for low (and high) carbon goods and services. We believe that other policy approaches, notably individual carbon trading, have greater long-term potential than carbon taxation to develop the carbon-consciousness within the UK population that will be required to address adequately the threat of climate change.

### Appendix

**About the Centre for Sustainable Energy**

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

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

- innovative local energy efficiency and renewable energy projects—mainly in the Bristol and Somerset area;
- activities to empower and support effective action by others across the UK; and
- research and analysis to use our experience “on the ground” to influence policy and practice at local, regional and national level.

We focus, possibly uniquely amongst UK charities, on both the social and environmental aspects of energy. Sustainable energy is not just about cutting the pollution which damages future generations. It is also about ensuring that people today can meet their basic needs for affordable warmth.
Our local activity means we are delivering sustainable energy solutions directly to people—and it provides a “test bed” for new ideas and approaches. It also grounds in real experience our activities to support the work of others and our research and policy analysis.

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

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

Over the last 27 years, CSE has developed several nationally significant initiatives, many of them innovative and ahead of their time.

— We established the first phone and software-based energy efficiency advice service, which became the model for the national network of 52 Energy Efficiency Advice Centres. Our own advice centre continues to reach more than 20,000 householders in the Bristol and Somerset area each year.
— Our major energy education programmes like Energy Matters have reached tens of thousands of school children and proved that children are effective energy advisers for their families.
— CSE’s training modules have built awareness of energy issues and capacity, engaging with some 10,000 experts and non-experts over the years.
— Working with the University of Bristol, we developed the Fuel Poverty Indicator, a unique tool to enable local targeting to tackle fuel poverty and now widely used by local authorities and regional government.
— Our innovative processes for engaging stakeholders in the development of policy, strategies and action plans are securing new support for sustainable energy, and renewable energy in particular.
— CSE’s research is improving understanding of consumer experiences of energy markets and the need for stronger protection of their interests.

January 2007

Memorandum submitted by the British Air Transport Association (BATA)

INTRODUCTION

1. This submission has been produced by the British Air Transport Association (BATA)—the trade association for UK-registered airlines. BATA members cover the scheduled, charter and cargo airline sectors and produce over 85% of UK airline output.

2. This short written submission is intended to focus on the increase in Air Passenger Duty (APD) announced in the Pre-Budget Report on 6 December 2006, in the context of our strategy on climate change.

UK AVIATION SUSTAINABILITY STRATEGY

3. In partnership with UK airports, aerospace companies and the air traffic management provider NATS, BATA helped to develop Sustainable Aviation, a unique national aviation sustainability strategy which was published in June 2005. The Sustainable Aviation strategy on climate change is part of a broad range of goals and commitments which can be found at the website: www.sustainableaviation.co.uk.

4. On climate change our strategy accepts the “polluter pays principle” and is based on continued improvements in emissions efficiency and the inclusion of aviation in a global framework which controls overall greenhouse gas emissions. We support inclusion of aviation in the EU Emissions Trading Scheme as a useful first step towards a global scheme. We also support and encourage the further scientific research that is necessary for us to understand the non-carbon impacts of aviation on climate and which would allow the development of appropriate avoidance or mitigation strategies.

PRE-BUDGET REPORT (PBR) DECEMBER 2006

5. The PBR published on 6 December 2006 announced the doubling of Air Passenger Duty (APD) with effect from 1 February 2007. This significant change was made without any form of consultation with the airline industry and the unprecedented short notice of just seven weeks (including a holiday period), created a very large retrospective liability for journeys from 1 February 2007, that were already booked. A conservative estimate of this retrospective duty is in excess of £50 million for UK airlines and about £100 million for all airlines operating from UK airports.
6. UK airlines object strongly to the size of the increase and the timescales allowed for its introduction.

7. The Stern Review recommended that any activity that contributed to climate change should have the cost of carbon included in its price. The current rates of APD generate over £900 million each year—a figure which is well in excess of the carbon costs of UK air travel which were estimated by Government to be £560 million for activity in 2000 (Future of Air Transport White Paper 2003). The Air Transport White Paper also estimated the total environmental cost of UK aviation to be £1.4 billion per annum. The Treasury have stated that the new rates of APD, which should generate some £2 billion each year, will cover the environmental costs of UK air travel, but they have not yet explained or justified this new environmental cost assumption.

8. A current measure of the extent to which APD exceeds air travel carbon costs can be demonstrated by applying the workings of the current EU Emissions Trading market. Just one fifth (£400 million) of the new estimated total annual income from APD could offset UK aviation’s entire annual emissions of CO2 using today’s EU carbon market.

9. More important than the size of APD income is the fact that not one penny of it is being used to directly address environmental issues and that the impact on climate change will be negligible. This large burden on the economics of air travel, with virtually no environmental gain, is proof of the inefficiency and ineffectiveness of taxation as a way of meeting the challenge of climate change.

10. The Government’s response to the Environmental Audit Committee Report on Pre-Budget 2005: Tax, Economic Analysis and Climate Change, admits that “APD does not incentivise improved environmental performance”. As both the Prime Minister and Sir Nicholas Stern have stressed in the media recently, the most effective and economically efficient way to tackle climate change is through international emissions trading. This is an approach that is actively supported by the UK aviation industry. UK airlines have been lobbying for aviation to be part of a global scheme which controls overall carbon emissions and for inclusion in the EU Emissions Trading Scheme (EU ETS) as a valuable first step.

11. On 20 December 2006, the European Commission announced their proposals for including aviation in the EU ETS from 2011. The nature of these proposals means that aviation’s inclusion is already being factored into the existing carbon market and into airlines’ future plans. However, we are concerned that the proposals have yet to be approved and we fear that the doubling of APD in the UK could be used by some in Europe to delay or derail the proposals.

12. It is also important to stress that the timing of the doubling of APD cuts across a variety of activity in Government departments who have been working with the industry to achieve environmental gains. Indeed, the Environment Minister in The Guardian of 5 January stated his dissatisfaction with some airlines unwillingness to work with his department on carbon offset schemes and other initiatives, without mentioning that co-operation was forthcoming before the PBR was published.

13. The fact that the new rates of APD fully cover air travel’s environmental impact and external costs means that passengers would be reluctant to pay again, either in a carbon offset scheme or through the additional costs of emissions trading. We believe that APD should be reviewed once air travel joins the EU ETS.

14. In addition the Department for Transport and Sustainable Aviation have both just published progress reports on the Future of Air Transport and on the industry’s commitment to their environmental responsibilities respectively, both of which may now need some revision in the light of the increase in APD.

15. The short notice of the change in rates of APD is, in effect, a totally unjustified windfall tax on airlines and their customers.

16. Following the PBR, airlines made urgent approaches to the Treasury explaining the unreasonableness of the proposed timescales and the immediate difficulties faced by the airlines and their customers who had already booked their travel. At meetings in December 2006 with Treasury officials and between our Chairman, Danny Bernstein, and the Financial Secretary to the Treasury, we made the case for either a later implementation date for the new rates or for exempting passengers who had already booked their flights for travel after 1 February.

17. We are extremely disappointed that Government has not been able make any adjustments to the proposals in response to these suggestions.

18. As described earlier, the retrospective effect of the proposed changes places a large and unplanned financial burden on the airlines operating in the UK. Airlines are now seeking additional APD payments from customers who had already booked their travel for flights from 1 February or are having to absorb these additional costs within their businesses—in effect a one-off tax on employees, shareholders and all those involved in the business.

19. The package travel sector, in particular, is legally unable to seek additional APD from its customers who have already paid due to the limitations placed on the companies by the Package Travel Directive which stipulates that the first 2% of any increase in costs must be absorbed by the company.
21. *The structure and application of APD should be reviewed.*

22. APD has not been reviewed in detail since it was first introduced in March 1993. During the last 14 years the industry has developed and a number of anomalies seem to have appeared. The industry believes that there should be a wide ranging review of the structure and application of APD including how it should be amended once aviation is within the EU ETS.

*January 2007*

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**Memorandum submitted by Dr Andrew Wrigley, Cambridge Zero Carbon Society**

**EXECUTIVE SUMMARY**

1. The Stern Review has been very successful at bringing basic economic analysis of climate change to the attention of a more general audience. The conclusion Stern draws from his literature analysis is that some sort of action now is economically warranted, assuming that well-formulated policies can be implemented. Unfortunately, the Review does not attempt economic analysis of different policy options, preferring a policy-neutral analysis of the direct costs of climate change and mitigation technologies. The next step must be to formulate a wide choice of policy responses and attempt to analyse their relative economic and environmental merits.

2. Cambridge Zero Carbon Society members have been considering policy responses to the climate change challenge. Members believe that a 90% reduction in UK greenhouse gas emissions by 2030 is necessary, but this can only be achieved with a radical policy response centred around increasing the cost of carbon aggressively and using the revenue to eliminate cumbersome, inefficient and distorting taxes such as VAT, investment taxes and/or National Insurance. A uniform Carbon Tax of £200/tonne CO₂ would raise over £100 billion, sufficient to replace VAT, Corporation Tax and Capital Gains Tax, for example. Introduced progressively, this would incur a net economic benefit because of lower frictional and deadweight costs within the economy. We believe that Carbon, being tangible, represents a major new and much more efficient tax base than elusive “income” or “value added”. By abolishing unpopular taxes and taking substantive action on greenhouse gases, we believe a strong political leader of any political complexion can achieve a public consensus for action.

3. Carbon trading systems offer no advantages over taxation, other than facilitating and motivating international funds flows. Carbon Tax is simpler, more predictable and more efficient than carbon trading. Both ultimately determine a common price for carbon pollution as a result of political processes. A “Carbon Central Bank” could be established to set the price to achieve predetermined objectives.

4. Stern’s figure of $85/tonne would be a good starting point for a new Carbon Tax, but this figure is just the estimated external cost of carbon. To put carbon pollution on a level playing field with labour or other goods, it is important that equivalent taxes be added on top of the cost of fuel (including the external social cost). This brings the figure to upwards of $150/tonne. The Stern analysis seems to omit the addition of tax to the external cost, seriously underestimating the final amount. It also disregards the possibility that it may be more cost effective to raise revenue through carbon tax than the alternatives. The repeated claim (eg p 282) in the Review that the optimal carbon price is the average social cost also appears in a number of places in the literature, and appears to be based on economic analysis in an economy with neither taxes nor deadweight costs. It is demonstrably inapplicable in real economies.

5. Stern’s advocacy of energy subsidies through mechanisms such as ROCs or the various government grants is surprising. These are only a consequence of full carbon costs not being factored into economic decisions correctly. By imposing an aggressive carbon tax, it will become apparent that such subsidies are unnecessary, and are indeed both costly, inefficient and distortionary.

6. Finally, it is important to appreciate the role of conventional taxation in lowering the general and environmental efficiency of the economy. Labour and investment taxes, for example both shift the balance against fuel efficiency employment and savings, in addition to their substantial deadweight costs.

**A SOUND BASIS TO START A POLICY DEBATE**

7. The Stern Review combines climate research, climate change economics and energy use economics. As a literature review, it brings together existing analysis in one place, while making a relatively modest original contribution of its own. HM government should therefore already be fully acquainted with most of the material in the review. Government inaction (such as the continued exemptions of UK aviation and domestic energy from standard VAT) suggests otherwise.

8. The Stern Review makes it clear that prompt action on climate change is economically and socially desirable. An important finding is that the net economic welfare benefit of appropriate action is likely to be positive when taken over an appropriate time frame. Given this, it is imperative to determine what action brings the greatest overall economic benefit. The Government should now commission an urgent review to
analyse the economics of different policy options. This must include the objective of identifying an optimal combination of subsidies, green and non-green taxation, trading systems and regulation without restrictive preconditions.

9. Different policies to achieve a given level of climate change mitigation certainly have widely varying effects, particularly on general tax rates, administrative complexity and wealth distribution. The net economic cost or benefit of just these three terms is likely to be more significant than the economic costs of mitigation. A well designed policy would maximise the net benefit to the whole economy regardless of where and how this is achieved. This submission claims that the optional mitigation path depends critically on the particular policy approach and the best policy would result in more rapid mitigation than suggested by the Review.

10. Unfortunately, the Review does not attempt to consider specific policy alternatives in detail. Instead it analyses mitigation costs without reference to the costs and benefits of the mechanism of implementation (p 239), finding them to be $-2\%$ to $+4\%$ of GDP in 2050. The (mistaken) assumption appears to be that the economic costs and benefits of implementing any appropriate policy are negligible, aside from those directly linked to the mitigation. Replacing investment taxes by Carbon Tax would boost savings and investment across the economy in addition to mitigating pollution.

**Carbon Taxation is Simple, Stable, Efficient, Effective**

11. It is claimed here that the benefits to the general economy of an aggressive Carbon Tax regime (over £200/t of CO$_2$) outweigh the costs by a substantial margin. This is because the revenue generated for the Treasury can completely displace the least efficient taxes and welfare benefits, cutting deadweight costs enormously. The economic benefit of this tax reform will exceed the net mitigation costs incurred, even at very high levels of carbon tax. This argument is an extension of the “double dividend” hypothesis, which seems to be rejected by the Review without detailed consideration.

