



House of Commons  
Environmental Audit  
Committee

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**Personal carbon trading:  
Government Response to  
the Committee's Fifth  
Report of Session 2007–08**

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**Seventh Special Report of  
Session 2007–08**

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## The Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the Internet at: [www.parliament.uk/parliamentary\\_committees/environmental\\_audit\\_committee.cfm](http://www.parliament.uk/parliamentary_committees/environmental_audit_committee.cfm).

A list of Reports of the Committee from the present and prior Parliaments is at the back of this volume.

### Committee staff

The current staff of the Committee are: Gordon Clarke (Clerk); Anne-Marie Griffiths (Second Clerk); Richard Douglas (Committee Specialist); Oliver Bennett (Committee Specialist); Susan Monaghan (Committee Assistant); Jennifer Steele (Secretary); and Charlotte Towerton (Sandwich Student)

### Contacts

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# Seventh Special Report

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1. The Environmental Audit Committee published its report on **Personal Carbon Trading** on Monday 26 May 2008 as HC 565.
2. The Government's Response to the Committee's Report was received on Wednesday 8 October 2008 in the form of a memorandum to the Committee. It is reproduced as an Appendix to this Special Report.

## Appendix—Government response

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### Introduction

The Environmental Audit Committee's inquiry into personal carbon trading concluded with a report published on Monday 26 May 2008, which recognised personal carbon trading as “the kind of radical measure needed to bring about behavioural change”.

The Government welcomes this report as an insightful review of the concept of personal carbon trading, bringing together existing research and expert views. At the time of the EAC's evidence gathering sessions the Government's personal carbon trading work programme was in its early stages—we have since carried out significant research in the areas of public acceptance, distributional impacts, technical feasibility and cost, and potential effectiveness and strategic fit. The findings of this research were published on 8 May 2008. This response is based on these findings and the Government's interpretation of what they tell us about personal carbon trading, when considered collectively.

The Government agrees with the EAC's findings that it is essential to reduce emissions, and that individuals' must take some responsibility for their own emissions, however, we feel it is yet to be proven that personal carbon trading is the most effective way of doing so. Though some of the obstacles and difficulties associated with personal carbon trading identified by the EAC are important areas for examination (and are consistent with those identified previously by the Centre for Sustainable Energy, other researchers and ourselves), it is necessary to justify further examination of the concept before moving on to consider more detailed issues. It was on this basis the Government's pre-feasibility study into personal carbon trading was carried out.

### Conclusions And Recommendations

#### *Evaluating Personal Carbon Trading As A Policy Option*

**1. It is quite clear that if the Government is to stand the slightest chance of meeting its 2050 target it cannot afford to neglect the domestic and personal sector. Reductions in carbon emissions from business and industry will be meaningless unless accompanied by significant and equal reductions from households and individuals. (Paragraph 16)**

The Government is fully committed to tackling the threat of climate change, as evidenced by the ambitious programme of work outlined in the 2006 Climate Change Programme and 2007 Energy White Paper. This commitment will be further reinforced by the new

legal framework that will be created when the Climate Change Bill comes into force. The Climate Change Act will ensure the UK is the first country in the world to have a legally binding, long-term framework to cut carbon dioxide (CO<sub>2</sub>) emissions and adapt to climate change. The Bill will put into statute the UK's targets to reduce CO<sub>2</sub> emissions by at least 60% by 2050 and by at least 26% by 2020, against a 1990 baseline; and will introduce binding carbon budgets to limit CO<sub>2</sub> emissions over successive five-year periods. The Bill demonstrates the UK's international leadership to help make progress towards a post-2012 global agreement.

The Bill proposes overall targets for carbon emissions across the UK economy and we will need action by business, industry and consumers if these ambitious emission reduction targets and carbon budgets are to be met. For this reason the Bill proposes that Government must take full account of sector-specific issues when setting budgets and taking the steps necessary to meet them. For example, the advice of the Committee on Climate Change in connection with carbon budgets (under the current clause 33) must include consideration of the sectors of the economy in which there are particular opportunities to be made towards meeting the carbon budget. And in its report on proposals and policies for meeting the budget (under clause 13) the Government must specify how these will affect particular sectors of the economy.

Our approach in the Bill is consistent with the conclusions drawn by the Stern Review on the Economics of Climate Change<sup>1</sup>, which stated that all sectors of the economy must play a part in meeting these targets, including the household sector:

As well as carbon pricing, governments should also look at the use of technology policies and efficiency policies across sectors... The key goal of policy should be to establish common incentives across different sectors, using the most appropriate mechanism for a particular sector.<sup>2</sup>

Around 40%<sup>3</sup> of total UK emissions are the result of decisions taken directly by consumers, coming mainly from energy use in the home, travel and food. Home energy use is the biggest of these, and the Government has developed a comprehensive package of policy instruments designed to tackle the barriers to the uptake of household energy efficiency (e.g. poor information, apathy, hassle, upfront costs) and to encourage action.

Key policies include the recently enhanced Carbon Emissions Reduction Target; incremental tightening of the Building Regulations, which by 2016 will require all new homes to be zero-carbon; the ACT ON CO<sub>2</sub> campaign and carbon calculator; and the Energy Saving Trust's activities and their ACT ON CO<sub>2</sub> helpline. These policies represent a significant level of activity and investment across the UK by the Government and industry (total spending on the National Home Energy Saving Programme over the next three years will be £4.610 billion).

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1 [www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/sternreview\\_index.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm)

2 [www.hm-treasury.gov.uk/media/4/5/Chapter\\_15\\_Carbon\\_Pricing\\_and\\_Emissions\\_Markets\\_in\\_Practice.pdf](http://www.hm-treasury.gov.uk/media/4/5/Chapter_15_Carbon_Pricing_and_Emissions_Markets_in_Practice.pdf)

3 Including transport

Though evidence suggests these measures are having an impact<sup>4</sup>, we are continually seeking to strengthen our package of policies to ensure we are able to meet our challenging longer-term targets. As part of this, the Government's initial assessment of personal carbon trading<sup>5</sup> aimed to explore its potential for making individuals better informed about, and involved in, tackling climate change.

**2. Existing initiatives are unlikely to bring about behavioural change on the scale required, with many individuals choosing to disregard the connection between their own emissions and the larger challenge. We conclude that more radical measures must be introduced if emissions reductions from the individual and household sector are ever to make a meaningful contribution to UK targets. Personal carbon trading might be the kind of measure needed to bring about behavioural change. (Paragraph 19)**

While it is true that many individuals may not directly associate their actions with an impact on the environment, the Government's ACT ON CO<sub>2</sub> campaign is designed specifically to raise this type of awareness. Originally launched in 2007, ACT ON CO<sub>2</sub> is a major Government-led campaign which aims to engage citizens on climate change issues, address the confusion and powerlessness which can impede people from taking action, and encourage genuine and sustained behaviour change to help reduce carbon emissions and meet UK emissions targets. Marketing communication activity cannot change behaviour on its own; but together with policy and delivery body interventions, the campaign will help secure the necessary behaviour change.

