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Joint Committee on the Draft
Climate Change Bill

Draft Climate Change Bill

Report of Session 2006-07

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Oral and Written evidence

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The Joint Committee on the Draft Climate Change Bill

The Joint Committee on the Draft Climate Change Bill was appointed by the House of Commons and the House of Lords "to consider and report on the draft Climate Change Bill presented to both Houses on 13 March and to report by 25 July 2007".

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Mr David Chaytor (Labour, Bury North)
Helen Goodman (Labour, Bishop Auckland)
Nia Griffith (Labour, Llanelli)
David Howarth (Liberal Democrat, Cambridge)
Mr Nick Hurd (Conservative, Ruislip-Northwood)
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Earl of Caithness (Conservative)
Lord Crickhowell (Conservative)
Lord Jay of Ewelme (Crossbench)
Lord May of Oxford (Crossbench)
Baroness Miller of Chilthorne Domer (Liberal Democrat)
Earl of Selborne (Conservative)
Lord Teverson (Liberal Democrat)
Lord Vinson (Conservative)
Lord Whitty (Labour)
Lord Woolmer of Leeds (Labour)

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The Committee has the power to require the submission of written evidence and documents, to examine witnesses, to meet away from Westminster, to meet at any time (except when Parliament is prorogued or dissolved), to appoint specialist advisers, and to make Reports to the two Houses.

Publication

The Report and evidence of the Joint Committee are published by The Stationery Office by Order of the two Houses. All publications of the Joint Committee (including press notices) are on the Internet at www.parliament.uk/parliamentary_committees/climatechangeefm

Committee staff

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Oral evidence

Taken before the Joint Committee on the Draft Climate Change Bill

on Wednesday 16 May 2007

Members present:

Billingham, B.
Caithness, E.
Crickhowell, L.
Jay of Ewelme, L.
Puttnam, L. (Chairman)
Teverson, L.
Whitty, L.
Woolmer of Leeds, L.

Ms Celia Barlow
Mr David Chaytor
Helen Goodman
David Howarth
Mr Nick Hurd
Mr David Kidney
Mark Lazarowicz
Mr Graham Stuart
Dr Desmond Turner
Dr Alan Whitehead
Mr Tim Yeo

Witnesses: **Mr William Wilson**, Director of Cambrensis, Barrister in Environmental Law Unit, Burges Salmon, **Mr Christopher Norton**, Baker and Mackenzie and **Professor Christopher Forsyth**, Cambridge University, examined.

Chairman: Thank you very much for coming here. We start off regretting the fact we do not have more time, so if it is a bit brisk it is not being rude it is just we are short of time. We will start the questions with Lord Crickhowell.

Q1 Lord Crickhowell: Clause 1, line 1 of this Bill starts by imposing a duty on the Secretary of State to do various things, the most notable of which is to achieve a 60 per cent reduction in CO₂ emissions by the year 2050. Clause 2 imposes similar duties for intervening periods. I have had this opening described to me by an eminent former law lord as *lex imperfecta*, ie, totally unenforceable law. It tends to impose a duty to do things over which he cannot have full total control. Even if his emissions trading arrangements are effective, they still depend on the actions of the markets, organisations and individuals. It may well be that we are dependent anyway on EU emissions trading and there are a whole lot of other steps which might or might not be effective. It is not unusual to have a purpose clause at the beginning of a Bill which sets a general objective, but does it make sense to impose a duty which no Secretary of State is going to be in a position to actually make effective, and certainly I suggest is totally unenforceable law? Would it not be better to have a purpose clause and then go on to the quite sensible provisions which follow?

Mr Wilson: I suppose it is a kind of declaratory aim and, as I understand it, it is enforceable, not just by sanctions in the courts, but by pressure of public opinion and parliamentary pressure. So to that end it does make sense but it is difficult to enforce it in a conventional way, I agree, but I suppose the Secretary of State knows if he does not achieve the target in a particular time he will get a hard time from the press and from Parliament.

Q2 Lord Crickhowell: Is it not true that if you set targets and you set targets in accordance with advice received from the independent committee being set up and that independent committee is going to report on the results, you are going to create that pressure without pretending that you are creating an enforceable law, and surely it undermines the law generally? If you have a law that in fact is not going to be enforced and cannot be enforced it is almost wildly unlikely that the courts would think they could enforce it. Would it not be better to have a declaratory introduction and, yes, publicise the targets and let public opinion judge? That surely would be a more sensible way of proceeding?

Mr Norton: I think in a way we are talking about semantics. The way I look at this Bill is it is more akin to an international treaty. How do you enforce international treaties? You do it primarily through peer nation pressure. I think what the UK is saying here to the rest of the world as well as to the UK stakeholders is, "We are going to meet these targets, we are going to make them binding and we will do everything we can to achieve that." The fact you say they are unenforceable, I think from a legal perspective they would be very difficult to enforce, but I think the Bill has a much more important role than setting legally binding targets.