12. The current focus on international action and trading systems is seriously misguided. The net economic impact of an aggressive Carbon Tax on the UK economy is so strongly beneficial that rapid, unilateral action is warranted. Other nations will follow once the benefits over labour, investment or sales taxes become apparent, and multinational action can be achieved more rapidly than by seemingly interminable international negotiation. Carbon trading offers no significant technical or economic advantages over carbon taxation, and possesses significant flaws.

13. It is suggested that a “Carbon Central Bank” be established to set UK Carbon Tax rates, based on the objectives of achieving minimum greenhouse gas reduction targets and achieving or exceeding revenue goals. This would reduce the risk of political meddling, while stabilising tax rates. The focus will be on impartial analysis and actions setting carbon rates in a similar manner to a conventional central bank setting interest rates. The consequent stability would reduce long-term investment risk for low carbon projects. This achieves Stern’s goal of giving a long-term vision of the carbon pricing scheme that the EU ETS has failed to deliver.

14. Raising revenue through environmental taxation is economically strongly advantageous. The revenue raised generally incurs a much lower deadweight cost than other forms of taxation. Carbon pollution, as measured early in the fuel distribution chain is a superior tax base than “income” or “value added”. This is because the number of taxable transactions and the number of taxable entities is much smaller. The rules to quantify the carbon content of coal, oil or gas production and imports are also much simpler than rules to calculate income or value added. The Stern Review failed to consider and quantify the relative economic advantage of carbon taxation over existing taxes.

15. A Carbon Tax is the simplest, cheapest method of incorporating carbon costs into economic decision making. The tax rate will be much more stable than trading-based systems, which are complex and prone to political tinkering, lobbying and contradictory subsidies.

16. The negative carbon externality cost should be seen as a starting price for the right to pollute. But the total cost of fuels (production cost plus externality) should also be subject to taxes at least comparable to those on other inputs to the economy, such as labour taxes and VAT. In the absence of such taxes on fuel, creation of pollution is still favoured over purchase of other goods or labour.

17. The Stern Review does not seem to have analysed the carbon disbenefit of non-carbon taxes. Any tax which increases the price of non-carbon activity shifts the economy towards increased pollution. In short, almost every non-green tax promotes pollution.

18. Replacing VAT with a Carbon Tax would eliminate “carousel fraud”, VAT evasion in all its forms, the cost, complexity and stress of VAT accounting and enforcement. Carbon Tax would be paid on the same basis by individuals, companies, even the (untaxed) Black Economy and organised crime. It would alleviate one of the biggest administrative burdens on small business. The enforcement costs of Carbon Tax would include prosecuting fuel smuggling and auditing businesses extracting fossil fuels where the tax is levied. These costs are believed to be relatively modest. Implementation in all EU nations would be highly desirable.
19. Replacing investment taxes (CGT and tax on dividends) with a Carbon Tax would simplify personal taxation substantially. Many individuals only submit tax returns because of their investments. Eliminating investment taxes would boost investment substantially as well as removing the need for many bureaucratic instruments. PEPs, ISAs, TESSAs, SIPPs, CFDs, National Savings, Premium Bonds, Child Trust Funds and Spread Betting are just a few of the devices the government has created over the years to allow people to avoid investment taxes.

20. Stern advocates government support for R&D, demonstration projects and early-stage commercialisation of low-carbon technologies (p 347). Stern also advocates a number of other subsidies. The need for these subsidies is a consequence of under-pricing carbon in the economy. An aggressive Carbon Tax would make these subsidies unnecessary. Keeping energy prices down is a perverse consequence of such subsidies, and serves little public purpose.

INTERNATIONAL ACTION IS NOT A PREREQUISITE TO SUBSTANTIAL PROGRESS

21. Stern comments on the game-theoretic analysis of cutting carbon emissions across the world. He fails to make the next step, which is to advocate unilateral action by the UK, analogous to the initial co-operative move in the successful “tit for tat” Prisoner’s Dilemma strategy. Stern’s focus on international action is misplaced. There is no need for international co-operation to put into effect a substantial carbon tax for revenue raising purposes. The policy would enhance overall economic efficiency compared with the status quo, and would be sensible even without the consequent carbon reductions. Leadership by example in this way would produce much earlier cuts in carbon emissions and motivate other nations to follow suit. This would produce multinational action without needing international action.

22. The impact of a Carbon Tax on trade with non-tax countries is often raised as a problem. The impact on the vast majority of goods is modest since labour and capital costs substantially outweigh energy costs.

January 2007

Memorandum submitted by the Freight Transport Association

Introduction

Freight Transport Association represents the freight transport interests of businesses throughout the UK. Its members range from small- and medium-size enterprises to multi-national public companies and are involved in all modes of transport. FTA members operate over 200,000 heavy goods vehicles, about half the UK fleet, are responsible for 90% of freight moved by rail and 70% of goods shipped by sea and air. This unique multi-modal mandate enables FTA to speak authoritatively on all aspects of freight based on the broader transport needs of industry in the economy.

Q1 Progress made on “Statement of intent on environmental taxation” (1997) and “Tax and the environment; using economic instruments” (2002)

1.1 “Tax and the Environment: using economic instruments” concludes that environmental taxes and other economic instruments are highly effective at correcting market failures and encourage people to choose the “good” option in order to avoid paying a high price for the “bad” option. However, it also states that environmental taxes must still follow the principles of good taxation. Good taxes are well designed; cost of compliance as well as the distributional effects should be minimal and the tax should not adversely affect international competitiveness.40

Road Fuel Duty and Vehicle Excise Duty

1.2 An analysis of road fuel duty and vehicle excise duty policy measures in the UK designed to encourage cleaner, more fuel efficient road freight transport suggests that the Government has had mixed fortunes in modifying road freight industry behaviour.

<table>
<thead>
<tr>
<th>Tax intervention</th>
<th>Benefit to road users</th>
<th>Cost to road users</th>
<th>Payback period</th>
<th>Behavioural effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lorry VED reduced on fitting particulate trap</td>
<td>£500 per year saving on VED per vehicle Improved vehicle residual value</td>
<td>Approximately £2,500 to fit particulate trap</td>
<td>5 years</td>
<td>Good—sends a clear message, encourages lorry operators to fit particulate traps.</td>
</tr>
</tbody>
</table>

Ev 150  Treasury Committee: Evidence

<table>
<thead>
<tr>
<th>Tax intervention</th>
<th>Benefit to road users</th>
<th>Cost to road users</th>
<th>Payback period</th>
<th>Behavioural effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra low sulphur diesel (ulsd)</td>
<td>None. Fuel duty reduction designed to offset higher ulsd product price</td>
<td>None</td>
<td>n/a</td>
<td>Good—clear incentive, easy change for road users to make.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>By 2000 the whole road freight industry had switched from regular diesel to ulsd.</td>
</tr>
<tr>
<td>Lower VED for car derived vans with low carbon emissions</td>
<td>Reduced VED — Cost savings from better fuel consumption — Better residual value</td>
<td>None</td>
<td>Immediate</td>
<td>Good—sends clear message to encourage businesses to buy more fuel efficient vehicles.</td>
</tr>
<tr>
<td>Above inflation fuel duty increases</td>
<td>The 26.35ppl cost differential between the UK and the EU average duty rate costs road freight operators £2.9 billion per year.</td>
<td></td>
<td></td>
<td>Poor. This reflects:</td>
</tr>
<tr>
<td>Sustained high levels of fuel duty</td>
<td></td>
<td></td>
<td></td>
<td>— the price inelasticity of freight</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>— No opportunity to switch to other modes for most road freight journeys</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>— Fuel efficiency improvements by vehicle manufacturers offset by EC pressure to reduce noxious tailpipe emissions air quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>— Low/zero carbon fuels and vehicle technology are not sufficiently developed.</td>
</tr>
</tbody>
</table>

1.3 From the above evidence, FTA concludes that taxation is more likely to be effective in achieving behavioural shift towards environmental “goods” when the tax is used as an incentive and the cost of compliance is low i.e. encouraging consumers to make better environmental choices, where a choice can be made. In the case of diesel duty, industry has limited opportunity to modify its behaviour. As a consequence the main effect of the fuel duty escalator and the sustained high levels of duty since 1999 has been to increase cost to industry and undermine the UK’s economic competitiveness.

The Committee should recommend that the Government focuses its environmental tax on the encouragement of “good behaviour” where there is a clearly identifiable course of modified action by road users.

Biodiesel

1.4 Biodiesel is subject to a lower level of fuel duty relative to diesel at 28.35ppl rather than 48.35ppl. In behavioural terms this sends a clear incentive for road users to switch to biodiesel and reduce carbon emissions as a result. However there are practical barriers to road users taking full advantage of this fuel. The table below summarises these barriers from the point of view of the main stakeholder groups involved.

<table>
<thead>
<tr>
<th>Incentive to using biofuels</th>
<th>Barriers to uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle manufacturers</td>
<td>— Warranties cannot be upheld if a biofuel blend greater than 5% is used.</td>
</tr>
<tr>
<td></td>
<td>— UK vehicle manufacturers produce vehicles for the whole European market.</td>
</tr>
<tr>
<td>Fuel companies</td>
<td>— Changes to the distribution infrastructure and blending infrastructure require substantial up-front capital investment, representing a high level of business risk.</td>
</tr>
<tr>
<td>Road users</td>
<td>No net cost — Unproven effect on vehicle maintenance and residual values — In-service fuel consumption implications not yet quantified.</td>
</tr>
</tbody>
</table>

It is important that both technical standards for biofuels and the structure of taxation incentives for biofuels is consistently applied throughout Europe so that vehicle manufacturers and fuel suppliers can make investment planning decisions with certainty. Government’s role should be to:

— Support the development and take-up of the technology where the private sector is unwilling or unable to take on the financial risk.
— Set biofuel tax incentives at a level which triggers a “no cost” switch for road users. This should be achieved through lower biofuel duty rates, rather than higher diesel duty rates.

The Committee should call on Government to maintain its current approach to biofuel take-up and not raise the cost of diesel as a means of encouraging wider use. The volume of biofuel currently available is limited. Road freight operators can only respond to tax signals incentivising biofuel to the extent to which the product is available.

Rebated Gas Oil

1.5 Environmental taxation policy must be consistent with wider transport policy objectives. The Government’s current policy of increasing rebated gas oil duty by 1 pence per litre (ppl) per year relative to road fuel duty runs counter to its desire to encourage greater use of rail freight. The 2006 duty increase in gas oil is the third in three years, raising duty by 82% from 4.22ppl in 2003 to 7.69ppl in 2006.

The rebated oil duty increase directly affects the cost base of rail freight operators. For some bulk rail freight movements, such as coal and aggregates, transport users are tied to rail in long term contracts. In such cases the effect of the Government’s policy on rebated gas oil duty is to add cost to industry supply chains. However, on other rail movements, for example, ISO container traffic and intermodal traffic, rail is in direct competition with road freight. The duty increase on rebated gas oil undermines the attractiveness of using rail relative to road haulage. The sustained rise in the duty on gas oil since 2003, alongside the commitment by the Chancellor to further “above inflation” increases in gas oil in the future, undermines any incentive for freight users to switch to, or continue using, rail.

The Committee should call on the Government to abandon its current fuel duty escalator for gas oil, or press for rail freight to be excluded from above inflation increases in the future.

Q2 Government’s use of environmental taxes specifically targeted at tackling climate change

2.1 The evidence and recommendations set out in response to Q1 apply equally to this question. In addition, the Government must ensure consistency of approach to “good practices” and “bad practices” if the tax measures designed to reduce carbon emissions are to retain public and industry confidence. Sudden changes in transport tax policy linked to climate change have in the past left industry footing the bill for the change in direction. An example of this was the change in the Government’s approach towards the climate change footprint of liquefied petroleum gas (LPG). Historically LPG has been treated by Government for tax purposes alongside compressed natural gas and liquefied natural gas. In his 2003 pre-Budget Statement the Chancellor reported that, on the basis of new scientific evidence, LPG’s carbon footprint was not as attractive as other road fuel gases. At Budget 2004, duty levels for LPG were increased to take account of this new evidence. Industry had little time to respond to this change in environmental taxation approach. As a result operators who had invested in LPG vehicles on a whole-life cost basis were left with vehicles with an escalating tax burden relative to other road fuel gases and diesel, and uncertain vehicle residual values.

The Committee should encourage Government to ensure any future repositioning of tax policy linked to transport is signalled at least five years in advance, to allow business to respond without having to bear the risk of uncertainty over its’ whole life cost’ investment decisions.

Q3 The extent to which Government uses environmental taxes to encourage behavioural change, rather than solely to raise revenue and social impacts of such taxation

3.1 The Stern review anticipates that incremental environmental benefits from road transport will continue over the coming years. From a road freight transport perspective this includes:

- training drivers to drive in a more fuel efficient way;
- using rail and coastal shipping where these modes can compete with road on cost and service criteria;
- improving vehicle routing and scheduling to reduce empty running and improve vehicle load factors; and
- investing in new, cleaner vehicle.