Early indications of the impact of this campaign on individuals behaviours are positive, although it is inherently problematic to attribute change to one communication source. Since the launch in June 2007, there have been over 1.2 million unique visitors to the ACT ON CO<sub>2</sub> calculator (and ACT ON CO<sub>2</sub> pages on Directgov), and almost 500,000 of these users have worked out their carbon footprint. Awareness of carbon footprint or calculator advertising has steadily improved following the bursts of advertising since the start of the campaign, from a benchmark of 16% in March 2007 to 50% now. Our campaign research indicates that 62% claim to have taken action or are planning to take action as a result of the campaign; an increase of 12% compared to summer 2007. Interestingly, the past two research efforts both suggest a shift from contemplation to action (in summer 2007, 33% said they were planning to take action, 17% said they had taken action; in summer 2008, 23% said they were planning to take action, compared to 39% who said they had taken action).

The Government's research into the public acceptance of personal carbon trading aimed to gain insight into public understanding of energy using behaviours and the need for behaviour change, attitudes towards responsibility for personal emissions, reactions to personal carbon trading and views on what might make it acceptable to the public, as well as attitudes to key related matters, such as trust, acceptability, fairness, equity and privacy. It revealed that while there was a general sense that action should be taken to reduce emissions from individuals, support for measures such as personal carbon trading was

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4 Over the last three years (2005-2007) household gas consumption has fallen by nearly 12% (Digest of UK Energy Statistics (DUKES) [www.berr.gov.uk/energy/statistics/index.html](http://www.berr.gov.uk/energy/statistics/index.html)), whilst household electricity consumption has also fallen in the last two years. [Analysis of] the 2005-2006 period shows that at least half of the fall was the result of our energy efficiency policies. [www.official-documents.gov.uk/document/cm74/7428/7428.pdf](http://www.official-documents.gov.uk/document/cm74/7428/7428.pdf)

5 [www.defra.gov.uk/environment/climatechange/uk/individual/carbontrading/index.htm](http://www.defra.gov.uk/environment/climatechange/uk/individual/carbontrading/index.htm)

limited. There were fears over the complexity of such a system, little evidence that people would be likely to trade, and scepticism that it could be fair, that the Government could be trusted to manage it or that it would deliver emissions savings. Little support was given for any measure that involved the use of a price signal to motivate energy saving behaviours, and choice-editing<sup>6</sup>, grants and regulation were all proposed as alternatives<sup>7</sup>.

Even if personal carbon trading could be introduced in such a way that it was considered reasonably acceptable to the public, the findings that people feared the complexity of the system and would be reluctant to take part in trading their allowances suggests that individuals might not fully engage in the scheme by trading in an economically efficient or rational manner, i.e. selling allowances when the price is high if they know they will have a surplus. This would be problematic because an effective carbon trading system relies on participants actually taking part in trading allowances and creating a market price. It seems likely the additional ‘hassle’ of managing a personal carbon budget, surrendering carbon allowances at the point of purchase or when paying bills, and trading allowances would lead to many choosing to sell their allowances as soon as they received them, and instead paying the additional cost of carbon on top of each purchase (a ‘pay as you go’ type option). This option would be needed for foreign visitors to the UK, individuals who do not hold their carbon card at the point of purchase or have used all their allowances but not yet purchased more, and vulnerable groups who might not be able to engage in the scheme (as described in the response to recommendation 18). In these circumstances, personal carbon trading would effectively be an expensive and complicated form of tax.

The potential of personal carbon trading to change behaviours is still quite unknown, and would be very difficult to assess—as the EAC recognise themselves, *‘personal carbon trading does not lend itself easily to a pilot or trial’*<sup>8</sup>. There is very little evidence to suggest that it could indeed encourage energy saving behaviours. The best evidence that exists for the impact on behaviours of a measure designed to deliver visibility of energy use and emissions is a report on the effectiveness of feedback from billing, metering and direct displays on energy consumption. This report<sup>9</sup> found that savings from direct feedback (e.g. meters) was between 5–15%, and 5–10% for indirect feedback (e.g. bills). While the low level of savings attributed to visibility measures should be noted, they cannot be deemed reliable estimates of the potential savings that could be achieved through personal carbon trading. Therefore, until further evidence exists, it is not possible to determine the extent to which a measure such as personal carbon trading could drive energy saving behaviours.

### **3. Personal carbon trading could guarantee a reduction in emissions because it places a ceiling on the carbon available for consumption, rather than seeking solely to reduce demand. (Paragraph 20)**

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6 E.g. EU regulation requires the phasing out of inefficient light bulbs by 2010.

7 The fact that alternatives were suggested without being prompted is indicative of individuals’ resistance to the proposed measures.

8 Recommendation 28 of this report.

9 *The effectiveness of feedback from billing, metering and direct displays on energy consumption*, Sarah Darby, Environmental Change Institute, April 2006.  
[www.defra.gov.uk/environment/climatechange/uk/energy/research/pdf/energyconsump-feedback.pdf](http://www.defra.gov.uk/environment/climatechange/uk/energy/research/pdf/energyconsump-feedback.pdf)

The theory of personal carbon trading schemes is much the same as other carbon trading mechanisms, such as the EU Emissions Trading Scheme for industry, in that an overall emissions cap allows a total amount of CO<sub>2</sub> emissions to be guaranteed. However, in practice the Government may wish to have some flexibility in the number of allowances that are available in a personal carbon trading system. For instance, there may need to be a provision for additional allowances to be made available should the price reach a level that is politically and socially unacceptable. This could be done by issuing and selling unlimited additional allowances to those prepared to pay a given 'ceiling' price.

Alternatively the personal carbon trading scheme could be linked to other trading schemes or international credits to prevent individuals within the scheme facing a significantly higher carbon price to other sectors or regions. This could take the form of a buy-out through the purchase of project credits, or as has been proposed for the Carbon Reduction Commitment, a mechanism allowing participants to meet their obligations through the purchase and retirement of EU ETS allowances (this would be a one way link).

This latter option would ensure that the price of allowances in the personal carbon trading scheme was always at or below the price of allowances in the EU ETS. It would also maintain a guaranteed environmental outcome as any increase in UK personal carbon emissions would be offset by corresponding reductions under the EU ETS. Under any of these approaches, the level of emissions occurring domestically within the personal carbon trading scheme would no longer be certain.

**4. We believe that personal carbon trading has the potential to drive greater emissions reductions than green taxation. A carbon allowance could be more effective at incentivising behavioural change and engaging individuals in reducing their emissions than the price signals resulting from green taxation. (Paragraph 29)**

The Government's research considered whether personal carbon trading might be a more effective tool for delivering emissions savings compared to other carbon pricing measures, and importantly also considered whether it would be the most cost-effective way of delivering additional emissions reductions. While it was found that personal carbon trading might raise the visibility of personal emissions sufficiently to unlock some low cost abatement opportunities, this would involve significant cost. Even with an optimistic assessment of the level of behaviour change personal carbon trading might deliver, the likely savings were not sufficient to justify the significant costs associated with this instrument.

These findings provide some challenge to the idea that personal carbon trading would be more effective at delivering CO<sub>2</sub> reductions than a green tax. However, analysis of tax options was beyond the scope of this research programme. Views from the public acceptability focus groups generally found personal carbon trading more difficult to grasp than alternative measures, as it was perceived to be more expensive and complicated to implement, and therefore was considered more costly to the tax payer. Though there were also objections to the alternative measures as participants opposed the use of a price signal to influence behaviours.