Q3 Lord Crickhowell: Would it not therefore be better to have a Bill which actually make sense in legal terms, sets the targets clearly, publishes the results and lets public opinion judge; instead of going through a pretence, really a misleading pretence, that there is something which can be enforced which no Secretary of State can in fact be held to account for?

Mr Norton: I hope the Secretary of State will be accountable through Parliament, the question whether he will be accountable through the courts is a slightly different matter. I still come back to the

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view that this is more akin to an international treaty where we are bound by peer pressure. By passing this Bill we are saying to the rest of the world that this is what we are going to do, we will endeavour to achieve that and we want you to meet that and act in similar fashion.

Q4 Lord Crickhowell: Apart from treaties, can you give me one precedent in national law for such a duty being imposed?

Mr Norton: Not in terms of direct targets like this, though probably Professor Forsyth has a few examples of other Acts of Parliament which do in a way set a political agenda rather than necessarily a legally binding one.

Professor Forsyth: Perhaps that is the point at which I could come in, if the Committee will allow me. There are examples of other statutes; in fact they are quite common if you start looking for them. I have in fact put two in my written evidence to the Committee. One is the 1977 National Health Act, where it says the Secretary of State's duty is to continue the promotion in England and Wales of a comprehensive health service. Secondly, the Coal Industry Nationalisation Act of 1946, of course now long dead, imposed a duty of working and getting coal and making supplies of coal available. Both broad, general duties which could not in practical circumstances be enforceable. So it is not entirely unprecedented that there should be such words in a Bill. I am unaware though of an example concerned with the setting of targets. I would like to use the mention of targets to make a point which I think has been overlooked in some of the discussion I have seen on this Bill, which is a target is not something that you can guarantee, no one can guarantee you are going to hit the bull's eye, it is something you would like to happen but you are not sure it will. So the duty of the Secretary of State to achieve the target is at best a duty to use his or her best endeavours to achieve that target, it cannot guarantee that the target will be achieved. The consequence that has for the legal enforceability of this duty is that a failure to achieve the target does not, it seems to me, imply a breach of the duty, so there is nothing for the court to enforce even were it minded to do. So I am of the clear view, which is clearly shared by my colleagues, that this is a duty that is unenforceable in the courts. In a way it seems to me it is a political question rather than a legal question whether you retain it to show the depths of your political commitment to the goal or not.

Q5 Mark Lazarowicz: Are there no circumstances in which the obligation placed upon the Secretary of State could not result in a court making an order for certain actions to be undertaken or certain policies to be changed, or at the very least for certain policies to be reviewed?

Professor Forsyth: I have considered that issue in my written evidence and the conclusion I have reached is no, because this is a broad general duty. When there is a statutory duty it will lay down that the minister is required to do a certain thing—make a regulation that does this, lay a report before

Parliament, hear and determine a matter of dispute which lies within his jurisdiction or whatever it might be—and so when a mandatory order is sought against that minister or other public authority and order is granted, it orders that person on pain of punishment for contempt of court to do that specific thing. But what is the point of trying to order a minister to ensure compliance with a target if you do not tell him how he is to do that? It seems to me it is unthinkable that the English courts would consider themselves to have jurisdiction, for instance, to tell the minister to close down a coal-fired power station in order that the target could be met. Or, in the example that the Committee's questions themselves pose, order the minister to buy carbon credits. If the minister were to buy carbon credits, it is most likely he would need to have funds voted to him by Parliament and those funds would have to be raised and I think it is inconceivable a court is going to want to be involved in a matter of that kind.

Q6 Mark Lazarowicz: Bearing in mind that example of a coal-fired power station and comments also made by Mr Wilson about the role of legislation as providing a benchmark against which the public could judge whether or not policies were being complied with, would it not be possible that in a situation where general public opinion and general scientific opinion clearly was of the view that a certain course of action was going to contribute to increasing carbon emissions, in those circumstances could not such an order be considered? For example, if a government chose to commit itself to a large number of new coal-fired power stations, to take that example, in those circumstances would you reach the threshold at which a court might intervene?

Professor Forsyth: I can conceive of circumstances in which a decision by a government to build a large number of coal-fired power stations would be quashed as being unreasonable in the circumstances because the weight of opinion was so clearly shown that the public interest lay elsewhere and the weight of opinion and knowledge showed that the public interest lay elsewhere. But that decision would be quashed under the legislation under which the Secretary of State was then acting, it would have nothing to do with this Act save as a background.