These improvements will be achieved through the commercial imperative to minimise the use of fuel, which represents up to 35% of the running costs of a truck.

3.2 Past experience suggests that rising levels of fuel duty have had very limited effects on reducing carbon emissions and road traffic growth. The graph below shows how road fuel duty (in pence per litre) has risen year on year since 1990 against indices for growth in road traffic and carbon emissions from UK road transport. It is evident that the fuel duty escalator increases between 1993 and 1999 had a limited impact on curbing the growth in road traffic in the UK.
3.3 Any fuel use abatement benefit created by high fuel prices will be achieved anyway as a result of high world oil prices, shown in the table below, are expected to persist for some time to come.

<table>
<thead>
<tr>
<th>Year</th>
<th>World oil price (average spot prices in US dollars per barrel)</th>
<th>Index of world oil prices 2001 = 100</th>
<th>RPI indices (all items) taken from National Institute</th>
<th>Index of consumer price indices 2001 = 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994–99 average</td>
<td>16.6</td>
<td>100.0</td>
<td>95.6</td>
<td>100.0</td>
</tr>
<tr>
<td>2001</td>
<td>23.6</td>
<td>100.0</td>
<td>95.6</td>
<td>100.0</td>
</tr>
<tr>
<td>2002</td>
<td>24.4</td>
<td>103.4</td>
<td>97.2</td>
<td>101.7</td>
</tr>
<tr>
<td>2003</td>
<td>27.8</td>
<td>117.8</td>
<td>100.0</td>
<td>104.6</td>
</tr>
<tr>
<td>2004</td>
<td>35.9</td>
<td>152.1</td>
<td>103.0</td>
<td>107.7</td>
</tr>
<tr>
<td>2005</td>
<td>51.8</td>
<td>219.5</td>
<td>105.9</td>
<td>110.8</td>
</tr>
<tr>
<td>2006</td>
<td>63.7</td>
<td>269.9</td>
<td>109.2</td>
<td>114.2</td>
</tr>
<tr>
<td>2007</td>
<td>59.3</td>
<td>251.3</td>
<td>113.0</td>
<td>118.2</td>
</tr>
<tr>
<td>2008</td>
<td>58.7</td>
<td>248.7</td>
<td>116.2</td>
<td>121.6</td>
</tr>
</tbody>
</table>


3.4 With road users responding to high fuel prices caused by higher world energy costs, it is therefore not surprising that the latest 1.25ppl increase in duty announced in the Pre-Budget Statement 2006 is projected to save just 0.1 million tonnes of carbon per year from all UK road transport. This represents poor value for money for both road users and the environment. However, fuel duty receipts are a significant source of tax revenue. FTA estimates that the 1.25ppl increase in petrol and diesel duty which took effect in December 2006 will cost motorists £328 million per year and industry at least £144 million. The Budget Report concedes that the increase in fuel duty is needed to fund public services (para 7.5.3).

3.5 Arguably, a fuel duty increase at a time of high oil prices is in fact counterproductive. Rather than focusing on fuel efficiency (which can require up front investment), operators cut costs to preserve margins. During the 1993–99 fuel duty escalator, industry responded to the pressure on cash flow and margins by delaying vehicle replacement and cutting driver training. Whilst operators were able to reduce their costs, the benefits of new cleaner trucks, for example were delayed and older trucks used intensively for longer. One result of the fuel duty escalator was that the age profile of the UK hgv fleet between 1994 and 1999 remained unchanged at 3.3 years. By contrast since then, the average age of the hgv fleet has fallen steadily, averaging just 2.7 years in 2005.

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41 Pre-Budget Report 2006, HM Treasury.
42 Vehicle Licensing Statistics, Department for Transport.
The Committee should press the Government not to re-introduce the fuel duty escalator. Raising fuel duty at a time of high oil prices is likely to undermine industry incremental environmental improvements and undermined UK economic competitiveness.

Q4 Looking forward, the appropriate role of environmental taxation in the context of the range of means by which the Government can achieve its policy aims

4.1 The Stern review states that markets alone cannot deliver the large scale changes to the road transport sector that are needed to cut global greenhouse gas emissions. As highlighted in the case of biofuels (see para 1.4), where the level of business risk is high, Government needs to be prepared to intervene to encourage a clearly defined change in transport industry practices and road user behaviour.

4.2 Increasing fuel duty as a way of penalising road user behaviour without providing a credible alternative “good” behaviour which road users can embrace delivers little or no carbon dioxide benefit and casts “green” taxes as a ruse to raise tax revenue rather than a measure to reduce the carbon dioxide footprint of transport. One way of leveraging the full environmental benefit from the fuel duty increase announced in the Pre-Budget Statement 2006, would be to ring-fence the tax revenue stream and use it for additional spending in the transport sector on projects which deliver a carbon dioxide reduction benefit. Examples include:

— improvements to the road network to remove bottlenecks which cause polluting stop-start traffic— as recommended in the Eddington Study;
— initiatives to encourage modal shift to rail or waterways where appropriate; and
— improvements to public transport.

4.3 The Stern review states that the problem of climate change is a global one and therefore needs a global solution. A key principle of good taxation as set out in “Tax and the environment—using economic instruments” is that the tax’s impact on international competitiveness must be considered. To be most effective the UK needs to take an active role in formulating a carbon emissions reduction strategy at an EU or G8 level. As the UK only produces 2% of global greenhouse gases, collective action orchestrated by the UK will bring greater global environmental benefits than unilateral actions through taxation.

The Committee should support a clear separation of taxation which is primarily for environmental purposes and taxation which is intended to maintain sound public finances. In the case of the fuel duty increase announced in the 2006 Pre-Budget Statement, and any further fuel duty increases, this money should be recycled back into transport to deliver further environmental benefits.

The Committee should call on the Government to review all interventions that can be made to reduce carbon dioxide emissions in the transport sector and quantify these in terms of a financial cost and carbon footprint reduction. This will identify which interventions provide best environmental value for money.

The Committee should press the Government to avoid taking unilateral environmental tax measures, such as raising fuel duty. Industry’s experience of the fuel duty escalator is that when such action is taken by the UK, business competitiveness is undermined and there is little evidence of clear-cut carbon dioxide savings.

January 2007

Memorandum submitted by EDF Energy

Our response focuses on the following areas of the committee’s inquiry:

— the use of environmental or green taxes that are specifically targeted at climate change;
— the extent to which government uses environmental taxation to encourage behavioural change; and
— looking forward, the appropriate role of environmental taxation in the context of the range of means that Government can use to achieve its environmental policy aims—for example by means of regulation, voluntary agreement or a spending measure.

1. Climate Change Policy and the Existing Framework of Instruments

1.1 The nature of climate change and its importance places a huge responsibility on all areas of society to address its impact. One of the key challenges for the UK is to develop a comprehensive climate change programme that engages all areas of society, specifically targets greenhouse gas emissions and efficiently incentivises reductions in Greenhouse Gas (GHG) emissions over time to the required level.

1.2 Whilst the existing programme is extensive, currently the UK’s climate change policies do not fully address the continued growth in emissions from, in particular, the transport sector. Emissions from gas use associated with space heating are also largely uncapped. This contrasts with the cap on emissions (at an EU level) placed on the electricity generation sector via the EU ETS.
1.3 Whilst energy efficiency measures are desirable (e.g. agreements with motor manufacturers, appliance labelling, EEC, etc), where appropriate the best way to ensure GHG emission reductions is to place a cap on them. The long-term appropriateness of measures such as Climate Change Agreements (CCAs), which control emission intensity but do not cap absolute emissions, will need to be reassessed.

1.4 Existing policies covering the energy industry (UK ETS, Climate Change Levy (CCL), CCA, Levy Exempt Certificates (LECs), EU ETS, Energy Efficiency Commitment (EEC), Renewables Obligation (RO) and the proposed Energy Performance Commitment (EPC)) have different carbon prices embedded in each instrument. The variation and complexity in coverage and carbon price create a number of anomalies and effects. For example:

- domestic consumers using electricity for space heating are exposed to a carbon price via the internalisation of EU ETS CO₂ prices in electricity costs, whereas those using gas for the same purpose have no exposure to carbon price;
- renewable generation benefits from three climate change instruments—LECs, the RO and the internalisation of EU ETS CO₂ prices in electricity prices; and
- some organisations will have elements of their activities regulated by EU ETS and CCAs, pay CCL on energy use associated with other activities, have another CO₂ cost internalised in their electricity prices as a result of EU ETS and potentially for activities not covered by EU ETS be within scope of the EPC.

1.5 The complexity and discrepancies illustrated in the few examples above indicate that there is a need to review, and where appropriate streamline and harmonise, climate change policies to ensure delivery of specifically targeted greenhouse gas emissions reductions in an efficient manner. At this stage, what remains unclear is the likely longevity of individual measures and the government’s ambition for the overall long-term mix of instruments to deliver its required level of GHG emissions. For example it is unclear whether it is government’s intention to have a single economy-wide CO₂ price or rather that, even in the long-term, there will be a requirement for different carbon prices/measures to apply to different sectors.

1.6 The Government will also need to carefully consider the implications and structure of the proposed statutory targets in the Climate Change Bill to ensure that they are consistent and compatible with other UK and EU policy instruments.

1.7 Schemes which create a carbon price do have the potential to create behavioural change. The EU ETS has had mixed success in this respect. The UK power sector has internalised the opportunity cost of carbon in decisions to generate/not generate electricity from individual power stations on a half-hourly basis. Other sectors, which receive business-as-usual allocations, have generally not internalised the cost in their operational decision-making processes. This demonstrates that the presence of a carbon price alone is not necessarily sufficient to create behavioural change but that other aspects of scheme design are also important in incentivising the correct behaviours, such as the level of auctioning of allowances.

2. DEVELOPING A MECHANISM TO DELIVER CAPITAL INVESTMENTS UNDER THE EU ETS FRAMEWORK

2.1 EDF Energy supports the development of emissions trading as the key part of the UK and Europe’s strategy for reducing emissions from industry across the UK and Europe. A well designed and properly functioning emissions trading scheme provides a means of delivering emissions reductions at least cost, through the creation of an efficient and transparent market in emissions allowances. By placing a price on current and future emissions it should in theory incentivise industry to either improve its energy efficiency, invest at scale in technologies using low-carbon fuels, or to develop innovative low-carbon technologies.

2.2 To make this work, the long-term stability of the EU ETS is crucial for existing participants to have the confidence to invest in abatement technologies and make significant emissions reductions, and for the EU ETS to develop into a global market. The EU ETS, as presently constituted, is not capable of sending the signals required to deliver investment in lower carbon technologies in the UK and EU, as a result of the political and regulatory uncertainty surrounding future carbon dioxide abatement targets and the structure of EU ETS beyond 2012. Although considerable efforts are being made to agree long term abatement targets across the EU, these are unlikely to be agreed in the near future. Furthermore, it is unclear how such a target would be split between the traded and non-traded sectors. This uncertainty creates a significant hurdle for early investment in low carbon technologies. We believe that the key priority for Government should be to provide political certainty for investors in future carbon dioxide abatement targets. Investment over the next 10–20 years will have a profound effect on UK emissions over the lifetime of these assets, which varies between 20 and 60 years, depending on technology.
2.3 The EU ETS currently does not provide equivalent treatment of new investment in low carbon technologies, such as carbon sequestration and nuclear, relative to new fossil fuel installations. Although these low carbon technologies benefit from higher electricity prices driven by carbon prices in the EU ETS, the provision of free allocations to new fossil plant provides a subsidy to CO2 emitting plant relative to low carbon plant. Also, the present time scales of the EU ETS and the visibility and certainty of future carbon prices does not match the investment life-cycles of these assets.

2.4 Without the provision of additional certainty to investors, there is a risk that the necessary low carbon technology investments to deliver the government’s GHG reduction targets will not occur or at the very least will be delayed significantly. Instead there will be investment in fossil plant, thereby locking the UK into higher levels of emissions.

2.5 The options available that can reinforce the operation of the EU ETS, in order to support investments in low carbon technologies in the generation sector include:

- carbon tax;
- carbon generation obligation;
- contracts for purchasing carbon reductions; and
- contracts for differences securing a minimum value for carbon abatement—namely, Carbon hedges.

2.6 Carbon Tax—A carbon tax offers government certainty over the cost of targeting carbon reductions, but not the outcome in terms of the volume of those reductions. If the tax is set at the right level, then reductions will be achieved, but the level that is correct is unlikely to be observable by government. For investors, a tax does not give long term certainty over the value of carbon, as taxes can change every year, particularly if the government believes that the tax has previously been set at an incorrect level.

2.7 Carbon Obligation—A carbon obligation certainly offers incentives for investment, and the Renewables Obligation has delivered much greater levels of renewable generation than would otherwise have occurred. Potentially such obligations may require the government to pick technologies and the extent to which such technologies should be a part of the overall generation mix. Also, as has been found with the RO, some technologies may come to dominate under an obligation, and the government may come under pressure to change the rules and pick different winners. Obligations may not allow the market to find the most efficient abatement options by which to achieve carbon reduction targets.