For personal carbon trading to be effective, it must provide a certain level of ‘hassle’ in order to deliver visibility of energy and carbon usage, and this is what could drive energy saving behaviours. The additional level of visibility personal carbon trading would provide is what distinguishes its potential impact from alternative measures. However, a personal carbon trading scheme would need to have provision for individuals to ‘pay as they go’ for their carbon (as described in the response to recommendation 2). The evidence from the public acceptability research would suggest that many might prefer to avoid the hassle of ensuring they had sufficient allowances before re-fuelling their car and instead just pay at the point of purchase. Under the ‘pay as you go’ scenario little more would be delivered over and above a price signal, and the result would effectively be a tax.

If individuals fully engaged in personal carbon trading by using a carbon card to pay for their fuel and home energy use, monitoring their carbon account, and trading to ensure they had sufficient allowances, it seems likely this would encourage more energy saving behaviours. However, there is no direct evidence to support this premise, or the level of influence on a long-term basis (savings from behaviours may be recognised initially, but it is unclear whether savings would be consistently delivered throughout the life of a scheme and to a sufficient level to meet a tightening cap—would people lose interest and disengage?).

Between these two extremes of fully engaging or disengaging with a personal carbon trading scheme, there may be further levels of complexity to consider. For instance, the implementation of a personal carbon trading scheme could give rise to energy companies (or other organisations) offering services to retire allowances on behalf of households. This could be achieved by adding the market cost of the required number of allowances for energy used to household’s energy bills, or by arranging for the transfer of sufficient allowances from household’s carbon accounts. In this situation, consumers would be no more engaged than in the ‘pay as you go’ option, or with a tax.

The level of behavioural influence a personal carbon trading scheme may have is still quite unknown, but the likelihood of households wishing to avoid the ‘hassle factor’ and instead opting to fully or partially disengage from carbon trading or budgeting puts the potential efficacy of a personal carbon trading scheme at risk.

**5. We acknowledge that personal carbon trading could be complex administratively and more challenging to implement than green taxation and other alternative proposals. However, its potential to change behaviours and engage individuals means the Government should seriously and urgently assess how to take personal carbon trading forward. (Paragraph 31)**

The limited information on the potential of personal carbon trading to encourage energy saving behaviours has been addressed above. However, the complexity of such a system has not been addressed, and this is an important point. The Government’s research recognised the complexity of personal carbon trading as a significant barrier to public acceptability—if the public is to be engaged it must be able to understand the system:

Other participants, across all segments, were initially quite perplexed as the idea of a designated carbon allowance seemed far-fetched, and the idea of trading difficult to imagine<sup>10</sup>.

This is not to say that public understanding could not be brought to a sufficient level before implementation of a scheme, but this would present a significant challenge. A substantial minority of adults in the UK (over 2 million) do not possess any form of bank account, so the leap to include them in a carbon trading scheme cannot be understated. Depending on individual circumstances, some people would take longer than others to familiarise themselves with the scheme, and so the task of achieving a sufficient level of understanding should not be underestimated. As a result, alternative, simpler, ways of achieving savings from behaviour change should be considered.

On the basis of the Government's public acceptability findings alone, it is difficult to justify further consideration of this as a potential policy option in the near term. Therefore, it is necessary to consider its technical feasibility, potential cost and benefits, economic efficiency, and distributional impacts. These analyses revealed that not only is the concept challenged by its apparently limited support from the public, but it would also be very expensive, and these costs would not be expected to be matched by the assessment of benefits. The technical analysis revealed that there were no insurmountable technical barriers to the introduction of such a scheme, but the costs were very significant. Estimates of the likely set-up costs ranged between £700 million and £2 billion, and the running costs between £1–2 billion per annum. With these costs in mind, the assessment of the likely benefits would have to be equally significant to justify such a large investment. However, the central estimate of the benefits revealed costs in the order of fifteen times the benefits.

In the 2005 Pre-Budget Report, the Government set out its principles for environmental policy making. In line with this framework, it is essential that the Government uses the most effective instrument to achieve its aims. Despite the assessment of the distributional impacts providing further evidence for the progressive nature of personal carbon trading, the findings on cost and public acceptability cannot justify further Government spending on researching this area. The Government will continue to explore means of supporting individuals to reduce their carbon footprints and encouraging pro-environmental behaviour as part of its commitment to tackling the threat of climate change.

**6. We acknowledge the many difficulties that will have to be overcome in the development and implementation of personal carbon trading, not least work to bring about the public and political acceptance of such a concept; considerable further research is required on many aspects of personal carbon trading. However, we believe that, by designing and implementing a sensitive and moderate scheme, these obstacles could be overcome. (Paragraph 33)**

It is true that the Government should not be discouraged by a low level of public acceptance—indeed, any measure designed to lower individuals' emissions is likely to be unpopular with some—but it is important for Government to take account of public opinion, and as the EAC's report notes, *'significant opposition could undermine any*

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<sup>10</sup> *Personal Carbon Trading: Public Acceptability*, Opinion Leader & Enviro Consulting for Defra, March 2008. [www.defra.gov.uk/environment/climatechange/uk/individual/carbontrading/pdf/pct-public-acceptability.pdf](http://www.defra.gov.uk/environment/climatechange/uk/individual/carbontrading/pdf/pct-public-acceptability.pdf)

*proposal*<sup>11</sup>. Therefore, the Government's initial assessment of the public acceptability of personal carbon trading forms an important part of the evidence base.

It is essential to have an evidence base demonstrating the potential effectiveness of a policy proposal before considering the detail of scheme design and how obstacles may be overcome through design features or complimentary measures. In addition, it is necessary to identify (and this was part of the aim of the Government's study) whether any obstacles would exist that would be too large to overcome through scheme design or other measures, for instance, if personal carbon trading were found to be technically unfeasible. While there is a clear need to do more to deliver savings through behaviour change<sup>12</sup> this is not an argument for personal carbon trading *per se*, but for something more to be done that can be considered the best way of tackling emissions from individuals and influencing their pro-environmental behaviours.

### ***Towards A Practical Personal Carbon Trading Scheme***

**7. We believe that trying to solve all the problems involved in introducing an economy wide system would unacceptably delay the introduction of a personal carbon trading scheme. The most realistic option is to introduce a scheme with restricted participation. Companies and other aspects of the economy could be covered by different trading schemes, with the consolidation of schemes considered at a later date once the principle of personal carbon trading had been satisfactorily established. (Paragraph 35)**

**17.-We believe that personal carbon trading could be made workable if it was acknowledged that it may not be possible to cover all eventualities from the very beginning. A basic programme covering certain emissions could be a useful stepping stone to a more comprehensive scheme. We recommend that the Government investigate the possibility of a phased initial implementation, including all individuals, but concentrating on certain basic areas of carbon use, such as household energy. The scheme could then be developed, expanded, and integrated with other schemes over time, as appropriate. (Paragraph 61)**

Joint response to recommendations 7 & 17.

Downstream trading already exists for energy intensive installations through the EU Emissions Trading Scheme, and will be extended to large non-energy intensive organisations with the Carbon Reduction Commitment. An economy-wide trading scheme could conceivably be created by consolidating different schemes, and creating a new trading scheme to include individuals' energy use could be seen as a step towards achieving an economy-wide scheme.

The unique feature of personal carbon trading is that it advocates the inclusion of individuals' energy use in a downstream trading scheme. However, a desire to create an economy-wide trading scheme does not require individuals emissions to be treated at a downstream level; a consolidated scheme could be a hybrid, with the stepping stone

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11 Recommendation 14 of this report.

12 One of many examples: *Habits of a Lifetime*, Energy Saving Trust, 2006.

towards it being the creation of a new trading scheme that treats individuals' emissions at an upstream level.