Q7 Earl of Caithness: I would like to move to another part of the Bill which is equally important and that is clause 19 which sets up this committee. I would like your thoughts on the independence of this committee and whether in order to fulfil its role it should be more independent from the Secretary of State than is currently drafted in the Bill?

Mr Wilson: I think it is important to sort out exactly what this committee is supposed to do. You could have a committee, as I said, rather like the Monetary Policy Committee which is just handed an area of policy and told to get on with it—it is not terribly democratic but it may be effective. Or, alternatively, as I would suggest, it would be preferable to have a really authoritative, scientific advisory committee, but in that case I think you need to separate out very

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clearly what the responsibilities of the committee are as opposed to what the responsibilities of the government are. I think this committee has been asked to do too much and the risk is it will get bogged down in ticking all the boxes and making sure it has considered, for example, fuel poverty instead of giving its best authoritative advice on climate change, which is I suggest what it should be doing.

Q8 Dr Turner: When the Secretary of State sets a carbon budget, the Bill requires that he will be obliged to produce a report to Parliament on the policy instruments which will be employed to achieve the emission goals. Would it be helpful to extend this obligation to produce a similar report and response to the result when it becomes apparent that we are going to fail to meet the carbon budget?

Mr Norton: I think in principle yes, because if you do not do that the whole purpose of the Bill is then undermined because it has to be flexible enough to deal with changing circumstances. Clearly the committee and Parliament need to know when we are not on target to meet those budget targets. So in principle, yes, I think that would be a good idea.

Q9 Dr Turner: Do you think it would be useful to extend that, not just to the formal five year targets but to the annual reporting figures which will make it clear whether targets are likely to be met? Clearly there will be a laid out projectory so although there is not a formal target for a given year everyone will know quite clearly where we need to be. Do you think it would be advantageous to require the Secretary of State again to report under such circumstances if it is clearly evident we are going in the next year or two to fall short of the target?

Mr Norton: I think in principle again yes, provided that the annual reporting does not undermine the five yearly concept, because that has been built into the Bill in order to provide some certainty over a five year period because obviously emissions will go up and down within those particular years. As long as it does not undermine that, I think Parliament should have some sort of reporting on the likely failure to meet a target.

Q10 Dr Turner: Would the production of such reports have any impact on potential judicial review proceedings?

Mr Norton: Personally, I do not think they would. I think judicial review hearings are like any other litigation, they require all the evidence to be heard, and I think the fact those reports have to be before them is not going to impact on the judicial review proceedings.

Q11 Dr Turner: This legislation will obviously not sit alone, there will be European and international agreements as well. Do you think the reporting functions of the Secretary of State could usefully be expanded to provide more information about those, so we actually join it up as it were?

Mr Norton: Clearly part of this Bill is intended to meet our international commitments, certainly the first phase of Kyoto but looking beyond that there are no commitments at the moment but we are hoping there will be. In principle again, I think it should refer to international policy and law provided that that does not become the main driver of the reports and does not obfuscate the rest of the reporting. I think it is an element which should be taken into account but at the end of the day these are UK targets and this is a UK piece of legislation, and I think we will need to be careful how we use that. I think also targets are an issue because these reports have to be done in a fairly tight timeframe, and the response from government to the reports is only about four or five months. If you have to take into account for example the devolved regions and what they are saying as well as international law, then it becomes quite a large task I would suggest for the machinery of government.

Q12 David Howarth: Can I bring together the response to Dr Turner's question and the response to Lord Crickhowell's starting point, comparing the legal enforceability of the longer term targets and the legal enforceability of the annual budgets? Would it be fair to say that in terms of judicial review, in terms of practical enforceability, there is no difference, and that the advertised difference, that one would be legally enforceable and the other not and therefore you need different attitudes towards those two, does not really hold any water? In practical terms neither is legally enforceable. Is that broadly correct?

Mr Norton: I personally agree but I defer to my colleagues.

Professor Forsyth: If you take the duty of the Secretary of State under clause 2, under clause 2(1)(a) it is the duty of the Secretary of State "to set for each succeeding period of five years ... an amount for the net UK carbon account", and were the Secretary of State to fail to do that he could be ordered to do that and that would be enforceable. But it is in clause 2(1)(b) where it is the duty of the Secretary of State "to ensure that the net UK carbon account for a budgetary period does not exceed the carbon budget", where you are in exactly the same position as you are as far as the target in clause 1(1) is concerned. It is an inchoate duty that you cannot support being able to latch on to a particular act that it can order the Secretary of State to perform that will ensure compliance. The enforceability of a duty of that kind, it seems to me, has to come about through another process, which is why the suggestion made earlier of some kind of action plan procedure when there was non-compliance, or non-compliance seemed to be threatening, strikes me as probably a more appropriate way to go forward.