2.8 Carbon contracts have the ability to reinforce and strengthen carbon market mechanisms where, like the current EU ETS, the market mechanism alone does not produce the necessary long-term price signals. The contract gives investors the long term certainty they need, without requiring the government to pick technologies, and can be designed to be consistent with existing policy mechanisms. Such contracts have the further advantage of allowing Government to limit its liabilities under these contracts by controlling the volume of abatement it is willing to underwrite. The government can further limit its liabilities by influencing wider policy development and retaining the carbon price within a reasonable range that minimises its financial exposure. This liability should in any case be set against the real and increasing liability faced by the government if action to address climate change is not taken. A possible problem with a carbon contract is that if the price for carbon remains high, through the EU ETS, then a payment through the contract will be in addition to the carbon element of the electricity price. The solution to this would be to contract only for the difference between the contract price and market price for carbon, as explained below.

2.9 EDF Energy’s preferred option is the Carbon hedge, ie a contract for difference to essentially provide a “floor price” for carbon. If a strong EU ETS phase 3 emerges from international negotiation, as the government intends, the value of carbon will remain an important factor in the electricity market. A carbon price will mean that the cost of carbon is properly reflected in electricity prices according to the level of emissions associated with the production of that electricity. In these circumstances the government would not need to make any payments to the investor, as the investor is already benefiting through the wholesale price for electricity. Only if the price for carbon falls to a low point would the government become liable for payments. Companies wishing to bid for such contracts would competitively bid to the government, so that the level of the floor would be pushed down to the lowest level needed to secure the desired reduction in CO2 emissions. Such a bidding process should be open to all forms of low carbon generation and would be “technology neutral”. The government would then have the option of contracting for as much or as little carbon reduction as required to fit with the overall carbon reduction goals.

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43 The level of subsidy will be dependent upon the level of allocation and the extent to which CO2 prices are reflected in the prices to end consumers. In the UK, the nature of vertical integration in the competitive market means that in practice tariff customers are exposed to the cost of purchasing CO2 allowances to cover generators’ short positions rather than the full opportunity cost.
2.10 EDF Energy believes that commercial market-based instruments can be used to underpin the significant capital investment required to lower the carbon intensity of the electricity sector in the UK. This can be done without exposing the UK Government to unacceptable financial risks by controlling the amount of CO2 reductions it commits to in this way. These instruments can be designed to reinforce the integrity of the EU ETS and global carbon market in the long term, within the framework of competitive and liberalised energy markets, as supported by the UK Government.

January 2007

Memorandum submitted by British Airways plc

INTRODUCTION

1. British Airways welcomes the opportunity to submit evidence to the Treasury Committee. British Airways is one of the world’s leading scheduled international passenger airlines. BA employs around 47,000 employees worldwide, 80% of whom are based in the UK, and generates annual revenues of £8.5 billion (2005–06).

2. British Airways seeks to promote and enhance aviation’s role as a contributor to the sustainable development of global society, recognising that sustainability must strike a balance between economic, social and environmental objectives.

3. The scope of any policy to address aircraft emissions should take into account technological progress both past and future, support for investment in research and development, and the need for continued improvements in infrastructure and air traffic management. In addition to these elements, the use of economic instruments will play an important role.

4. British Airways does not accept that the right way to limit emissions is to discourage flying—by punitive taxes or constraints on industry growth. This has not been effective in curbing road transport growth and, when applied to air transport, leads to negative social and economic effects with no perceptible environmental benefit.

5. Instead we believe that including aviation within emissions trading—initially within the EU but eventually within a broader international scheme—is the most environmentally effective and economically efficient mechanism for dealing with carbon dioxide (CO2) emissions from aviation.

STABILISING GLOBAL EMISSIONS CONCENTRATIONS

6. The key objective of climate change policy is “stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”

7. British Airways and the UK aviation industry through Sustainable Aviation fully support that goal. However, a unilateral UK approach is no solution. The UK currently contributes just 2% of CO2 emissions and UK aviation just 0.1%. Climate change is a quintessentially global problem and requires a global solution, covering all major sources of greenhouse gas emissions.

8. The atmosphere does not distinguish CO2 emissions by country or economic sector and it does not have a preference whether emissions reductions are cheap or costly. The key goal must be to reduce total global emissions at the least cost.

9. In order for aviation to contribute effectively, international air transport should be incorporated into a global climate change policy framework guided by the International Civil Aviation Organisation (ICAO).

ENVIRONMENTAL ECONOMIC INSTRUMENTS

10. Environmental economic instruments have the potential to play a central role in meeting the objectives of climate change policy. Critically however, it is imperative that any instrument is cost effective, environmentally focussed and globally applied:

    — Cost effectiveness—Policy instruments should be selected to achieve the greatest real improvement in environmental performance at the minimum economic cost.

    — Clear environmental rather than fiscal objective—Policy instruments should target emissions reductions across the economy and provide incentive for investment in efficient technologies. Such instruments should not be designed to create revenue flows to government, as these typically have poor incentive properties for improving environmental performance.

45 The Sustainable Aviation group includes all major companies in UK aviation. www.sustainableaviation.co.uk
— **Global approach, minimising competitive distortion**—Unilateral UK domestic action will not achieve global emissions goals and will affect UK companies disproportionately, imposing serious commercial damage. In order to avoid international competitive distortion and to effectively address the global issue of climate change, it is imperative that an international solution for addressing aviation’s climate change contribution is determined in time for the post Kyoto international regime.

11. We do not believe that Air Passenger Duty (APD) is an effective tool in tackling emissions reductions and improving environmental performance. Indeed, we agree with the many observers who have described this tax as a revenue raising measure that brings no direct environmental benefit.

12. The proceeds of APD support general public expenditure rather than specific environmental mitigation. There is no commitment to spend any of this revenue on projects that would reduce carbon emissions and therefore mitigate UK aviation’s impact on climate change.

13. British Airways’ contribution to APD revenue will now total more than £400 million a year. For the same cost, using Clean Development Mechanism (CDM) offsets, British Airways could offset the total annual emissions of our entire worldwide fleet many times over.

14. We remain convinced that, as advocated in the Stern Report, emissions trading is the most effective economic instrument to manage the climate change impact of aviation. We support aviation’s inclusion in the EU Emissions Trading Scheme (EU ETS) provided our industry is treated in the same way as other participating industries. We expect that once aviation joins the EU ETS, APD as an environmental tax would be eliminated.

15. Economy-wide open emissions trading is consistent with the needs of sustainable development, since the external costs of climate change are automatically built into the cost of goods and services. The economy and society then have choice in determining the appropriate mix of economic outputs within carbon reduction constraints.

**ICAO Impact Assessment**

16. In 2000, ICAO studied potential industry impacts of various economic instruments that could be used to manage global aviation emissions.46 Costs to industry were assessed against a hypothetical target, equivalent to the aviation sector meeting the Kyoto Protocol target.

17. Taxes or charges rely predominately on the suppression of demand caused by significant increases in airline operating costs and, consequently, airline fares. The cost to industry was estimated at about 245 billion US$ per year.

18. Emissions trading enables industry to offset growth through purchase of emissions allowances from outside the aviation sector. The actual impact on industry growth, costs and competition is uncertain, but the ICAO analysis estimated costs to industry of 1–60 billion US$ per year.

19. The analysis demonstrates that open emissions trading is a significantly more cost-efficient instrument for managing global aviation emissions than taxes or charges. Following these detailed analyses, ICAO States unanimously endorsed open emissions trading for international aviation.47

**Summary**

20. British Airways is committed to the sustainable development of aviation and is a founder member of the UK Sustainable Aviation group. We support a long-term strategy to limit aviation’s climate change contribution based on robust science, sound economics and well-designed policy instruments.

21. Taxation instruments aimed at addressing aviation emissions, such as APD, have been demonstrated as economically punitive and environmentally ineffective.

22. The UK and EU have a unique opportunity to lead the way on aviation climate change policy by demonstrating emissions trading as a workable and effective policy instrument.

23. Effective inclusion of aviation into the EU ETS is an important step towards the ultimate goal of a comprehensive global policy approach to managing aviation’s contribution to climate change.

24. We expect that once aviation joins the EU ETS, APD as an environmental tax would be eliminated.

*January 2007*

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46 Analysis of market based options for the reduction of CO2 emissions from aviation with the AERO modelling system, Final report to FESG, MATG, November 2000.

47 ICAO Assembly resolution A33-7.
Memorandum submitted by the City Remembrancer Office

I am writing in connection with the Committee’s inquiry into climate change and the Stern Review and the implications for Government policy on tax and the environment.

The potential impact of climate change on the economy has been acknowledged by the City Corporation domestically by its decision voluntarily to offset the carbon dioxide produced by the Lord Mayor’s annual business travel, as well as that of all Members and Officers, by investing in energy projects in Mauritius. The City has been doing this for four years and, for the same period of time, has also offset the carbon produced by the Lord Mayor’s Show. The City prides itself in being one of the largest purchasers of renewable energy in the UK with all street lighting, civic buildings and Mansion House run on renewable energy. A separate initiative under consideration, in association with the Building Research Establishment (BRE), is exploring the possibility of using “carbon bonds” within the planning system, in order to encourage more energy efficient office developments.

It is also worth noting that in the 1990s, the City Corporation commissioned the original research which helped catalyse the establishment first of the UK Emissions Trading Scheme and then the European Emission Trading Scheme. The City of London is now recognised as a leading carbon trading centre and in the last 18 months there has been remarkably rapid growth in emissions trading. Approximately 350 million tonnes of carbon allowances were traded internationally in the EU ETS during 2005, worth an estimated €9 billion. That figure is expected to more than double this year to between €20 billion and €25 billion and further growth will be exponential.

More recently, the City Corporation published research undertaken by Consilience Energy Advisory Group which considers the business opportunities offered by emissions trading and ascertains how the market has developed and identifies the next generation of trading opportunities for the City. It also investigates how emissions trading could be utilised by local authorities and proposes ideas for introducing energy efficiency measures in new buildings and local transport networks. Among the report’s findings is the conclusion that the climate change industry promises to be one of the largest in the world and offers the prospect of substantial financial rewards to the City of London. A copy of the report can be forwarded to you if you have not already seen it.

The City Corporation welcomes the Stern Review as a landmark document which makes an important contribution to the debate. The City believes that carbon markets provide an important weapon in the battle against global climate change.

Finally, it may interest the Committee that the City Corporation, acting as lead sponsor, is currently working with BP and Z/Yen Consulting to develop a project entitled “The London Accord” which is intended to pool the research capacity of the City’s financial services sector to determine the most cost effective ways of tackling climate change. The project, to be launched formally in the spring, will be overseen by a panel of 10 pre-eminent economists, and will aim to identify solutions to some of the issues raised in the Stern Review. The project has, so far, generated considerable interest and City firms have pledged research services conservatively valued in excess of £4 million. This research will, no doubt, consider many of the areas which will also be under investigation by the Committee. I will ensure a copy of the report is forwarded to you on completion of the project.

January 2007

Memorandum submitted by the Environment Agency

OVERVIEW

The Stern Review provided a very powerful analysis of the economic implications of climate change, but focused most of the discussion of adaptation on the developing world. Whilst it is clear that the impacts will be felt hardest there, the UK also has a responsibility to address its own vulnerability to climate change.

Adaptive action, responding to the impacts of climate change in the UK, is both essential and cost effective. Regardless of changes to our emissions of greenhouse gases, climate inertia means that we are locked into inevitable climate change up until 2040. Beyond 2040 we still have an opportunity to influence future climate and with swift action now there is still a chance that dangerous climate change could be avoided. However current experience suggests that this is optimistic. In reality over the next 100 years the UK will face sea level rises in excess of one metre, a scenario for which we are ill prepared.

Whilst the terms of reference for this committee focus on the mitigation agenda, which is an essential element of our response to climate change, we must not overlook the importance and the urgency of considering our approach to adaptation. Many infrastructure investments being made today will have a life expectancy of 20 to 100 years. This makes them potentially very vulnerable to climate impacts and such investments must be able to adapt to the changing climate.

Stern identifies the barriers and limits to adaptation, stating that in many cases, market forces are unlikely to lead to efficient adaptation. It is therefore legitimate for Government policy to overcome market barriers to private action. Steady increases in investment for flood risk management are probably the most important example of where Government action will be required. The most effective response to climate change in flood management terms is a natural coast and flood plain and whilst continued defence investment will increasingly be required, reduction of flood plain development is also an essential and requires resources.

Adapting to climate change will entail some medium term cost. Whilst we recognise that it is difficult to secure resource commitment to new areas of public policy at a time of expenditure constraint, the financial risks of ignoring potential climate changes are far higher than the many short term savings. The Office of Science and Technology Foresight report on Future Flooding identified that we could be facing losses of up to £27 billion per year for flooding alone by the 2080s if adaptation measures are not taken. In the context of the Comprehensive Spending Review, the case for increasing resources to reduce flood risk is compelling.

The Government has rightly highlighted climate change as one of the five key long-term challenges facing the UK, as the context for the forthcoming Comprehensive Spending Review. The Stern Review is a major contribution to the growing evidence base which should make action on climate change mitigation and adaptation a strong feature of the CSR and future Budgets.