For personal carbon trading to be attractive a case needs to be made that the best way to create a trading scheme to cover individuals' emissions is downstream rather than upstream. The economic analysis carried out in the Government's study showed that the costs of covering individuals at the downstream level were very large—at least £600 million more than the cost of implementing an upstream trading scheme, and around £1–2 billion more per year running costs.<sup>13</sup> Downstream trading would provide the additional benefit of raising the visibility of personal carbon emissions, which could be expected to increase individuals' carbon consciousness and could drive emissions saving behaviour change. However, even with an optimistic assessment of the likely benefits (i.e. emissions savings) this additional visibility could deliver, the additional costs of downstream trading were found to be many times the additional benefits. In the central case, the additional costs were found to be 15 times the additional benefits.

There is some (non-government) research<sup>14</sup> to suggest that implementing a personal carbon allowance for a specific behaviour, that is directly within the control of an individual (e.g. their non-work related driving) could have some value as an introduction to the concept. However, while the introduction of a very simple personal carbon trading scheme involving just individuals and home energy use would almost certainly be easier to implement, this could limit the effectiveness of the scheme because emissions trading achieves least cost abatement when it is flexible. The wider the geographical coverage of an emissions trading scheme and the more sectors covered, the more flexible (and effective) the scheme will be. Further research would be needed to understand the 'entry level' behaviours and the best steps for extending a scheme to other behavioural areas.

**8. We do not believe that double counting is a serious handicap. However, we recognise that concerns over double counting of carbon emissions do exist and need to be addressed. In the meantime they must not be a barrier to investigating and developing the concept of personal carbon trading. (Paragraph 37)**

Using different currencies for overlapping emissions trading schemes could overcome the difficulties of multiple allowances of the same currency being surrendered for the same unit of carbon emissions. However, significant issues remain which would reduce the effectiveness of a newly introduced emissions trading scheme where it overlaps with other trading schemes.

The EU Emissions Trading Scheme establishes a carbon price in the sectors it covers. One of the avenues for personal carbon trading to add value would be through its ability to establish a carbon price, but the extent to which one already exists reduces the ability of personal carbon trading to add value. The larger the overlap with the EU ETS and the stronger the carbon price from personal carbon trading, the more significant the issue of overlap is. In a sector that is covered by both schemes, the carbon price paid by the end

13 Estimates of the likely set-up costs of the type of personal carbon trading scheme explored ranged between £700 million and £2 billion, and the running costs £1-2 billion per annum. Whereas early estimates of the set up of an upstream scheme with 5,000 participants were between £50 million-£100 million, and in the region of £50 million running costs per annum.

14 *Reducing carbon emissions from personal road transport through the application of a Tradable Carbon Permit scheme: Empirical findings and policy implications in the UK*, Helen Harwatt, Institute for Transport Studies.

user will reflect the sum of the allowance price in the EU ETS and the allowance price in personal carbon trading.

The loss of flexibility resulting from the overlap of the EU ETS and personal carbon trading could result in the overall cost of achieving reductions being higher. The overall level of emissions within the EU ETS would be unchanged by the introduction of personal carbon trading, but the cost of achieving the EU wide environmental outcome would be affected. If personal carbon trading incentivised more abatement in the UK within the traded sectors, for instance through reducing electricity consumption, this would result in a greater availability of allowances in the remainder of the EU ETS. Where the cost of emissions reductions in the UK are incentivised by the combined allowances prices, the overall cost of achieving an identical environmental outcome will have been increased.

In addition to these difficulties, partially overlapping trading schemes could create inconsistent carbon prices across different fuel types and activities. This could create stronger signals to reduce emissions from some fuel types than others. Overall this could result in inefficient abatement choices being made, and the cost to the UK overall of achieving its abatement targets would be higher.

**9. We agree with the Government that the introduction of a personal carbon trading scheme should be a matter for primary legislation, rather than using the delegated powers contained in the Climate Change Bill. (Paragraph 38)**

We welcome the Environmental Audit Committee's support for the Government position. The Climate Change Bill contains enabling powers which would allow the Government to set up trading schemes which either limit activities producing greenhouse gas emissions, or encourage activities leading to the reduction or removal of greenhouse gas emissions from the atmosphere. As we have explained during the Bill's passage through Parliament, we do not envisage using the powers in the Bill to support the introduction of personal carbon trading. Personal carbon trading could not, and should not, be introduced without a comprehensive period of public engagement and debate.

While we are quite clear that individual behaviour change will be absolutely key if we are to meet the targets and budgets in the Bill, we consider that personal carbon trading is a unique concept which would have such wide reach and potential impact on all levels of society that there would need to be a period of comprehensive public engagement and debate before any concrete proposals could be made.

**10. We believe that the setting and managing of caps for personal carbon trading would be wholly consistent with the provisions for emissions budgets and targets as set out under the draft Climate Change Bill. (Paragraph 39)**

It is clear that the concept of personal carbon trading would be consistent with the aims of the Climate Change Bill, as personal carbon trading aims to drive emissions reductions by influencing behaviours at the individual level. However, as discussed in response to recommendation 8, the issue of double counting would need to be considered fully when determining whether and how the outcome of any personal carbon trading scheme could be said to count towards the targets and budgets in the Climate Change Bill.

**11. We are confident that the technical and operational challenges of implementing personal carbon trading can be overcome. Suitable technology and systems already exist. Although a personal carbon scheme would operate on a larger scale than most existing schemes, the concept has been successfully demonstrated. (Paragraph 45)**

The introduction of a personal carbon trading scheme would require a comprehensive system to assign ownership of carbon allowances to around 50 million participants, to track allowance usage by participants across all relevant retail points (petrol stations, energy suppliers, travel agents etc.) and reconcile usage against their account holdings.

Consultants conducted research on the operation of a personal carbon trading scheme as part of the Government's analysis of technical feasibility. The functions involved in running the scheme (such as customer enrolment, ID verification, accounting, and transactions), and the key components (i.e. the IT systems required to deliver these functions) were identified and then quantified.

No insurmountable technical barriers to the introduction of such a scheme were revealed by this research, but the costs identified for developing and running it were significant. Estimates of the likely set-up costs of the type of scheme explored ranged between £700 million and £2 billion, and the running costs £1–2 billion per annum. These costs were not found to be justified by the assessment of the benefits delivered through personal carbon trading.

When considering the relative benefit of personal carbon trading compared to an upstream trading system, the carbon savings resulting from the price signal created by the cap on emissions must be discounted, as both systems would create this. Either an upstream or downstream system could drive additional carbon savings from abatement by tightening the emissions cap, and so increasing the allowance price. Therefore, the cost benefit analysis for personal carbon trading considered the additional carbon savings from behaviour change that would be achieved by introducing a downstream emissions cap.

The additional benefit personal carbon trading creates is the increased visibility of personal emissions, and the extent to which this would drive behaviour change. The assessment of these visibility benefits revealed costs in the order of fifteen times the benefits (in the central estimate of the benefits). Tightening the emissions cap would be unlikely to increase the benefits relative to an upstream system, as this would not increase the level of visibility created by the scheme.

The only relative benefit of personal carbon trading is visibility, and this comes at a high cost, with little evidence that it will be effective in delivering emissions savings (as explained in the response to recommendation 2). As a result it seems unlikely that personal carbon trading would be able to pass a cost-effectiveness test. Therefore, it is necessary to explore alternative tools that could increase the visibility of personal carbon emissions and deliver more cost-effective emissions savings from individuals' actions and behaviours.