Q13 David Howarth: Just to follow that on, the court will find that straightforward to enforce and that will be specific enough for the court to latch on to?

Professor Forsyth: Certainly, particularly if the action plan exists and specifies what has to be done.

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Q14 Mr Kidney: I would like to go on to enabling powers in a second but just to pursue that last point with you, Professor Forsyth: the Secretary of State fails to hit the 2050 target, you do not think the courts will intervene; the Secretary of State fails to produce a budget at all which should be produced under the Act, you think the court probably could intervene—

Professor Forsyth: The courts can intervene.

Q15 Mr Kidney: That middle ground which David has just asked you about, the Carbon Committee says the budget should be a particular shape and size, the Secretary of State completely ignores them and sets a very modest target, do you think the court will intervene at that level?

Professor Forsyth: Whether the court will intervene in circumstances of that kind, where the Secretary of State has set a carbon budget in the teeth of the advice of his own committee, would depend upon whether the court was satisfied that the Secretary of State was acting irrationally in those circumstances. If there was other evidence that the Secretary of State was acting for an improper purpose or something of that kind, there would be no difficulty quashing it, but on the assumption that the Secretary of State has not made a procedural error, is acting for proper purpose but nonetheless sets it very low in the teeth of his advice, then it is possible that the court will conclude that the Secretary of State was acting irrationally and will quash that carbon budget.

Q16 Mr Kidney: It is really helpful to see where the line might be drawn.

Professor Forsyth: The mere fact that the Secretary of State takes a different view and sets the budget a bit lower than the advice in itself will not be enough, they must establish the irrationality of what he has done.

Q17 Mr Kidney: Yes, that is understood. Thank you. In the Bill it is proposed that the quite wide enabling powers, particularly to set up trading schemes, will be dealt with by statutory secondary legislation, and there are also some powers as I understand it by secondary legislation to amend the primary legislation, for example even changing the long-term target. Should we be concerned, speaking now to the lawyers and perhaps Mr Wilson can start us off, that there are quite wide powers for a minister on secondary legislation to make big changes or big schemes afterwards?

Mr Wilson: I think it is an issue and it is one which your delegated powers scrutiny committee might have views on. There are quite wide enabling powers here. Some of them are addressed by the inclusion in the Bill of an affirmative procedure, but the frustration about an affirmative procedure is that while it gives Parliament the vote it does not, as I understand it, give the power to amend things and that may not really be what is needed. If the Secretary of State brings along a new trading scheme which affects quite an area of the economy, you may want to comment on and correct it rather than vote

it down or vote it through. I think what may be more helpful is if the Secretary of State were required, among the people he is already going to consult, to consult Parliament and to put the draft trading scheme to Parliament and give it time to comment and correct it and take those comments into account and then proceed with it. That is part of winning public acceptance for it which I think in the long term is the most important thing of all.

Q18 Mr Kidney: Personally I would have new classifications of statutory instruments as well as the two we have—negative and affirmative. Mr Norton, Professor Forsyth, is there anything you would like to say about the further safeguards there could be in the Bill?

Mr Norton: I think my concern would be in terms of enabling powers, particularly in relation to emission trading schemes. Although the design of emission trading schemes which are imposed on people could be something which is dealt with under secondary legislation, the actual caps and the targets under that I think should be open to parliamentary scrutiny, because they do affect industry, because they will affect industry more than anyone else, and to have those caps set under secondary legislation would be unacceptable from a parliamentary democracy point of view. I think the other point is that what we have here is reference to emission trading schemes but there is an awful lot of other types of initiatives and policies which could be dealt with under this Bill, whether in terms of encouraging investment in renewable energy projects, carbon capture storage technology and the like, which is not mentioned, so the Bill is slightly unbalanced in my view in the sense it does refer to emission trading schemes but not the other types of mechanisms we could be using.

Q19 Lord Crickhowell: I may have misheard or misunderstood what Mr Norton said earlier when asked a question I think on reporting, but since then we have been dealing with this general relationship between the emissions trading scheme set by the Secretary of State here and international agreements. The reality is that the major emissions trading scheme with which we are likely to deal for a long time to come is the European trading scheme and probably, and hopefully, the European trading scheme increasingly interlinked with other international trading schemes. I am not clear at all, as I look at the Bill, whether there is a clear relationship between what the Secretary of State does in setting up his schemes, on reporting on them, dealing with them and legislating on them, and how we deal with the effective implementation of the European and other international schemes and the way we help to make sure in the European context that those are effective. Am I wrong in feeling there is a gap here that needs to be filled?