The Response to Unavoidable Climate Change

1.1 Figure 1 illustrates the likely course of global warming over the present century for sharply different future emissions pathways. The important points to draw from this are that some warming is inevitable and that significant variation in response to lowered emissions only starts to be felt in the second half of the century. In other words, for the next 30–40 years we are committed to a path of warming, albeit with some unpredictable consequences. As a result, the welfare impacts of climate change on society and nature over this period will be most substantially influenced by how we adapt to the inevitable climate change. Mitigation strategies are vital to reduce the risk of dangerous climate change later in the century and beyond.

Figure 1
TEMPERATURE RISE FOR DIFFERENT FUTURE EMISSIONS49

Emissions scenarios

1.2 For this reason we wish to draw the committee’s attention to the place of adaptation in the economics of climate change and its importance in the Government response.

SECTORAL COSTS: EXAMPLES OF UK FINANCIAL IMPLICATIONS OF CLIMATE IMPACTS

Flood Risk

1.3 Flood risk management is probably the most important element of a UK climate change adaptation strategy. We cannot continue as if the risks are not increasing. Stern states that flood damage costs the country 0.1% of GDP and that this could rise to 0.2–0.4% if global temperatures rise by 3–4°C and no adaptation measures were taken. The insurance sector has stated that weather related claims are increasing 2–4% per annum—in Autumn 2000, storm and flood claims cost the insurance industry £1 billion. The Association of British Insurers recently published results that showed that a 0.4m increase in sea level rise would almost double the homes at risk of flooding in eastern England.

1.4 Calculations have shown that public investment in flood risk management is highly cost-effective in terms of value for the taxpayer. Current flood defence projects deliver an internal rate of return of 27% (which compares very well to road (13%) and rail (10%) projects) and an average benefit-cost ratio of 6:1. In effect, this means that we forego many projects where the risk to life and property is real and where projects would provide an excellent return.

1.5 But resource constraints mean that flood risk management investments with attractive b-c of 1:1 to 5:1 run an increasing risk of not being taken up, and instead high flood damage costs are incurred. Not doing a £2 million scheme with a b-c ratio of 5:1 means property owners, through insurance premiums, will eventually pay £10 million more than they would had the investment taken place.

1.6 But building defences is not the only appropriate response to flood risk. Maintaining and operating a flood forecasting, detection and warning service are a key part of managing flood risk. This system provides information to people, businesses, authorities and emergency services to allow them to prepare for and respond to flooding, and thereby reduce the consequences. With an expected increase in flooding and a limit to investment for substantial capital projects, these types of response are becoming increasingly important in adapting to climate change and helping people live more comfortably with flooding.

1.7 In England and Wales approximately £1.5 billion is spent on dealing with river and coastal flood risk annually, with only £450 million of this being spent on flood risk infrastructure, trying to prevent damage to property and life. The rest goes on clean up and repairing damage and is paid for by property owners through the insurance system. The Foresight report on Future Flooding recommends that if we are to maintain current levels of defence this £450 million will need to rise to an annual investment of £1.1 billion. More recent Defra flood risk guidance and the development of climate models suggest that the Foresight

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Footnotes:
50 Coastal Flood Risk—Thinking for Tomorrow, Acting Today, ABI, November 2006.
53 Hadley Centre climate model used for fluvial flows in foresight—now evident that this model assumes drier conditions than most.
figures are under estimating the problems we face. The Government has increased funding in recent years, but the lesson of the Foresight report is that these increases should continue until expenditure is at a significantly higher level.

1.8 Almost regardless of the scale of climate change, our current wasteful approach of spending nearly 70% of flood risk money on clearing and repairing damage rather than on more cost-effective prevention is not efficient or sustainable as climate change drives up the underlying risk. It is essential that a more suitable balance be achieved.

1.9 The cost of the Carlisle floods in January 2005 have been estimated at between £200 million and £250 million.54 This does not include the health impacts and costs on the local community. The scheme to reduce the risk to Carlisle from a similar flood will cost £36 million. But the impacts of the northern floods, of which Carlisle was just a small part, cost approximately £450 million.55

1.10 Our work has identified that 2.3 million of the 25 million homes in England and Wales are in flood risk areas, with equates to land and assets worth £237 billion. 517,000 homes are currently at high risk (greater than 1 in 75 chance of flooding in a given year) and this number has been rising. Research carried out by the University of Dundee calculated that the median cost of putting things right for an average household after a flood would be around £28,000.56

1.11 Underfunding of flood risk management work ultimately presents a real financial risk for Government. Responsibility for provision of affordable insurance cover for the most vulnerable areas currently sits with the insurance industry, through a voluntary agreement. However this would transfer back to the Government if the insurance industry reviewed its commitment due to continued under investment in flood risk management. In the light of climate change impacts it is essential that we ensure that a suitable level of investment is maintained.

1.12 Given the high level of proposed development in sensitive areas and the increasing threat from climate change, there is an escalating need for effective measures and mechanisms to be introduced that cover the cost of flood risk management or a radically different approach to development in high risk zones. Currently each new house built in the flood plain costs between £14–53k for the provision of flood defences. This figure is compounded as you add in maintenance costs and longer term defence renewal.

1.13 Legislation can provide significant support. The Environment Agency’s flood defence powers are not statutory in England and Wales. Flood defence is a permissive power and not a public right. If statutory levels of defence were ever introduced then the cost to the public purse would be magnified several fold. But on the tidal Thames, and passed as law (Thames River Prevention of Floods and Amendments, 1879 to 1962), the Environment Agency has powers of enforcement and throughout England and Wales we have a supervisory duty over other operators to ensure standards are maintained. We maintain, and operate where relevant, the most important tidal defences. But for the majority of defences, it is the landowner that has the responsibility to pay for and implement any maintenance under the Environment Agency’s order.

1.14 As from 2003, we adopted a Thames Tidal Contribution Policy. This was implemented to ensure tidal defences integrity and London protection against tidal flooding. In effect, where defences are assessed with a residual life of less than five years, we may contribute to the cost of renewal. We share the cost if it is accompanied by a new development and, where there is no change of use of the riparian property, our contribution is 90%. In effect, developers of property fronting the tidal Thames must pay 50% of any primary defence works required and thereafter contribute 10% to on-going maintenance.

1.15 Using taxation would be another option. The French use a taxation approach known as the “Cat. Nat. system”. This scheme essentially combines a national solidarity principle with a public-private sector partnership. It aims to compensate natural catastrophe victims through a central fund, which is generated through an additional insurance premium, across all policies regardless of the risk of each individual. A significant disadvantage to this approach is that in discourages sustainable development and flood risk adaptation measures.

1.16 A similar but more preventative approach to the French system would be to increase our existing “Insurance Premium Tax” (IPT) on property insurance and hypothecate the revenue to cost-effective flood risk management programmes. This would enable the effective transfer of inefficient clear-up and repair expenditure, which is effectively funded by the public and distributed by the insurance industry, to cost-effective FRM investments with benefit-cost ratios of 5:1 or less. However it would mean that the beneficiaries of such hypothecation would be doing so at the expense of a much more significant number of policy holders who are at no flood risk which may be an unattractive political spin off.

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1.17 IPT currently raises £2.5 billion per year and is levied at either 5% or 17.5% on insurance premium, with rates varying by policy type, with the lower rate applied to property insurance. According to the Association of British Insurers, property insurance premiums for the UK are £8.5 billion and expenditures £7.7 billion\(^57\). Thus each one percent increase in IPT applied to all property insurance premiums would raise £85 million and applying the full higher rate up to £1 billion.

**Water Resources**

1.18 On water resources, the Environment Agency has overall responsibility for strategic water resource planning and provides advice to Government on water resource plans of the water companies, which cover the next 25 years.

1.19 From our work considering severe droughts\(^58\) we know that climate change is expected to reduce the available water resource for public supply by approximately 1,500Ml/day, or 10%, by 2030. If this were to be provided through reservoir construction alone, the total cost would be £3 billion.

1.20 We oversee the Drought Plans prepared by the water companies and prepare our own, focused on the needs of the environment. We encourage water companies to choose options that are flexible and can cope with a whole range of future conditions. This can include new resource developments, such as reservoirs, but these are not automatically the best choice. We consider water demand management should play a significant role in water companies’ adaptation strategies.

1.21 In the UK, water savings from household metering are between 10–15% (with significantly larger peak demand savings) (Herrington, 2006). Around 28% of households are currently metered in England and Wales rising by about 2% per year. Metering should be accelerated where it is most needed. The case for metering is strongest in the Southeast where per capita consumption is highest and water resources are under the greatest stress.

1.22 The Government, led by Defra, are about to consult on water metering and other recommendations of the Water Saving Group, chaired by Ian Pearson, Minister of State for the Environment. It is essential these consultations lead to an acceleration of the use of water meters in water stressed areas by encouraging water companies to better use the discretionary powers they already have, such as on change of ownership. It should also aim to streamline “water scarcity status” applications to enable further compulsory metering in water stressed areas and to encourage water companies to better account for water efficiency options in their water resource plans. Concerns about the impacts of metering on charges for disadvantaged households can be met by smart metering arrangements which provide basic water supplies at an affordable cost, with higher “luxury” use charged comparatively more.

**Other Environmental Infrastructure**

1.23 Environmental infrastructure provides essential environmental services to every community. Increasing population density, applied to an ageing infrastructure is likely to cause both social and environmental problems. This situation will be compounded by the increasing stress being placed on it by climate change.

1.24 One area of infrastructure where investment needs are sometimes overlooked is that of drainage. As climate change becomes more significant, adequate surface drainage will become more important in order to protect developments, and the surrounding areas, from risk of flash flood and combined sewer overflows. There will be many calls on the revenue of Planning Gain Supplement, Section 106 agreements and any developer charges or tariffs, but it must be clear that drainage should be eligible for any or all of these.

1.25 To ensure that funding is available ahead of development, a revised version of the Community Infrastructure Fund could become a recyclable fund for clawing back funds in order to support the incorporation of climate change adaptation responses in waste water and drainage infrastructure.

1.26 In Germany they have adopted a more direct approach through taxation. In Berlin they use a Biotope Area Factor (BAF) which is calculated based on how much land surface, with habitat potential, is being lost through urban land-use. Compensation is made by considering all suitable wall and roof surfaces as well as better use of the ground level spaces. A tax on drainage from impermeable surfaces encourages the minimisation of sealed surfaces that contribute to runoff.

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\(^57\) Association of British Insurers, *UK Insurance—Key Facts 2005*. Figures for 2004. Premiums are split £5 billion from domestic policyholders and £3.5 billion from commercial policyholders.

CONCLUSIONS

1.27 The Stern Report contained some powerful analysis of the economic implications of climate change. There needs to be a dual approach of taking serious action to reduce emissions and prevent dangerous climate change, but also to make the necessary investments to adapt to unavoidable climate change of the next 40 years. Our evidence to the Committee has focused on the latter, in order to draw attention to an often neglected aspect of the climate change agenda. This is not an alternative to the urgent need for steps to further reduce emissions, but an additional responsibility of Government.

January 2007

Memorandum submitted by Zoom Airlines

I am currently in the process of setting up a new UK airline, Zoom Airlines Ltd, which will commence operations from London Gatwick in May 2007. The airline is owned by the same shareholders as the Canadian operator of the same name, and will operate UK/USA services to extend a full-service, low-fare product into a select number of markets. Recruitment has already started for the 80 new positions created by the airline’s launch, and we expect to employ up to 400 people in two years’ time.

I’m writing to you as the Chair of the Commons Transport Select Committee to seek your assistance in encouraging a review of Air Passenger Duty and the current charging methodology employed by HM Revenue & Customs under directions from HM Treasury.

The Chancellor’s recent Pre-Budget Report contains an announcement that Air Passenger Duty is to be doubled. Firstly, I would state my view that there has to be action from the aviation industry to operate efficiently and to minimise impact on the environment. I’m therefore not opposed to an increase in taxation per se provided that it is equitable and effective. Zoom Airlines is committed to doing everything it can to reduce emissions and will also focus on other areas, such as cutting the average 300kgs of waste going into landfill sites from each long-haul flight.

Regardless of the rights and wrongs of using APD as a tax instrument to slow growth in the aviation sector and to reduce carbon emissions, the current structure of APD charges needs to be radically reviewed. It was established in 1994 and developments in the aviation industry since that time mean that the basic structure is now obsolete. It is creating some huge anomalies in the amounts paid by individual passengers and airlines for carriage:

— Business-class only airlines are paying the lowest rate of Air Passenger Duty for long-haul flights. Even though they offer full Business Class service, they qualify to pay the lowest rate as this is the “lowest class” of travel aboard the aircraft.

— In Premium Economy, where seats offer around six inches more legroom than in standard Economy Class, the highest rate of APD is applicable. It means that customers choosing a small upgrade are paying the same tax as those choosing Business or First Class lie-flat beds, despite emissions per passenger being significantly lower for aircraft which have Premium Economy seats (due to the higher seating density of the cabin) than those aircraft fitted with Business or First Class.