**12. The private sector could play a vital role in operating a personal carbon trading scheme. Further research and consultation is required in order to determine precisely what the most appropriate role for business would be. (Paragraph 46)**

The Government's technical feasibility analysis assumed a role for the private sector. A central database was considered a vital component of personal carbon trading. This database would need to have the capability to identify an individual's entitlement to an allocation of carbon allowances and trigger the allocation of these to an individual's carbon account. The database must also have the capacity to deal with the c. 50 million adults affected. A working assumption was agreed that the database would be the responsibility of a government organisation. The government database handling enrolment and allocation of credits would run in parallel with multiple private sector organisations (i.e. banks and building societies) managing carbon accounts, thus creating a two tier system.

There are many examples of where government schemes are managed across government and private databases, and in keeping with this, a personal carbon trading scheme was found to be a technically feasible option and Government-led operation was found to be preferred, to some extent, in the public acceptability research<sup>15</sup>. A conclusion of the technical feasibility research was that direct consultation across affected industries would be necessary if further consideration were given to personal carbon trading. Extensive consultation across the public and private sectors would be needed to complete further investigation into scheme costs and to cover crucial areas such as commercial viability and implementation risks.

**13. We agree with the Centre for Sustainable Energy that it is crucial to shift the debate away from ever-deeper and more detailed consideration of how any personal carbon trading scheme could operate towards the prior questions of how it could be made publicly and politically acceptable. It is these questions that will ultimately decide the viability of personal carbon trading, and until they have been fully analysed and properly answered, further work on the operational details of schemes adds little value to the main debate. (Paragraph 47)**

The Government's analysis of personal carbon trading made a number of assumptions about scheme design in order to focus on the more significant, and fundamental, questions we felt needed answering: the potential effectiveness and strategic fit of personal carbon trading; the equity and distributional impacts; public acceptability; technical feasibility and potential cost. Therefore, we agree with the recommendation that the debate should be shifted away from detailed consideration of the operation of a personal carbon trading scheme to the more fundamental questions. We also agree that public acceptability is one of these more fundamental questions.

The Government's research into the public acceptability of personal carbon trading aimed to gain insight into public understanding of energy using behaviours and the need for behaviour change, attitudes towards responsibility for personal emissions, reactions to personal carbon trading and views on what might make it acceptable to the public, as well as attitudes to key related matters, such as trust, acceptability, fairness, equity and privacy.

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<sup>15</sup> "Administration: a Government run scheme was favoured over a privately run scheme".

As outlined in the response to recommendation 2, key conclusions from this work were that some of the issues raised in response to the idea of personal carbon trading could be a challenge for the implementation of any policy aiming to reduce individuals' emissions. There were ways of addressing some of the negative views of participants, and attitudes could be different if key concerns were addressed. A considerable amount of information would be needed to help people understand personal carbon trading, and so implementation would present a major communications challenge. A key starting point to influencing behaviour would be raising awareness and providing information of the impact of different activities.

**14. Public opinion may be hostile to any policy instrument designed radically to reduce emissions from individuals. The Government must be courageous on this point. Widespread public acceptance, while desirable, should not be a pre-condition for a personal carbon trading scheme; the need to reduce emissions is simply too urgent. However, significant opposition could undermine any proposal. Further research is required in order to obtain a more detailed picture of the extent of public resistance to personal carbon trading and in what ways this opposition could be tackled. (Paragraph 50)**

In the near term it may be unreasonable to expect widespread public support for any carbon reduction policy, in particular one which could be perceived to limit individual choices. However, significant public opposition to a policy option would risk public disengagement in the policy, and in the case of personal carbon trading, widespread adoption of the 'pay as you go' option would destroy the purpose of the scheme by diminishing the visibility benefits. It is important to recognise the extent of public mistrust or lack of support for a policy initiative as this could stem from genuine problems with a policy instrument's design, and could possibly lead to identification of an alternative, more palatable, option.

The findings of the Government's research into public acceptability revealed a general sense that action should be taken to reduce emissions from individuals, but views on personal carbon trading revealed concerns over possible vulnerable groups, and fears over complexity of the scheme, and of trading. Additionally, and importantly, there was scepticism that it would be fair, that Government could be trusted to manage it or that it would deliver emissions reductions. There was little evidence that people would be likely to trade—a crucial element of the scheme, and concern around the concept of imposing notional 'limits' on activities (this was the perception despite explanation that there wouldn't be limits on individuals or their actions). However, initial reactions to all the options proposed were unfavourable because there was a strong reluctance to the use of a price signal to influence individuals' behaviours.

The Government's research identified areas where further work would be beneficial and these included assessing the impact of describing personal carbon trading in different ways, providing more information on how it would work in practice, including cost information, and reviewing lessons from similar concepts.

**15. Opposition to personal carbon trading could be reduced if the public could be convinced of three things. First, that it is absolutely essential to reduce emissions; second, that this can only be achieved if individuals take personal responsibility for reducing their own emissions; and third, that personal carbon trading is a fairer and more effective way of reducing personal emissions than alternatives such as higher taxes. The public must be persuaded of the first two parts of this argument as soon as possible if the Government is ever to convince them of the third. Persuading the public depends on perceptions of the Government's own commitment to reducing emissions, and of the priority given to climate change in its own decision making. (Paragraph 52)**

The UK is on course to achieve nearly double its commitment under the Kyoto Protocol to cut greenhouse gas emissions to 12.5% below 1990 levels by 2008–12. Though our domestic goal of a 20% reduction in CO<sub>2</sub> emissions, which was always designed to be stretching, looks increasingly difficult to achieve, we are making definite progress towards it and the projected 16% reduction by 2010 is testimony to that progress.

The Government is clearly committed to tackling climate change and is leading the way to a low carbon Britain by proposing clear, binding targets through the Climate Change Bill. This Bill includes provision for a robust and transparent process for reporting progress against targets and budgets. Having set each carbon budget, the Government is required to produce a report setting out the package of policies and proposals which will be used to ensure the budget is met. This will provide transparency as to the direction of travel and enable individuals and business to see how to play their part in tackling climate change.

In addition, each year the independent Committee on Climate Change is required to report to Parliament its views on the progress that has been made towards meeting carbon budgets and the long-term target, the further progress that is required, and whether the target and budgets are likely to be met. The Government must produce a response to the points raised by the Committee's report. This process will ensure there is a clear and transparent reporting framework in every year of each carbon budget to hold Government to account.

The Government is also committed to helping individuals to take responsibility for their emissions, by introducing real measures which will enable people to ACT ON CO<sub>2</sub> by reducing the carbon footprint of their homes, the products and services they buy, and their transport. This includes the role of the Energy Saving Trust, who are improving their service by offering advice tailored to individuals' circumstances and locations; energy suppliers, who are required to help people reduce their carbon footprint through the Carbon Emissions Reduction Target; and UK building regulations, which are being tightened progressively in order to meet a 2016 target for zero carbon new homes.

ACT ON CO<sub>2</sub> is a multi-million pound public awareness campaign including an advice line and an on-line carbon calculator. Interim research has indicated that individuals who have completed the Government's ACT ON CO<sub>2</sub> carbon calculator are more likely to make a connection between climate change and their own carbon footprint. There is also evidence to suggest that in follow up interviews, these individuals have gone on to change their behaviour in some way. However, it is a step too far to move to the assumption that personal carbon trading is the most effective way of reducing personal emissions. This is reliant on a clear evidence base supporting the premise that personal carbon trading is a

fairer and more effective way to reduce emissions, and this is not yet developed. The findings of the Government's research reveal some challenging gaps to this notion.