Mr Norton: I think you are absolutely right, the devil is always in the detail, and until you actually design schemes to introduce other parts of industry, other parts of the Community, you do need to be looking at the European scheme. The European scheme itself will be expanded at some stage, it might well include

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aviation, it might well include other gases, other industries than those at the moment, so clearly the UK needs to be looking at what is happening at an EU level in terms of what it is doing at the UK level. Whether that is something you could write into this Bill I think might be difficult.

Q20 Lord Crickhowell: Without writing it into the Bill, is there something we should do to at least cover the point more than the Bill perhaps does at the moment? Any suggestions would be welcome.

Mr Norton: Perhaps through making sure emission trading schemes which the UK introduces are actually not dealt with through secondary legislation.

Mr Wilson: I think there is something more which could be done in the Bill and I agree with what has been said and I think it is a very important point. Perhaps the Secretary of State's reports at various points in the Bill could reflect more closely what is going on at international and EU level. I think that would be a benefit to the information provided to Parliament and it would make it more real, because otherwise you can in a sense move the goalposts by making an order to change the targets because of something which has been agreed at an international or EU level.

Q21 Dr Whitehead: So far we have dealt with circumstances under which perhaps the Secretary of State might fail in his or her legal duty, but there could be circumstances however under which the Secretary of State would wish to pursue his or her legal duty by doing particular things which might conflict with individual rights or duties otherwise and then claim legitimacy for those actions because of the provisions of the Climate Change Act as it would be. Do you see that as a potential conflict with, as it were, the provisions of the Act trumping other rights and duties, or do you think there are ways such possible conflict could be resolved?

Professor Forsyth: It seems to me clear that the various trading schemes will affect the rights of other people; there will be fortunes made and lost when these schemes get up and running, but those changes will be authorised in effect by the legislation setting up the trading scheme. One of the things which struck me in reading this Bill is how few policy levers the Secretary of State will have other than the trading schemes to try and reach his target. Because there are so few expressed powers, there may be an attempt to find implied powers but they are pretty well hidden. He has the duty to ensure compliance with the target, but he is not given any powers other than the trading schemes with which to achieve that, so he would have to find that under other legislation or ask Parliament for more powers if he wished to change the mix of power generation or whatever it may be. But I do not see a real danger of implied powers being found in this Bill and the minister being able to justify oppressive action on the basis he has to comply with his target.

Q22 Lord Jay of Ewelme: I wanted to broaden out the question which Lord Crickhowell asked just now, which was relating in particular to European legislation and to the European trading schemes. As Mr Norton said earlier, at the moment our only international obligation is really the Kyoto Protocol but I think it is reasonable to presume there will be further international obligations over the next ten or 15 years or so. Is it your view that the Bill as drafted provides enough flexibility as it were to be reasonably confident that the British policies will be consistent with and coherent with the international obligations we might enter into? I know that is a rather futuristic question but I would be grateful to know if you think the basic structure is satisfactory from that point of view?

Mr Norton: I think you are asking really whether it is consistent with international law and policy on climate change.

Q23 Lord Jay of Ewelme: As it may evolve.

Mr Norton: You could ask whether we are undermining our negotiating position on post-2012 Kyoto by coming out with a legally binding target of the type we are, because other countries will pick up on that presumably and require us to stick to that in the way I mentioned earlier and under international treaties. In many ways I think the Bill is consistent with international policy on climate change but there are various little things which are inconsistent, for example the dates. Reporting and budgeting dates are consistent with Kyoto but actually the target dates are not, they fall in the middle of a Kyoto target if Kyoto periods run on as they are expected to. So I think there are issues like that. The other point is that we would be the only country to have set legally binding targets. The European Union is talking about binding targets in terms of renewable energy but not in terms of its initial reductions, so I think it is inconsistent in that sense. The question is whether the UK taking this approach will actually push other international bodies, whether Kyoto or the European Union, to go along the same line.

Q24 Lord Teverson: I would like to follow up on the European side. In terms of compatibility, is there a situation at all where the Secretary of State puts in other additional carbon restrictions on sectors of British industry where industry in Britain may feel hard done by or maybe would look upon it as a distortion of the single market? Is there any potential issue of calling foul of the European level in that way? The other thing which I particularly would like to follow up is the question of David Kidney about secondary legislation. When I first read through the Bill I was quite staggered by the powers it seemed to give to the Secretary of State to go off and do pretty well whatever he or she wanted, and I wondered whether there was similar legislation where similar powers had been given to Secretaries of State in other areas, or is this exceptional in terms of the amount of power it gives to the executive to increase legislation?