— The Chancellor’s recent decision to increase APD for travel from 1 February 2007 fails to take into account that many passengers have already booked and paid for journeys after that date. Are airlines retrospectively expected to collect the additional tax from customers, or simply to bear the extra tax burden themselves?

— The APD level takes no account of the proportion of seats filled by the airline; you simply pay per passenger. There is no incentive for airlines to cut flights on marginal routes or to cut emissions by carrying the same number of customers on fewer flights. For example, BA uses its smaller long-haul aircraft on flights from Heathrow to Newark, but operates three departures every day. It could comfortably carry the same number of passengers by using two larger aircraft of the type already in its fleet, but there is no economic incentive for it to do so.

I firmly believe that these issues need to be addressed before any change to APD is approved. I have set out some additional information on these issues—and some proposed solutions—on the following two pages. None of these are radical departures from the current scheme of charges but would correct the anomalies which presently exist. I would hope that these could be put forward as rational propositions which are consistent with meeting environmental aims but doing so in a rather more sensible manner than that proposed by the Chancellor in his recent Pre-Budget Report.

As a matter of courtesy, I should advise that I have also written to Laura Moffatt, MP for Crawley (where the business is to be based); and to Peter Ainsworth MP (East Surrey), who is my constituency MP.
CURRENT HMRC GUIDANCE (NOTICE 550) STATES:

2.5 What is the lowest class of travel?

The basic rule in deciding the APD liability of passengers on a particular flight is illustrated in the following table:

<table>
<thead>
<tr>
<th>No of classes of travel</th>
<th>Criteria</th>
<th>APD liability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only one class of travel on flight</td>
<td>Aircraft only has one cabin section or seating configuration; and Airline doesn’t market premium class (es)</td>
<td>All passengers = appropriate reduced rate (£5 or £20)</td>
</tr>
<tr>
<td>More than one class of travel</td>
<td>Aircraft separated into different areas by virtue of:</td>
<td>Passengers occupying premium seats/cabin = appropriate standard rate (£10 or £40). Other passengers, in the lowest class of travel = appropriate reduced rate (£5 or £20)</td>
</tr>
<tr>
<td></td>
<td>— different seats;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>— seating configuration; or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>— other means of physical divide (such as curtain); and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Airline markets premium class (es)</td>
<td></td>
</tr>
</tbody>
</table>

COMPARISON OF REVENUE

The table below sets out the contributions of Air Passenger Duty to HMRC by five different airlines operating comparable equipment between London and New York JFK.

MaxJet and Eos are US-based, all Business Class operators. As can be seen, the seat density on board those aircraft is very low—MaxJet fits 100 seats into an aircraft flown by most other airlines with between 220 and 290 seats. Eos fits 48 seats into a Boeing 757, where UK charter airlines carry 235 passengers in an identical aircraft. The emissions per passenger generated by these airlines are significant, but their contribution to HMRC is the lowest.

British Airways and Delta Air Lines are conventional full service operators, both flying 767-300 aircraft with a mixed configuration of Business and Economy Class. Zoom is a low-fare, full-service airline. Its 767s are configured with 266 seats versus 189 in identical aircraft operated by BA and 214 fitted to identical aircraft operated by Delta. It achieves this by having Premium Economy seats instead of having Business Class sleeper seats fitted in the front cabin of the aircraft.

Given that the aircraft’s emissions and performance are identical, Zoom’s Co2 emissions per passenger are therefore 30% lower than those of BA and 62% lower than those of MaxJet, yet the tax burden met by Zoom’s passengers is by far the greatest of any operator in the market.

<table>
<thead>
<tr>
<th>Airline</th>
<th>Aircraft type</th>
<th>MaxJet Boeing 767-200</th>
<th>Eos Boeing 757-200</th>
<th>British Airways Boeing 767-300</th>
<th>Delta Boeing 767-300</th>
<th>Zoom Boeing 767-300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seat capacity</td>
<td>First</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>100</td>
<td>48</td>
<td>24</td>
<td>36</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Premium Economy</td>
<td>—</td>
<td>—</td>
<td>24</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Economy</td>
<td>—</td>
<td>—</td>
<td>141</td>
<td>178</td>
<td>182</td>
</tr>
<tr>
<td>Charging rate</td>
<td>First</td>
<td>—</td>
<td>—</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>20</td>
<td>20</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Premium Economy</td>
<td>—</td>
<td>—</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Economy</td>
<td>—</td>
<td>—</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>HRMC revenue per flight</td>
<td>2,000</td>
<td>960</td>
<td>4,740</td>
<td>5,000</td>
<td>7,000</td>
<td></td>
</tr>
</tbody>
</table>

POTENTIAL SOLUTIONS

— Re-define the charging bands:
  — Economy Class passengers purchasing a ticket on an aircraft with a single class of travel and seat pitch of up a maximum of 35 inches would pay the basic rate applicable to that route, ie either £10 or £40 as at present.
  — Passengers purchasing an enhanced class of service such as Premium Economy, short-haul Business Class or an Economy cabin with legroom of up to 40 inches would pay a middle rate of £30 on short-haul and £60 on long-haul flights.
  — Passengers travelling on any aircraft with seat pitch of over 40 inches would pay the maximum rate of APD, being £40 on short-haul and £80 on long-haul flights.
  — This would resolve the current issues of all-Business Class airlines paying a low rate of duty; and act as some financial incentive for passengers to select more environmentally-friendly options of Premium Economy rather than full-blown First/Business Class seating.
New APD charging levels would be effective for bookings made after 1 February 2007 rather than for travel. This avoids a huge tax burden on airlines which they have no reasonable means to recover from customers who have already booked and paid for their travel.

After the above changes, a longer-term review of APD should be implemented with the aim of introducing emissions-based schemes which take account of the aircraft’s seating density and emission levels when calculating the level of duty paid.

In an ideal world, APD would be reduced back to its previous levels and then an emissions-based charge levied by airlines would be introduced.

The current scheme of APD is ineffective in encouraging airlines to improve their emissions performance; if you carry more passengers on the same aircraft, you pay more APD but have reduced the environmental impact. By moving to a structure where there is a fixed cost per flight paid by the airline, it encourages airlines to maximise the seating capacity of the aircraft so that they can recover that fixed cost from a higher number of passengers. This is consistent with cutting emissions.

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**Excerpt from Zoom Airlines Ltd Business Plan**

6.8 Environment and awareness

6.8.1 It is apparent that there is a strong and enduring movement towards sustainable aviation in the UK, with significant amounts of media coverage being afforded to the environmental impacts of aviation as this Business Plan was being prepared. Zoom believes that it is appropriate and proper to recognise the effects of aviation on the environment; and to do whatever it reasonably can to mitigate these effects.

6.8.2 An environmental programme has been developed for the airline from day one. It is somewhat unorthodox for an airline to cite its green credentials, but Management believes that it is both necessary and responsible to do so as part of a long-term strategy of minimising the airline’s impact on the environment.

6.8.3 This will be afforded low-key publicity through sources like the Flyzoom.com website and the in-flight magazine. Key aspects of this include:

- Links via the FlyZoom.com website to ClimateCare.org, an environmental organisation which offers customers the opportunity to purchase “carbon offsets”. This programme allows the customer to calculate the carbon emissions relative to their journey; and to pay an amount (typically around £15 for a transatlantic roundtrip) based on the notional value per tonne of carbon emissions. This is invested in projects to reduce emissions;

- Use of recyclable and recycled materials and acid-free inks in Zoom’s on-board food packaging and in-flight magazine;

- Evaluations are under way to introduce drinks tumblers made from recycled corn instead of polypropylene and meal containers from sugar beet. These are in production [through WK Thomas & Co, the leading supplier of airline disposable equipment], are made from renewable sources and degrade completely in less than two months, a tiny fraction of the time that it takes a polypropylene tumbler to degrade;

- Separation of waste on board the aircraft to facilitate recycling of items such as drinks cans, cardboard and paper;

- As part of the training programme, all employees will be provided with half a dozen low-energy lightbulbs and encouraged to use these in their homes. They will be encouraged to espouse the key message that if four customers on every flight replace conventional lightbulbs with low-energy ones, it will cut emissions in a year equivalent to the same amount generated by the whole flight and also save them money on their electricity bills;

- If a suitable arrangement can be reached with a manufacturer, giving away a free low-energy light bulb to each passenger on flights into the UK, with packaging over-branded with Zoom logos and key environmental messages;

- Encouraging advertising in the in-flight magazine for renewable, low-carbon home energy sources such as that operated by Southern Electric in the UK;

- An environmental training programme for all employees. This will aim to stress benefits such as those outlined above; and that the 268-seat configuration of Zoom’s 767 (versus Delta’s 214 seats or BA’s 189 seats fitted in identical aircraft) means that emissions per passenger are one third lower than if customers flew with Zoom’s direct competitors.

*February 2007*
Memorandum submitted by the Chamber of Shipping

INTRODUCTION

Global Warming is, by definition, a global problem and shipping is the most global of industries. Despite moving 95% of the world’s goods by volume, the Stern Report acknowledged that shipping, together with rail, contributed only 1.75% of greenhouse gases. Despite this excellent performance, the UK shipping industry is not complacent and we commit to further reducing our carbon emissions in the shortest possible timeframe. Delivering further on what is already the least environmentally damaging form of mass transport is difficult however, and even a 10% reduction in carbon emissions (which would be very hard to achieve) would only reduce global carbon emissions by less than 0.2%. It must be remembered that to achieve such savings at excessive cost may well lead to a modal shift to other less environmentally sensitive forms of transport resulting in a net environmental loss.

WHY REDUCING CARBON EMISSIONS FROM SHIPPING IS DIFFICULT

Carbon emissions and fuel efficiency are corollaries. Shipowners have, for years, sought to minimise their fuel costs (a significant part of total voyage costs) through a number of means. These include using the shortest, safest and (increasingly) most environmentally sound routes between two ports; through economies of scale (the largest container ships being built now hold c.13,000 containers as opposed to c.4,000 in 1990); optimisation of hull design, engine technology and propeller design.

The potential efficiency improvements from these sources are, however, finite. The largest container ships cannot visit most British ports because of their size and engineering solutions are virtually optimised. It is largely as a result of the industry’s considerable efforts over the last 10 years that the UK Greenhouse Gas inventory 2006 shows shipping emissions between 1990 and 2004 (the latest year for which full data are available) as having fallen by 11%.

GREENHOUSE GAS EMISSIONS IN KYOTO BASE YEAR AND 2004

<table>
<thead>
<tr>
<th>Source</th>
<th>Emissions in base year/MtCe(1)</th>
<th>Emissions in 2004/MtCe(1)</th>
<th>Absolute change/MtCe(1)</th>
<th>Percentage change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions of CO2 from international shipping</td>
<td>1.8</td>
<td>1.6</td>
<td>-0.2</td>
<td>-11</td>
</tr>
</tbody>
</table>

(1) Million tonnes of Carbon equivalent.

PROBLEMS ASSOCIATED WITH CURRENT STATISTICS

It should also be recognised that there is a need for better, more accurate data. The IMO’s green house gas indexing system has highlighted the problems associated with trying to normalise carbon emission data from ships. Two sister ships on the same route can have a discrepancy of 45% on their carbon emissions arising from factors such as currents, wind, weather conditions, shiphandling techniques etc. Neither do figures derived from total ship miles and total bunker sales shed much light on the efficiency of particular voyages.

The UK Chamber, while encouraging its members to sign up to the IMO GHG trials, also urges the Government to develop an enhanced system of measuring GHG emissions from ships so that future actions and policy initiatives can be made using sound data and hence achieve cost effective, deliverable and measurable improvements.

HOW CAN FURTHER IMPROVEMENTS BE MADE?

Having acknowledged the practical difficulties that surround reducing carbon emissions from shipping, the need to improve on performance remains.

The two most significant methods through which to further reduce carbon emissions from shipping are not within the exclusive control of our industry. These are:

1. to reduce ship speeds and hence improve fuel efficiency. This would require the agreement of the major customers (as shippers seek to maintain supply continuity, the risk of the unintended consequence of more ships being required and hence increased GHG emissions is real) and;

2. to reduce port congestion. Many tonnes of fuel are burnt by ships waiting for port berths. The UK shipping industry is willing to engage with all stakeholders in the debate necessary to achieve success in these areas.

Notwithstanding these two main measures, the Chamber is actively developing policies that allow shipowners to better refine their fuel efficiency, although we are unclear at this stage as to the scope for potential savings.
OTHER ASPECTS

The Government should generally acknowledge the environmental benefits of shipping as a transport mode more actively in its transport and fiscal policies.

As mentioned at the top of the paper, increasing shipping costs runs the risk of encouraging modal shift to other forms of transport. In addition, the government could, however, do much more to actively encourage greater utilisation of this country’s coastal and inland waterways, thus removing many thousands of lorries from the roads. Although this would actually raise the carbon emissions from shipping the net environmental benefit would be positive. A sea change in the use of our coast as a network for bulk transportation of goods should be considered as a matter of high priority.