**16. If a personal carbon trading scheme is ever to see the light of day then the first stages of the scheme, at least, will need to focus on gaining public and political acceptance. Any scheme must limit emissions, but we must accept that initially caps might be more lenient than is ideal, in order to achieve public acceptance. Once the scheme is better established, more demanding caps could be set. This approach will have to be carefully balanced against the need to ensure the scheme effectively reduces emissions in line with national targets. (Paragraph 55)**

The Government's personal carbon trading research programme took the view that the most likely approach to implementation of a personal carbon trading scheme would be to introduce a fairly lenient cap on emissions, with the focus of the initial stages of the scheme on developing understanding of how it works. The expectation was that over time, the overall emissions cap (and hence individual allocations) could be reduced in line with international or nationally adopted agreements.

However, as mentioned in the response to recommendation 8, significant issues remain which would reduce the effectiveness of any newly introduced capping scheme where it overlaps with other trading schemes. The issue of double counting would need to be considered fully when determining whether and how any personal carbon trading scheme could be said to count towards the targets and budgets in the Climate Change Bill.

**17. We believe that personal carbon trading could be made workable if it was acknowledged that it may not be possible to cover all eventualities from the very beginning. A basic programme covering certain emissions could be a useful stepping stone to a more comprehensive scheme. We recommend that the Government investigate the possibility of a phased initial implementation, including all individuals, but concentrating on certain basic areas of carbon use, such as household energy. The scheme could then be developed, expanded, and integrated with other schemes over time, as appropriate. (Paragraph 61)**

See response to recommendation 7.

**18. Personal carbon trading will pose particular difficulties in accommodating and engaging the financially excluded. It is unrealistic to ask those who find it difficult, or even impossible, to manage their standard finances, to also understand and manage a carbon account. While the possibility of a 'pay as you go' option goes some way to relieving these difficulties, it is imperative that any personal carbon trading scheme includes a detailed and determined strategy for assisting the financially excluded. Research is required to assess the likely proportion of people who would choose this type of option, and whether they would face any significant disadvantage as a result. It would be important to make the scheme sufficiently simple and accessible that remaining involved seemed as easy, or indeed easier, than opting out. (Paragraph 67)**

The Government's research into the distributional impacts of personal carbon trading considers how such a scheme might have implications in terms of fairness and equity, and this is addressed in the response to recommendations 22 & 23.

The Government's public acceptability research revealed similar concerns from the general public regarding the ability of vulnerable groups to meet their obligations under the scheme. Two possible options were suggested as means of avoiding such difficulties: one is the option to 'pay as you go' for the carbon associated with goods or services. This avoids the need to manage your personal carbon budget or become involved in trading emissions allowances, but the end result for those who choose this option is effectively an expensively implemented tax (i.e. a higher price is paid for those goods covered by the scheme).

The second option is for externally managed properties, such as social housing and other housing association developments, to pool their carbon allowances and hand over responsibility for managing carbon budgets for those properties to the management companies. Again, in this case individuals would be disengaged from the system, and in both cases, personal carbon trading would be unlikely to deliver any visibility of personal carbon emissions, energy usage or drive any pro-environmental behaviours. For these vulnerable groups, personal carbon trading would not seem the optimum tool. Equally, for those less capable of managing their personal finances, and therefore more likely to choose the 'pay as you go' option, personal carbon trading would not seem the optimum tool.

The obvious disadvantage of a 'pay as you go' option is that people adopting this strategy would be exposed to inflexible costs, unlike those engaged in personal carbon trading who would have the ability to buy and sell allowances at the optimum time (i.e. buying when the price of allowances is low or selling when the price is high). Under the 'pay as you go' model, consumers would have to pay the market price of allowances at the moment of purchase, and retailers could choose to add a fee to each transaction. While those engaged in the scheme would have the opportunity to take advantage of the moving market price, those disengaged would just have to pay the going rate and budgeting could become more difficult as the market fluctuates. In contrast an alternative measure could provide a more stable price signal, though this might not engage individuals as much and might reduce the likelihood of emissions reductions.

From the individual perspective, both options would essentially be an expensively administered tax with which people are not directly engaged and so are unlikely to have any impact on their behaviour. However, these are the only identified solutions for vulnerable groups under a personal carbon trading system, and the 'pay as you go' option would be necessary for other purposes anyway (e.g. foreign visitors to the UK). This puts into question a crucial element of personal carbon trading: that individuals must engage with their personal emissions and energy using behaviours, and as a result, they will begin to take personal responsibility for them.

**19. Personal carbon trading provides only the incentive to reduce emissions, not the means. It is clear that a personal carbon trading scheme would need to be accompanied (and, indeed, preceded) by a raft of other policies. The Government would need to make sure that the opportunities and resources to help people reduce emissions were readily available and well publicised. (Paragraph 71)**

The Government is committed to tackling climate change in the most effective way, and to delivering an optimum package of measures for achieving this. As recognised by the Stern Review, this requires three elements of policy for an effective global response. The first is the pricing of carbon (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.

The Government's strategy to tackling climate change therefore aims to set clear, binding targets through the Climate Change Bill, and put in place a package of measures which enables individuals and business to play a part in tackling climate change. The Government is also committed to helping individuals to take responsibility for their emissions, and policies aimed at helping reduce individuals emissions include projects that encourage pro-environmental behaviours such as the ACT ON CO<sub>2</sub> calculator, publicizing new engagement tools and investigating community initiatives, including the use of real-time information displays, as well as those set out in the response to recommendation 15. These tools are designed to complement but not duplicate the communication activity under the cross-Government ACT ON CO<sub>2</sub> campaign.

The role of ACT ON CO<sub>2</sub> in communications is:

- leading a long-term campaign to change people's attitudes towards climate change in order to move them from passive concern to active engagement;
- communicating key policy interventions, incentives, and services as well as providing people with clear, actionable advice;
- ensuring a joined-up approach and proactive coordination across Government and other public sector organisations;
- ensuring the ACT ON CO<sub>2</sub> brand has ownership by all so that we have consistency and reliability across the campaign.

**20. We commend Defra's Act on CO<sub>2</sub> calculator. It is accessible, engaging, and simple to use. Under a personal carbon trading scheme it could be adapted to provide further information related to personal carbon allowances, and link to personalised advice on how to save carbon units. (Paragraph 72)**

We welcome the Environmental Audit Committee's support for the ACT ON CO<sub>2</sub> calculator, which has now attracted over 1.2 million unique visitors to the website since it was launched in June 2007. Of these, almost 500,000 users have worked out their carbon footprint. This web-based advice tool also provides a personalised and tailored action plan to allow individuals and households to best reduce their carbon emissions.

Early research has reinforced the Committee's commendation and has indicated that the calculator has helped to improve the carbon awareness and literacy of users. There is also evidence that users are more inclined to make changes to their behaviours as a result of using the ACT ON CO<sub>2</sub> calculator. Recent research found that 62% of people claim to have taken action or are planning to take action as a result of the campaign, an increase of 12% compared to summer 2007.