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Mr Wilson: If I could try the last point. It is the case that there is a proliferation of enabling powers in the legislation and the Pollution, Prevent and Control Act, which enacts the IPPC Directive, is one large enabling power really. I think that can probably be effectively addressed by reporting and consultation as well as or instead of these affirmative resolution procedures, because there is then an opportunity to make sensible comments and amendments and that is the way I would suggest addressing that issue. I am sorry, I have not addressed the first point.

Mr Norton: I might come back in on the state aid issue you mentioned. Currently under the EU scheme one of the big issues that the European Commission looked at under the national allocation plans is state aid and competition law issues, and if the UK is imposing additional burdens on particular sectors of industry or in fact is giving them benefits which industry in other European countries or other countries do not have, clearly there will be arguments in and around state aid. So, yes, there is potential for that type of issue to arise.

Q25 Lord Teverson: I was particularly interested in Mr Wilson's memorandum and the Oregon example of legislators or state legislators having to go out and get on their soap boxes around the state to proclaim the legislation, and I wondered whether he felt this should be a duty put on the Secretary of State for this legislation?

Mr Wilson: Not just the Secretary of State but also the officials. I do not think it would have done me too much harm to have to go and explain the legislation I was working on to people around the country, I think it would be very good for me. I was never asked to do it because that is not how we work but I think it should be. I admire the way they do it in Oregon, I think it is very healthy.

Mr Norton: My experience of working on the EU emissions trading scheme and the way that has been put into the UK, the UK has been far more advanced than many other European nations in having a dialogue with other stakeholders, and I think that is one of the good things about the way the legislation has been done in the UK. I hope this Bill involves a similar sort of level of stakeholder discussion, I am sure it will do.

Q26 Lord Woolmer of Leeds: Coming back to the European emissions trading scheme, if the UK sets itself targets which are more demanding than the EU trading scheme for those sectors which are in it, would I be right in saying that the UK Government cannot prevent those emitters from buying credits from other sources within the EU?

Mr Norton: That is absolutely right. That is the basic principle of an emissions trading scheme, that you either abate your emissions or you go out and buy allowances, so there would be that option but it depends on what the carbon price is and what the impact is on those industries, but that would be available to them.

Q27 Lord Woolmer of Leeds: So if we set a distinctly more demanding level or restriction than other EU states, emitters in this country could buy credits on the European carbon trading market?

Mr Norton: Yes, and they could also buy credits from the project mechanisms under Kyoto—the CDM and the JI—although there is a quantitative cap on the number of credits you can bring in from this.

Q28 Lord Woolmer of Leeds: But there is not within the European Trading Scheme?

Mr Norton: Yes, there is. The European Commission requires quantitative caps on the number of project credits you can use for compliance purposes. It is this concept of supplementarity. No one quite knows what supplementarity means but the European Commissioners have set a benchmark of around eight or 12 per cent cap on the number of project credits you can bring in and use.

Q29 Lord Woolmer of Leeds: From elsewhere in the European Union?

Mr Norton: No, from elsewhere in the world, so you have got the CDM projects in the developing world and JI in developed countries.

Q30 Mark Lazarowicz: Going back, brief mention was made of the role of action plans in bringing about the enforceability of the legislation. Is it envisaged, however, that any such requirement to be involved in action plans would create a duty upon the Secretary of State simply to prepare an action plan or is it envisaged that it would actually create any further obligations on the Secretary of State to actually implement the action plan?

Professor Forsyth: I am thinking of the procedure off-the-cuff, but I would imagine the Secretary of State could propose an action plan and he would propose it perhaps to a more independent committee, and it would then be agreed between the committee and the Secretary of State, and the Secretary of State would then have to do it, and if he did not do it the courts would enforce it.

Mr Norton: But also presumably in the Bill you can have set out what type of mitigation the Secretary of State would be required to look at, whether it is actually going and buying the credits on the international market, whether it is setting aside a credit bank, something along those lines, so those types of techniques could be built into the Bill and I think that presumably will assist with enforcement against non-compliance or non meeting of the target.

Chairman: A last question from Lord Whitty.

Q31 Lord Whitty: We have talked a lot about the responsibilities of the Secretary of State here, the Bill focuses very much on that, and we have also talked a bit about the interface with the European situation, but there is also the interface the other way in that the devolution settlement on environmental issues is actually very complex and differential. Do you see that the legal duties of the devolved

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administrations could be better combined with those of the Secretary of State than the Bill provides at present or do you think that the Bill by focusing on the Secretary of State has got it about right?

Professor Forsyth: Shall I tell you what my view is and then give others a chance. I do not really know how it would work if you started trying to enter into a devolution settlement in regard to these matters. It strikes me that it is complicated enough as it is and it is probably best and most efficient if you have a single UK-wide scheme run by a single UK Secretary of State. It may be politically impossible to go down that road but that is probably the most effective way.