Emissions trading schemes are also frequently spoken of as methods to reduce the carbon impact of specific sectors. The Chamber recognises that, for some ships in some trades, emissions trading schemes can play a positive role in reducing air emissions. There are, in general, three methods of allocating carbon emissions to shipping: by flag, by “in port” emissions’ and by “passing emissions”. Assigning emissions using any of these methods is difficult and risks distorting the market. A solution may be possible but careful thought into possible consequences must be given.

The Committee is also urged to treat cautiously recent press coverage on food miles. The figures given almost invariably draw comparisons with air freight (whereas 95% of our food comes by sea) and, in fact, studies have shown that the “sea voyage” element of the associated emissions is much smaller than that of subsequent onward transportation by land and the end customers’ own journeys to the supermarket.

We would also draw the Committee’s attention to recent suggestions at IMO that the shipping industry be compelled to move to distillate fuels. This arises from laudable motives to reduce sulphur emissions from ships but, for the purposes of this consultation, it should be noted that the increase in refining capacity to produce the extra distillate fuels would increase carbon emissions from the refining industry by an additional 10–20%. Given that reducing one pollutant (eg SOx and NOx) may have a negative effect on other emissions such as Greenhouse Gases, we urge the Government to take a holistic approach to air emissions that ensures an overall environmental improvement for the long term. In this context, it should be noted that the impact of shipping on the global average temperature is probably negative (cooling).59

A WORD ON FUTURE GROWTH TRENDS

Noting the dearth of marine statistics outlined above, industry recommends the Committee be cautious when estimating growth in the number of ships likely to be engaged in international trade in the future. Assumptions on the growth rate in the world fleet are difficult to quantify but need to take into consideration legislative measures such as the impact of the phasing-out of single-hull tankers.

Figures taken from Rotterdam port entry data provide a useful indication that growth in world trade and growth in ship numbers (as opposed to tonnage) are not necessarily linked. It should be noted that the average ship movements per year in the last 30 years is 31,087 and the figures for 2005 are below that figure.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of ship visits</th>
<th>Cargo in 000 tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>32,499</td>
<td>270,167</td>
</tr>
<tr>
<td>1980</td>
<td>31,187</td>
<td>276,818</td>
</tr>
<tr>
<td>1985</td>
<td>31,457</td>
<td>250,668</td>
</tr>
<tr>
<td>1990</td>
<td>32,165</td>
<td>287,867</td>
</tr>
<tr>
<td>1995</td>
<td>29,319</td>
<td>293,355</td>
</tr>
<tr>
<td>2000</td>
<td>30,207</td>
<td>322,426</td>
</tr>
<tr>
<td>2005</td>
<td>30,781</td>
<td>370,231</td>
</tr>
</tbody>
</table>

It should be noted that our previous comments about the possibilities of future economies of scale relate only to ships calling at UK ports.

The Committee should note that, if predicted growth rates and fuel consumption figures are unrealistic then the contribution of shipping to any anticipated benefit in emission reductions in the future will also be less. This in turn reemphasises the need to ensure the cost-effectiveness of seeking reductions from shipping when the dangers of unintended consequences such as modal shift are ever-present.

February 2007

IMO’S WORK TO LIMIT OR REDUCE CO2 EMISSIONS FROM INTERNATIONAL SHIPPING

IMO—A SPECIALIZED SHIPPING AGENCY OF THE UNITED NATIONS

Shipping is one of, or perhaps the most, international of all the world’s industries, carrying more than 90% of global trade by weight effectively, cleanly and safely around the world. Today, we live in a society supported by an expanding global economy, which simply could not function without international shipping. IMO as UN’s specialized shipping agency plays a key role in ensuring that lives at sea are not put at risk and that the marine environment is not polluted by international shipping—as summed up in IMO’s mission statement: Safe, Secure and Efficient Shipping on Clean Oceans.

The Convention establishing the International Maritime Organization (IMO) was adopted in Geneva in 1948 and IMO first met in 1959 and embarked on the work on developing instruments for international shipping. IMO’s main task has been to develop and maintain a comprehensive regulatory framework for shipping and its remit today includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping. With 167 Member States and three Associate Members, IMO represents 97% of the world merchant tonnage. IMO has also 51 IGOs (Inter-Governmental Organizations) and 66 NGOs (Non-Governmental Organizations) with observer status representing all stakeholders in the shipping and maritime industry covering the total chain of value and the entire lifespan of a ship from the drawing board to the recycling yard.

The purposes of IMO, as summarized by Article 1(a) of the Convention, are “to provide machinery for co-operation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade; to encourage and facilitate the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships”. The Organization is also empowered to deal with administrative and legal matters related to these purposes.

IMO AT WORK

IMO’s specialized committees and sub-committees are the focus for the technical work to update existing legislation or develop and adopt new regulations, with meetings attended by maritime experts from Member Governments and observer organizations. The result is a comprehensive body of about 50 international mandatory instruments, supported by hundreds of codes, performance standards, guidelines and recommendations governing every facet of shipping:

- There are, firstly, measures aimed at the prevention of accidents, including standards for ship design, construction, equipment, operation and manning—key treaties include SOLAS, the MARPOL convention for the prevention of pollution by ships and the STCW convention on standards of training for seafarers.
- Then there are measures which recognize that accidents do happen, including rules concerning distress and safety communications, the International Convention on Search and Rescue and the International Convention on Oil Pollution Preparedness, Response and Co-operation.
- Thirdly, there are conventions which establish compensation and liability regimes—including the International Convention on Civil Liability for Oil Pollution Damage, the convention establishing the International Fund for Compensation for Oil Pollution Damage and the Athens Convention covering liability and compensation for passengers at sea.

RATIFICATION OF IMO INSTRUMENTS

IMO has developed and adopted a wide range of measures to prevent and control pollution caused by ships and to mitigate the effects of any damage caused. Instruments such as the MARPOL and OPRC Conventions; the compensation regimes in the CLC, FUND, HNS and Bunkers Conventions; the newer standards on ships’ anti-fouling systems and ballast water management; the emerging regulations on environmental sound ship recycling and wreck removal, and the work on the reduction of ships’ emissions, are all positive proof of the determination of Governments and the industry to reduce to the barest minimum the impact of shipping on our fragile environment.

In achieving this goal, however, it is not sufficient to just adopt high standards. The treaty or other instruments that contain them have to be ratified and translated into national legislation and they have to be implemented effectively and uniformly throughout the world and, equally important, they have to be enforced. Although the majority of the conventions adopted by IMO are in force, some of the IMO instruments developed to protect the marine and global environment have taken years before entering into force due to the slow pace of ratification, and some are still not yet in force, years after they were adopted.
IMO and the Secretary-General are very concerned at the slow pace of ratification of conventions already in place, the concern is threefold:

— one, by not bringing the relevant instruments into force, we delay their implementation, thereby depriving the environment of the service these instruments aim at rendering to it;
— two, any further delay in tackling the issues regulated by the instruments in question may give rise to individual countries or groups of countries to move to unilateral or regional measures, with all the negative repercussions such measures entail; and
— three, any prolongation of the situation may lead to ambiguities, which, in the final analysis, may turn against seafarers and the industry.

In this respect, the IMO Secretariat would like to remind the Treasury Committee that the United Kingdom has not yet ratified the HNS Convention 1996 on Harmful Noxious Substances, the OPREC/HNS 2000, the Anti-Fouling Systems Convention and Ballast Water Management Convention. Furthermore, to encourage the members of the Committee, to exert whatever influence you have so all the environment-related IMO instruments are ratified without further delay, so that the maritime community is not accused of neglecting its duty towards the global environment and the responsibility to preserve the Planet for future generations.

**ENFORCEMENT OF IMO INSTRUMENTS**

Inspection and monitoring of compliance are the responsibility of Member States, but the adoption of a Voluntary IMO Member State Audit Scheme is expected to play a key role in enhancing implementation of IMO standards. IMO has an extensive technical co-operation programme, which identifies needs among resource-shy Members and matches them to assistance, such as capacity building and training. IMO has founded three advanced level maritime educational institutes in Malmö, Malta and Trieste.

**INTERNATIONAL INDUSTRY**

The ownership and management chain surrounding any ship can embrace many countries and ships spend their economic life moving between different jurisdictions, often far from the country of registry. There is, therefore, a need for international standards to regulate shipping—which can be adopted and accepted by all. The first maritime treaties date back to the 19th century. Later, the Titanic disaster of 1912 spawned the first international safety of life at sea—SOLAS—convention, still the most important treaty addressing maritime safety.

It has always been recognized that the best way of improving safety and environment protection at sea is by developing international regulations that are followed by all shipping nations and from the mid-19th century onwards a number of such treaties were adopted. Several countries proposed that a permanent international body should be established to promote maritime safety more effectively, but it was not until the establishment of the United Nations itself that these hopes were realized. Establishment of different regulations and requirements in different ports or waters, through national or regional regulation, is potentially problematic for the shipping industry and global regulation should be pursued in all aspects of shipping rules.

**ENERGY EFFICIENT TRANSPORT MODE**

Shipping is a clean, green, environmentally-friendly and last but not least an energy efficient mode of transport. Huge volumes of cargo are transported globally each year, and shipping is only a small contributor to the total volume of atmospheric emissions, when compared to other transport modes. Reduction of harmful emissions from ships and an increase in fuel efficiency have been achieved over the past decades through enhancements in engine and propulsion systems efficiency and improved hull design. Larger ships and better utilization of individual ships have also contributed significantly to reducing the amount of energy needed to transport the same unit over the same distance.
COMPARISONS OF EMISSION FROM DIFFERENT TRANSPORT Modes

Table 1

PUBLISHED AIR EMISSION FACTOR RANGES FOR TRUCK, RAIL, AND MARINE, IN GRAMS/Tonne-KM

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Truck</th>
<th>Rail</th>
<th>Marine</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>0.25–2.40</td>
<td>0.02–0.15</td>
<td>0.018–0.20</td>
</tr>
<tr>
<td>CO₂</td>
<td>127-451</td>
<td>41–102</td>
<td>30–40</td>
</tr>
<tr>
<td>HC</td>
<td>0.30–1.57</td>
<td>0.01–0.07</td>
<td>0.04–0.08</td>
</tr>
<tr>
<td>NOx</td>
<td>1.85–5.65</td>
<td>0.20–1.01</td>
<td>0.26–0.58</td>
</tr>
<tr>
<td>SO₂</td>
<td>0.10–0.43</td>
<td>0.07–0.18</td>
<td>0.02–0.05</td>
</tr>
<tr>
<td>Particulate</td>
<td>0.04–0.90</td>
<td>0.01–0.08</td>
<td>0.02–0.04</td>
</tr>
<tr>
<td>VOC</td>
<td>1.1</td>
<td>0.08</td>
<td>0.04–0.11</td>
</tr>
</tbody>
</table>


CO₂ EMISSION INDEXING

The fifty-third session of the Marine Environment Protection Committee (MEPC 53), in July 2005, approved IMO’s “Interim Guidelines for Voluntary Ship CO₂ Emission Indexing for Use in Trials” (MEPC/Circ 471). The objective of the interim Guidelines is to establish a common approach for trials on voluntary CO₂ emission indexing, which will enable shipowners to evaluate the performance of their fleet with regard to CO₂ emissions. As the amount of CO₂ emitted from a ship is directly related to the consumption of bunker fuel oil, the CO₂ indexing will also provide useful information on a ship’s performance with regard to fuel efficiency.

REDUCTION OF GREENHOUSE GASES FROM SHIPPING

Although no mandatory instrument has been adopted by IMO to cover the emission of greenhouse gases (GHG) from ships, IMO has given considerable consideration to the matter, leading to the adoption of Assembly resolution A.963(23)—IMO Policies and Practices related to the Reduction of Greenhouse Gas Emissions from Ships (GHG) (see attachment). The GHG issue was agreed after discussions at a number of sessions of the Marine Environment Protection Committee (MEPC) as a view was expressed that any reduction of GHG agreed to in IMO should only apply to Annex I countries (the developed countries) under the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, 1997.

The most comprehensive assessment to date of the contribution made by international shipping to climate change is contained in the IMO Study on Greenhouse Gas Emissions from Ships published in June 2000 (MEPC 45/8). This study estimated that ships contributed about 1.8% of the world’s total CO₂ emissions and also states that there is no other mode of transport that has a better record according to the transport work carried out.
As CO₂ emissions are directly linked to the consumption of fossil fuel, reduction is only possible by reduced consumption of such fuels. Possible reduction measures identified by the 2000 IMO GHG study:

- Speed reduction — feasible for all ships
- Improved utilization of ships — feasible for all ships
- Reduced port congestion — feasible for all ships
- Improved hull design — feasible for new ships
- Reduced hull friction — feasible for new ships
- Improved propulsion systems — feasible for new ships
- Use of LNG fuel — feasible for new ships
- Introduction of alternative power or fuels — feasible for new ships

THE KYOTO PROTOCOL AND INTERNATIONAL SHIPPING

Article 2.2 of the Kyoto Protocol states that:

“The Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively.”

Annex I Parties are those countries listed in Annex I to the UNFCCC and represent the developed or industrialized countries of the world.