**21. We firmly support the introduction of smart metering in households. This would be an essential supporting measure of a personal carbon trading scheme. At any rate, smart metering should be introduced as soon as possible in order to raise carbon**

**consciousness and thereby lay the ground for carbon restricting measures. (Paragraph 72)**

The Government is positive about the potential benefits of smart metering, but more work is needed before a decision can be taken on whether to proceed with a roll-out to domestic customers. BERR's consultation impact assessment, published in April 2008, indicated that there is not a positive business case for smart meters in the domestic sector. However, in a project of this scale the figures carry a high degree of uncertainty and many of the benefits are difficult to quantify in monetary terms. BERR is therefore undertaking further work with stakeholders to ensure it has the best possible understanding of costs and benefits, with a view to Ministers taking a decision towards the end of 2008.

**22. Personal carbon trading will inevitably highlight existing inequalities of income and opportunity. Any instrument designed to restrict and reduce domestic carbon emissions would raise the same concerns and it would be wrong to reject the proposal of personal carbon trading because of these difficulties. As with any other policy, these inequalities will need to be identified, assessed and, where appropriate, compensated for. (Paragraph 79)**

**23. In order to be effective, a personal carbon trading scheme will have to impose a degree of inconvenience and additional cost. The urgency with which we need to address climate change means the Government should not be afraid of this. When accounting for distributional impacts it will be essential to strike a balance between addressing genuine difficulty and allowing the inconvenience that will encourage change to persist. The groups in genuine need of support must be identified. (Paragraph 82)**

Response to recommendations 22 & 23.

In order to assess the effectiveness of personal carbon trading, or indeed any policy, it is important to consider its cost-effectiveness, and this was the approach taken for the Government's assessment of personal carbon trading. This revealed costs many times the likely benefits. In comparison, the Carbon Emissions Reduction Target, which requires energy suppliers to promote household carbon saving measures, will deliver annual net savings of 4.2MtCO<sub>2</sub> by 2011, and will stimulate about £2.8 billion of investment by energy suppliers in carbon reduction measures. We estimate that each £1 spent by suppliers will save consumers around £6 over the lifetime of the measures. The proposed increase to this target announced by the Prime Minister on 11 September 2008 will achieve further investment and savings.

The Government's research on the distributional impact of personal carbon trading tested the view that it would be a fiscally progressive instrument. The findings revealed further evidence to this effect. While some low income households were found to be likely to lose-out under a personal carbon trading scheme, the more typical trend was for low income households to be better off and for higher income households to lose out. This pattern reflects a trend of higher income households being, generally speaking, higher energy users and vice versa—low income households are, generally speaking, lower energy users. Assuming effective trading takes place, this would result in allowances being transferred from higher income groups to those with lower incomes.

Some inequalities were recognised, for instance over 2 million households appear to fall into the low income ‘loser’ category, but this seems to result from a high proportion of these households living in rural areas, many living in larger-than-average homes, and the allowance deficit being driven by heating rather than transport emissions. The inequalities recognised in some groups were thought to be able to be addressed either through scheme design, or through other supporting measures such as the benefits system. However, it is possible that further inequalities could result from the scheme if effective trading did not take place, and further investigation of this was recommended.

In addition, if the ‘pay as you go’ option were taken up by a lot of participants wishing to avoid the hassle factor of the scheme, or by vulnerable groups who are less able to engage in the scheme, this could potentially lead to further inequalities.

**24. Public acceptance of personal carbon trading will depend on the success of the scheme in engaging and protecting disadvantaged groups. These groups will require reassurance and assistance, both to help them meet the cost of their carbon allowances, and also to make the capital investments or lifestyle changes that will remove them from this category. Assistance should focus on helping households to reduce emissions, rather than rely on providing exemptions. Support programmes should be carefully targeted to provide appropriate assistance to those who genuinely need it, including the financially excluded. (Paragraph 86)**

If personal carbon trading were implemented, it would be likely that supporting measures would be needed for some households. However, these would not necessarily be in addition to existing support programmes, or could involve adaptation of existing measures.

In addition to the ACT ON CO<sub>2</sub> campaign, a great deal of support is provided to individuals to help them reduce their personal emissions through the Energy Saving Trust. Existing and planned programmes delivering such services include the Green Homes service, the ACT ON CO<sub>2</sub> Advice Line, regional advice centres, in-home energy audits, home energy reports, the Green Neighbourhoods project, and the Community Action for Energy Network.

Part of the Energy Saving Trust’s work is to direct those who are most vulnerable to schemes such as Warm Front, the Carbon Emissions Reduction Target scheme and Local Authority programmes. These schemes provide grants, and free or subsidised offers for energy efficiency measures.

**25. Any personal carbon trading scheme must take account of children; to allocate no further allowance for children risks severely punishing family households, especially low-income and single parent families. On the other hand, childless households could be unfairly disadvantaged if full allocations were given to children. Significant further research is required to determine the likely impact of children on their household’s carbon footprint. Until this research has been carried out, it is not possible to determine the best method of accommodating children in the scheme. (Paragraph 89)**

The Government’s research into the distributional impacts of personal carbon trading addressed the issue of whether, and how, children should be included in a scheme. The research revealed that although allocating a full allowance to every child appears consistent with personal carbon trading as a system based on the right of every citizen to emit an

equal amount of carbon, the data suggests children have a smaller marginal effect on household emissions than adults.

Allocating full allowances to children would therefore disproportionately benefit large families at the expense of childless households. Further analysis of the data demonstrated that by allocating children 1/3 of an allowance, the disproportionate effects could be minimised, and so this seemed to represent a reasonable compromise between allocating children a full allowance, and allocating them no allowances at all. Further investigation of this proposal would probably be worthwhile in any further assessment of the concept.

### *The Way Forward*

**26. Witnesses told us repeatedly that existing research data is too sparse to allow meaningful decisions in vital politically-sensitive areas such as public acceptance, distributional impacts, and operational costs. Crucially, a lack of comprehensive profiling data on current energy use and transport patterns is restricting the accuracy of predictions of the effect on personal carbon trading on different groups. These research gaps are preventing not only the development of personal carbon trading as a viable policy, but also its fair comparison against other policy instruments. Without more extensive data, the merits of personal carbon trading cannot be fully assessed. (Paragraph 93)**

The Government's pre-feasibility study was developed to take an initial view on the potential value of personal carbon trading compared to other approaches to reduce individuals' carbon dioxide emissions. Four areas were identified for further investigation: the potential effectiveness and strategic fit of personal carbon trading; the equity and distributional impacts; public acceptability; technical feasibility and potential cost.

The findings of the research indicate that, while personal carbon trading remains a potentially important way to engage individuals, and there are no insurmountable technical obstacles to its introduction, it would nonetheless seem that it is an idea currently ahead of its time in terms of its public acceptability and the technology to bring down the costs. There are some significant challenges to its potential as an effective policy tool, and these would need to be addressed before this option could be considered as a part of the UK's Climate Change Programme.

Nonetheless, the research provides a valuable contribution to the analysis of measures aimed at reducing individuals' CO<sub>2</sub> emissions and encouraging pro-environmental behaviours. If further research were taken forward on personal carbon trading, this work would provide a sound basis upon which to build. Areas where further analysis would be beneficial would be assessment of the key cost drivers and how these costs might be reduced, a better understanding of the degree of behavioural influence a personal carbon trading scheme might have, and further analysis of the impact of policies on individuals' behaviours would have much wider benefits within Government than just the assessment of personal carbon trading.