Mr Wilson: I think that there is not a particular problem about, for example, extending to the devolved administrations joint responsibility for appointing the Committee on Climate Change and having the Committee on Climate Change report to

them as well as to the UK Parliament; that has been done before. The powers on energy and environment have already been devolved variously to the Scottish Parliament and the Welsh Assembly and so on, and so it would be very much within their responsibility and their call as to how they were going to co-operate with it. No doubt in scientific terms it would make a lot of sense to co-ordinate activity as closely as possible.

Mr Norton: I do not think I can add anything useful; I would agree with everything that has been said.

Chairman: Thank you to the three of you. Professor Forsyth, you very kindly have written full responses to all of the questions. If either of the two of you have anything more you would like to add, please do. We may also be writing to you with some additional questions, if you do not mind, that have emerged from this particular session. Thank you very much indeed.

Witnesses: **Lord Lawson of Blaby**, a Member of the House of Lords, and **Professor David Henderson**, Westminster Business School, examined.

Q32 Chairman: Welcome Lord Lawson, Professor Henderson, is there anything you would like to say by way of opening statement before we go to the questions?

Lord Lawson of Blaby: Well, thank you very much, my Lord Chairman, it is very good of you to have invited me to help you with this impossible task with which you have been entrusted. Perhaps it might help if I say a few words because it is a very, very complex issue and impossible to do justice to in a few words; but nevertheless, to put the thing in perspective, if you read the latest IPCC report, that is the Summary for Policymakers which they produced in their Fourth Assessment Report, you see that they are suggesting for the next 100 years (on the basis of what they believe to be the best science they can get, although the scientists are divided) that there will probably be an increase in global mean temperature of between 1.8 and four degrees centigrade. They also say that if you take the upper end of that—four degrees centigrade—that is likely, they think, to result in a loss of global GDP of between one per cent and five per cent. You will find that in the Summary for Policymakers, Working Group II. If you therefore take the worst end of their best estimates, the upper end at four per cent, and you take the worst estimate of the cost of that, five per cent of GDP, which is indeed a very large sum (and I believe totally unrealistic because they say explicitly that this takes no account of changes or developments in adaptive capacity, and the idea that over the next 100 years with the growth of wealth in the world, which in fact will drive the emissions scenarios which are driven by development, and the growth of technology over the next hundred years—just think of what has happened in the past 100 years—there will be no change or development in adaptive capacity, this is somewhat implausible, so therefore it is a very extreme assumption) what it means for growth, at the lowest of their various

estimates, namely two cent per annum in living standards in terms of GDP per head over the next 100 years, then what they are saying is that the problem is that in 100 years' time our great grandchildren (in my case: in some of your cases your great great grandchildren) instead of being more than seven times as well off as we are today will be slightly less than seven times as well off as we are today. So that is the great existential threat facing the planet. The question, in a nutshell, is how big a sacrifice should we impose on the much poorer present generation in order to avoid the horror of people in 100 years' time not being more than seven times as well off as we are today but only slightly less than seven times as well off as we are today. So that is the perspective, that is the scene, and of course for the developing countries it is more acute and more dramatic because they are expected to have a faster rate of growth, quite reasonably, and therefore they will be something like 11 times, on the IPCC's own projections, as well off in 100 years as they are today, and today they are in great poverty. So it is very understandable that the Chinese and the Indians and others do not want to have any part of this. They say, "Our priority is to drag our people out of poverty and destitution and stop them from dying of malnutrition as fast as we can, and that means the most rapid rate of growth now and that means using the cheapest energy we can find, which is carbon-based energy." So that is the perspective. We then get the Government's quaint proposal in this draft Bill which, even if you thought this was a path on which it was worth embarking, is dangerous in two ways. First of all, it seems (but it is not clear) to put the emphasis on carbon trading. Carbon trading is a very poor second best method even if you did want to cut carbon dioxide emissions by 60 per cent by 2050. Even if you did want to do that, it is a very second best way of doing it, for two reasons. One is that it is not really a market system at all because it