UNFCCC and its Subsidiary Body for Scientific and Technological Advice (SBSTA) have since 2002 debated shipping and aviation emissions under a dedicated agenda item? “Emissions from fuel used for international aviation and maritime transport”, but as the UNFCCC requires consensus it has been unable to reach any conclusions. There are no incentives in the Kyoto Protocol for OECD flag States to encourage their fleets to limit CO₂ emission, eg, by switching to natural gas as fuel, as it cannot be taken as credits in their national inventories.

One of the main elements in the UNFCCC and its Kyoto Protocol is the “common but differentiated approach” (Annex 1 countries—non-Annex 1 countries). This approach and the wording in Article 2.2 of the Kyoto Protocol have caused a lot of discussions at MEPC sessions where non-Annex 1 countries have argued that it is only Annex 1 countries that are obligated to pursue limitation or reduction of greenhouse gases from international shipping. Resolution A.963(23) was adopted in line with IMO’s objectives to find global solutions to all ships engaged in international shipping. This view was expressed by the Working Group on Air Pollution at MEPC 49 (MEPC 49/22, paragraph 4.7), namely that international shipping should operate under a single regime and that the concept of “no more favourable treatment of ships”, embodied in MARPOL (Article 5(4)) and other IMO Conventions and instruments should be applied also in the case of climate change.

POTENTIAL OF EMISSION TRADING

The United Kingdom has submitted documents MEPC 54/4/2 and MEPC 55/INF.7 on the background for emission trading and the different possible approaches to introduce such a mechanism for shipping. MEPC 55 noted that emission trading was one possible operational and market-based solution, as called for by resolution A.963(23) when identifying and developing mechanisms needed to achieve limitation and reduction of GHG emissions from international shipping. According to the adopted work plan, technical, operational and market-based methods for dealing with GHG emissions should be considered by MEPC 56 (July 2007).

UPDATE OF THE GHG STUDY

The latest GHG debate within IMO was at MEPC 55 (October 2006) where further follow-up to resolution A.963(23) was considered. MEPC 55 decided to update the IMO GHG Study and agreed that an update of the study was necessary to give a better foundation for future decisions and could help to make progress in the follow up to resolution A.963(23). MEPC 55 further agreed to revisit the issue of the terms of reference for the update of the IMO Study at the next session and invited Member States and observers to submit input to the scope of the update and its terms of reference.

MEPC 55 noted that climate change caused by greenhouse gas emissions from burning of fossil fuel was a steadily growing concern for most countries, and that scientists had found more and more proof of connections. The threat from global warming was far too serious to be ignored and the shipping industry, although an environmentally friendly and fuel efficient mode of transport, must take action. IMO recognized in resolution A.963(23), that the projected adverse effects of climate change and acidification of the world’s oceans called for the implementation of measures to limit or reduce the emissions from
international shipping which constituted one of the sources of GHG emissions. MEPC 55 agreed that it should follow-up all the action items to the Assembly resolution and IMO should maintain its leading position, to avoid unilateral action either on a global, regional or national level. MEPC 55 adopted a work plan with timetable for IMO’s future work on reduction of GHG from ships (see attachment). MEPC should continue to take the lead in developing GHG strategies and mechanisms for international shipping and co-operate closely with other relevant UN bodies.

Mitigation of the Impact of CO₂ Emissions From Ships

An option to mitigate the impact of CO₂ emissions from ships is by “offsetting”, either through a post-Kyoto mechanism, through IMO, the bunker industry or another organization or scheme. A post-Kyoto mechanism could give Annex 1 countries (industrialized countries) the possibility to offset reduction of CO₂ from ships flying their flag in the same way as the reduction from land-based sources. A mandatory offsetting scheme through IMO could, if agreed and adopted by the Member States, be based on fuel consumption, so all ships would pay a CO₂ “toll” according to their fuel consumption, and the money collected would be used for CO₂ reduction measures, such as wind farms and planting of forests.

Operational and Market-Based Methods

The next GHG discussion within IMO will take place at MEPC 56 to be held in July 2007. In accordance to the abovementioned work plan, the main issues during that session will be to consider; methodology for CO₂ emission baseline(s) in terms of efficiency and the establishment of CO₂ baseline(s), technical, operational and market-based methods for dealing with GHG emissions and terms of reference for an update of the IMO GHG Study. IMO continues to work on reducing harmful emissions from shipping, a transport industry which is vital to world trade and development. In the pursuit of environmentally sustainable transport, seaborne trade must be promoted as part of the inter-modal transportation chain.

CO₂ Capture and Storage (Sequestration)

The first Meeting of Contracting Parties to the 1996 Protocol to the London Convention was convened in London (30 October–3 November 2006) and agreed to regulate CO₂ sequestration in sub-seabed geological formations by adopting an amendment to Annex 1 to the London Protocol (Resolution LP.1(1)). This amendment entered into force on 10 February 2007 for all Contracting Parties. This means that a basis has been created in international environmental law to regulate carbon capture and storage (CCS) in sub-seabed geological formations for permanent isolation, as part of a suite of measures to tackle the challenge of climate change and ocean acidification.

Parties also agreed that guidance informing Parties on the means by which sub-seabed geological sequestration of carbon dioxide can be conducted, in accordance with Annex 2 to the Protocol, and in a manner that is safe for the marine environment, over the long and short term, should be developed as soon as possible and will, when finalized, form an important part of the regulation of sub-seabed geological sequestration of carbon dioxide. Arrangements have been made to ensure that this guidance will be reviewed for adoption at the second Meeting of Contracting Parties in November 2007.

Chronological Order of Some Main Events in IMO’s GHG Work

1. With a view to addressing the issue of greenhouse gas (GHG) emissions from international shipping, the 1997 MARPOL Conference convened by the International Maritime Organization (IMO) adopted Resolution 8 on “CO₂ emissions from ships”, inviting:
   1. the IMO Secretary-General to co-operate with the Executive Secretary of UNFCCC in the exchange of information on the issue of GHG emissions;
   2. the IMO to undertake a study of GHG emissions from ships for the purpose of establishing the amount and relative percentage of GHG emissions from ships as part of the global inventory of GHG emissions; and
   3. the Marine Environment Protection Committee (MEPC) of IMO to consider feasible GHG emissions reduction strategies.

2. As a follow-up to the above resolution, the IMO Study on Greenhouse Gas Emissions from Ships was completed and presented to MEPC 45 in June 2000 as document MEPC 45/8. This Study estimated that ships contributed about 1.8% of the world’s total CO₂ emissions.
3. In an effort to further address the issue of GHG emissions from ships, the IMO Assembly adopted, in December 2003, resolution A.963(23) on “IMO Policies and Practices related to the Reduction of Greenhouse Gas Emissions from Ships”, which:

1. URGES the MEPC to identify and develop the mechanism or mechanisms needed to achieve the limitation or reduction of GHG emissions from international shipping and, in doing so, to give priority to:
   (a) the establishment of a GHG emission baseline;
   (b) the development of a methodology to describe the GHG efficiency of a ship in terms of a GHG emission index for that ship. In developing the methodology for the GHG emission indexing scheme, the MEPC should recognize that CO₂ is the main greenhouse gas emitted by ships;
   (c) the development of Guidelines by which the GHG emission indexing scheme may be applied in practice. The Guidelines are to address issues such as verification; and
   (d) the evaluation of technical, operational and market-based solutions.

2. REQUESTS the MEPC:
   (a) to consider the methodological aspects related to the reporting of GHG emissions from ships engaged in international transport;
   (b) to develop a work plan with a timetable; and
   (c) to keep this matter under review and to prepare consolidated statements on the continuing IMO policies and practices related to the limitation or reduction of GHG emissions from international shipping.

3. REQUESTS the IMO Secretariat to continue co-operating with the Secretariats of UNFCCC and the Secretariat of the International Civil Aviation Organization.

4. Following an invitation by UNFCCC, and as requested by the MEPC, there has been ongoing co-operation between the Secretariats of IMO and UNFCCC on the work of GHG emissions from ships concerning the use of bunker fuel oils in recognition of the Kyoto Protocol requirements.

5. A report about IMO’s work on GHG emissions from ships was brought to the attention of SBSTA 21 in 2004. Since then the issue of GHG emission has been considered by each session of the MEPC.

6. MEPC 53 (July 2005) approved IMO’s “Interim Guidelines for Voluntary Ship CO₂ Emission Indexing for Use in Trials” (MEPC/Circ.471). The objective of the Interim Guidelines is to establish a common approach for trials on voluntary CO₂ emission indexing, which will enable shipowners to evaluate the performance of their fleet with regard to CO₂ emissions. As the amount of CO₂ emitted from a ship is directly related to the consumption of bunker fuel oil, the CO₂ indexing will also provide useful information on a ship's performance with regard to fuel efficiency.

7. The Administrations and the shipping industry are invited to promote the use of the Interim Guidelines in trials and report the outcome to the MEPC for consideration, taking into account:
   1. operational experiences from trials of the index for different ship types, as reported to MEPC by the industry, organizations and Administrations;
   2. progress in ISO regarding ship’s CO₂ performance; and
   3. any other relevant developments.

8. MEPC 54 (March 2006) received the first results from trials in accordance with the “Interim Guidelines for Voluntary Ship CO₂ Emission Indexing for Use in Trials” (MEPC/Circ.471) from India. In the meantime, the MEPC noted that a number of other Member States were also undertaking such trials.

9. MEPC 55 (October 2006) received further information on trials in accordance with the Interim Guidelines from Germany, India, Japan, Norway, and the Republic of Korea. MEPC 55 thanked all those countries for submitting the valuable information, and invited other countries to take the information into account when using the Interim Guidelines in their trials.

10. MEPC 55 approved a “Work plan to identify and develop the mechanisms needed to achieve the limitation or reduction of CO₂ emissions from international shipping”, inviting Member Governments to participate actively in the work.

11. MEPC 55 considered issuing an update of the “IMO Study on Greenhouse Gas Emissions from Ships, 2000” and agreed to consider the Terms of Reference for such an update at its next session in July 2007.

12. MEPC 55 also agreed to continue and strengthen co-operation with UNFCCC and ICAO on the work to reduce or limit GHG emissions.
13. The First Meeting of the Contracting Parties to the 1996 Protocol to the 1972 London Convention adopted, on 2 November 2006, resolution LP 1(1) on “Amendments to include CO2 sequestration in sub-seabed geological formations in Annex 1 to the London Protocol”.

February 2007

Memorandum submitted by the Heathrow association for the control of aircraft noise

I am writing to you following the announcement yesterday that the Federation of Tour Operators (FTO) has initiated a challenge to the legality of the increase in air passenger duty (APD), and to the legality of APD per se.

I have no views on the validity of the FTO’s arguments; or on their moral position in seeking to avoid a tax that would mean an increase in other taxes (everyone can think of reasons why they should not pay taxes, while wanting the benefits of public spending). Rather, I wish to comment on the assumption displayed in recent public discussions of APD that it is an environmental tax, an assumption which the FTO and the aviation sector are seeking to exploit.

APD was introduced in the early 1990s, at a time when there was little concern about the impact of aviation on the local or global environment. The then Chancellor of the Exchequer, Kenneth Clarke, justified the new tax on the grounds that he was widening the tax base by bringing in a sector of the economy (aviation) that paid relatively little tax, due to its exemptions from fuel duty and VAT. That is to say, APD was a surrogate general tax, to be used for general revenue purposes, not an environmental tax to be used for environmental purposes.

The value of the exemptions from fuel duty and VAT has never been fully costed by the Treasury. But answers to Parliamentary Questions suggest that at today’s prices the fuel duty exemption is worth £6 billion per year, with the VAT exemption worth £3 billion per year. Since APD, even as recently increased, would bring in only £2 billion per year, it can be seen that aviation continues to enjoy a considerable cross-subsidy from other tax payers.

It is not clear on what basis this cross-subsidy is justified, other than historical accident. The industry claims that it is a key component of the national economy, stimulating employment in other sectors. But if such an economic dynamo cannot pay its fare share of general revenue taxes, who else can? In many areas the present Government has cut back on the welfare state. But subsidised leisure flying is evidently safe. The people who benefit are those with sufficient spare cash to afford the full costs of leisure travel (hotels, etc). Needless to say, those on tight budgets are not able to benefit from even the cheapest air fares.

At no stage during the Parliamentary scrutiny of APD during the 1990s was it suggested that APD was an environmental tax, or that the proceeds from APD should be hypothecated for specific environmental purposes. But the aviation industry, having bitterly opposed APD from the start, began to claim that the revenue met the environmental damage caused by aviation, about which increased public comment is now being made. The present Government, which stands in awe of the aviation sector, has also begun to justify APD on environmental rather than general revenue grounds, but without ever explaining this re-branding.

In summary, devising charges to offset the cost of the environmental damage from aviation is unlikely to succeed so long as the demand for casual leisure travel continues to be stimulated by cross-subsidies from the general taxpayer (business passengers pay much more than leisure passengers and leisure passengers account for more than 75% of all international passengers at UK airports). I am happy to provide chapter and verse on the foregoing if this would be helpful.

February 2007