**27. Shortly before publication of our Report, Defra released the results of their preliminary study into personal carbon trading. We welcome the level of work and analysis that has gone into this study, and we hope that it serves to progress the case for personal carbon trading. We note that Defra's study agrees with our findings in a number of crucial areas: firstly, that personal carbon trading is fiscally progressive, and secondly, that there are no insurmountable technical barriers to such a scheme. We recognise the extent of the Government's concern over public resistance to personal carbon trading and the potentially high cost of implementing it. These are undeniably difficult areas. However, we regret that, as a result of this, the Government is indicating that it will wind down its work on personal carbon trading. Public acceptance of personal carbon trading may seem a distant or unlikely prospect to the Government, but without some leadership and co-ordination it is unlikely to move beyond the realm of academic study. Although we commend the Government for its intention to maintain engagement in the academic debate, we urge it to do more. Work needs to be done now if we are to ever reach the point when the concept becomes acceptable to the public and we would like to see the Government leading and shaping debate and co-ordinating activity and research. Without action of this kind it is unlikely that personal carbon trading could become a viable policy in the foreseeable future. (Paragraph 95)**

The Government's pre-feasibility study revealed significant challenges in relation to the cost of implementing and running a personal carbon trading scheme relative to the benefits, as well as challenges in terms of its level of public acceptability. While the Government remains interested in the concept, the evidence from this study was not sufficiently positive to justify further research at this stage into the value of personal carbon trading as a potential policy option.

If some of the significant challenges identified, such as the large costs, could be further researched and found to be less significant, this could justify the Government further considering the potential of personal carbon trading. However, until this time, the Government must remain committed to identifying and implementing the most cost-effective policies for tackling climate change, and must ensure we are on track to meet our obligations.

**28. Personal carbon trading does not lend itself easily to a pilot or comprehensive trial. The conditions required accurately to simulate behaviour and transactions under a full personal carbon trading scheme would be difficult to replicate in a pilot with limited participation. We do not believe that it is feasible to address all aspects of personal carbon trading under a single pilot. An alternative approach involving smaller, separately targeted activities focused on particular aspects of the proposed scheme may be preferable. (Paragraph 98)**

It could be argued that a sensible next step to test the findings of the Government's initial assessment of personal carbon trading, and of the technical feasibility and public acceptability analysis in particular, would be a form of trial or pilot. However, to get the most out of such an activity further analysis would be needed to determine the best technical option, that combines acceptable cost with public acceptability. Even then, there are risks to testing in public as pilot systems are inevitably unrefined and likely to have faults, which could lead to failure and subsequent public distrust and ridicule.

Furthermore, a pilot would not be able to test the mandatory and national nature of a scheme, therefore making it unrepresentative of the real world<sup>16</sup>.

Potentially interesting feedback could be delivered through exploring likely individual responses to simulation games, or voluntary trials. However, they could not and should not be seen as indicative of responses to a formal, national and mandatory scheme.

**29. Personal carbon trading could be essential in helping to reduce our national carbon footprint. Further work is needed before personal carbon trading can be a viable policy option and this must be started urgently, and in earnest. In the meantime there is no barrier to the Government developing and deploying the policies that will not only prepare the ground for personal carbon trading, but which will ensure its effectiveness and acceptance once implemented. (Paragraph 99)**

The Government supports the research that continues externally to Government in academia and think-tanks, and is committed to keeping in touch with their progress. The Government always envisaged our research being made publicly available and contributing to the personal carbon trading debate which continues within academia, think tanks, and research institutes. By highlighting some of the areas worthy of further investigation we hope that some of these issues might be addressed. The Government is keen to see the outcomes of the research set to report this year from the Royal Society for Arts, the Institute for Public Policy Research and others—particularly if it were able to address some of the issues our research highlights.

The Government will consider with interest any further research that provides sufficient evidence to reduce the significance of some of the major challenges identified by the Government's study.

October 2008

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16 The view of CSE in their scoping study '*A Rough Guide to Individual Carbon Trading: The ideas, the issues and the next steps*', CSE for Defra, November 2006.  
[www.defra.gov.uk/environment/climatechange/uk/individual/carbontrading/pdf/pca-scopingstudy.pdf](http://www.defra.gov.uk/environment/climatechange/uk/individual/carbontrading/pdf/pca-scopingstudy.pdf)

## List of Reports from the Committee during the current Parliament

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

### Session 2007–08

First Report	Are biofuels sustainable?	HC 76-I & -II (HC 528)
Second Report	Reducing Carbon Emissions from UK Business: The Role of the Climate Change Levy and Agreements	HC 354 (HC 590)
Third Report	The 2007 Pre-Budget Report and Comprehensive Spending Review: An environmental analysis	HC 149-I & -II (HC 591)
Fourth Report	Are Biofuels Sustainable? The Government Response	HC 528 (HC 644)
Fifth Report	Personal Carbon Trading	HC 565 (HC 1135)
Sixth Report	Reaching an international agreement on climate change	HC 355 (HC 1055)
Seventh Report	Making Government operations more sustainable: A progress report	HC 529
Eight Report	Climate change and local, regional and devolved government	HC 225
Ninth Report	Carbon capture and storage	HC 654
Tenth Report	Vehicle Excise Duty as an environmental tax	HC 907
Eleventh Report	The Export Credits Guarantee Department and Sustainable Development	HC 929
Twelfth Report	Greener homes for the future? An environmental analysis of the Government's house-building plans	HC 566

### Session 2006–07

First Report	The UN Millennium Ecosystem Assessment	HC 77 (HC 848)
Second Report	The EU Emissions Trading Scheme: Lessons for the Future	HC 70 (HC 1072)
Third Report	Regulatory Impact Assessments and Policy Appraisal	HC 353 (HC 849)
Fourth Report	Pre-Budget 2006 and the Stern Review	HC 227 (HC 739)
Fifth Report	Trade, Development and Environment: The Role of FCO	HC 289 (HC 1046)
Sixth Report	Voluntary Carbon Offset Market	HC 331 (HC 418)
Seventh Report	Beyond Stern: From the Climate Change Programme Review to the Draft Climate Change Bill	HC 460 (HC 1110)
Eighth Report	Emissions Trading: Government Response to the Committee's Second Report of Session 2006–07 on the EU ETS	HC 1072
Ninth Report	The Structure of Government and the challenge of climate change	HC 740 (HC 276)

**Session 2005–06**

First Report	Greening Government: the 2004 Sustainable Development in Government Report	HC 698
Second Report	Sustainable Timber	HC 607 (HC 1078)
Third Report	Sustainable Procurement: the Way Forward	HC 740
Fourth Report	Pre-Budget 2005: Tax, economic analysis, and climate change	HC 882 (HC 195)
Fifth Report	Sustainable Housing: A follow-up report	HC 779
Sixth Report	Keeping the lights on: Nuclear, Renewables, and Climate Change	HC 584 (HC 196)
Seventh Report	Sustainable Development Reporting by Government Departments	HC 1322 (HC 1681)
Eighth Report	Proposals for a draft Marine Bill	HC 1323 (HC 1682)
Ninth Report	Reducing Carbon Emissions from Transport	HC 981
Tenth Report	Trade, Development and Environment: The Role of DFID	HC 1014 (HC 197)
Eleventh Report	Outflanked: The World Trade Organisation, International Trade and Sustainable Development	HC 1455 (HC 354)
Twelfth Report	Transport Emissions: Government Response to the Committee's Ninth Report of Session 2005–06 on Reducing Carbon Emissions from Transport	HC 1718