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is essentially a system of rationing and it is not a true market system so you do not get the efficiencies of the market. The other way it is a second best is that of course, as the *Financial Times* interestingly pointed out in a couple of articles about ten days ago, the carbon trading systems as we know them are a huge scam for the most part and they are bound to be a scam. One of the most extraordinary things is what is happening in China, where under the Clean Development Mechanism of Kyoto, two-thirds of the credits that are being bought are going to China. China finds that this is such a lot of money coming in that the Chinese Government has taxed heavily the income from the Kyoto Clean Development Mechanism. That enables them to put more money into developing their huge coal-fired power station programme; and of course, since they are not part of any target or controls of emissions, there is nothing to stop them doing that and they can go on doing that as much as they like, so the whole thing makes no sense at all. If you are going to do this at all and go this way because you do think it is the right way to go (which I do not), then the only sensible way is to tax carbon and go on taxing it until you get a sufficient reduction either through more efficient use of carbon energy or switching to other non-carbon forms of energy, and then you will get the reduction you want. This is agreed by anybody who has seriously looked at the issue, ranging from Dieter Helm, the eminent energy economist and Chairman of Defra's academic panel to, say, Martin Wolf, the Economics Editor of the *Financial Times*, who has looked at this a great deal. They all agree that the only way that makes sense is to tax carbon and to go on taxing it until behaviour has changed sufficiently to get the amount of reduction you want and stabilised carbon is sufficiently understood. The other thing is that this only makes sense if everybody is doing it. For Britain to go out on a limb alone is going to have absolutely no effect on global warming in any way. The UK accounts for less than two per cent of emissions and the proportion is declining. The higher the cost of carbon energy in this country the more energy-intensive industries will migrate to China or India or wherever else, so you will not even be changing what is happening in the atmosphere very much. We will be damaging our own economy for no good reason. Even the European Union, when they agreed on their 20 per cent reduction of carbon dioxide emissions by 2020 (which is not legally binding and the allocation of that 20 per cent reduction among the various member nations of the European Union is still very far from agreed) even then they said, "We will only go to 30 per cent if everybody else is going to come in with us." However, we alone say we are going to go to a 60 per cent reduction by 2050 and will make it legally binding regardless of what happens. The idea is that we will give a lead and then everybody else will follow. The Chinese have made it quite clear that they not going to follow and our lead will be the equivalent of the lead of the Earl of Cardigan in the Charge of the Light Brigade.

Chairman: Thank you very much indeed. The first question from Helen.

Q33 Helen Goodman: Lord Lawson, you have made wide-ranging criticisms not just of the Bill but of the policy, so obviously I went back to look at the House of Lords' report on the economics of climate change which you were involved in writing and I noticed in that that throughout in your assessment of the costs and benefits you used a discount rate of three per cent. Would you accept that this technique and the figures used on time preference curves are built over short time periods and that applied to climate change it is wholly inappropriate because it suggests that current generations place no or very little value on the utility of future generations, which is precisely what the policy is aimed to do?

Lord Lawson of Blaby: No, I do not agree with that at all, except with one thing, that you are quite right, that when they are doing these calculations—and economists always try and calculate future benefits and costs against present expenditure and so on—they use a discount rate and you are quite right to imply that the discount rate you choose makes a huge difference to what seems to be cost-effective and what is not cost-effective. I have to say that Stern's choice of a two per cent discount rate and declining has been dumped on really by the great majority of academic economists, ranging from Nordhaus of Yale to Dasgupta in Cambridge to Weitzman in Harvard, and it also raises problems of how you can justify as a chancellor of the exchequer having one rate of discount for one lot of projects and another rate of discount for a whole lot of other projects designed for the public well-being, but perhaps David Henderson, who is a distinguished academic economist (which I am not) might like to comment on that particular aspect.

Q34 Helen Goodman: Before we go on to the technicalities, I wonder if I could press you a little more because you quoted some economists, but Amartya Sen, for example, the Nobel prize-winning economist, has said: "The cost in utility calculus cannot begin to convey the complexity of choices because we are capitalising on the arbitrary fact that we could get at the resources before the future generation could." Surely, Lord Lawson, it is a basic ethical point?

Lord Lawson of Blaby: I think it is an ethical point and there are a lot of ethics in it. You are quite right, it is an ethical point. My ethical point, I suppose, is that I am not prepared to sign up to a policy which is dooming the present generation in the developing world to a whole lot of unnecessary suffering in order to gain a speculative benefit for generations who will be very much wealthier in 100 years' time even if the science is right, which is by no means certain.

Q35 Chairman: Professor Henderson?

Professor Henderson: I would only add that the three per cent and the Stern Review's 2.1 per cent declining do not represent a judgment as to how to discount the welfare of people in the future. Stern actually takes a much lower rate for that component.

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It also allows for the fact or the assumption, a reasonable presumption, that people in the future will be considerably richer than today.

Q36 Mr Yeo: Lord Lawson, you have dismissed in characteristically trenchant terms the potentially, I believe, disastrous consequences for the world of a rise in temperature of four degrees centigrade. I think it would be true to say, though, whether you are right or wrong, at the moment the way opinion is moving, not just in Britain and Europe but in America and in the Far East, is in the opposite direction and more people are taking the opposite view to the one you have enunciated. That does not mean to say they are right but it simply seems to be a fact. The fact that people are changing their minds in that direction will also affect economic behaviour, so would it not be possible that far from it being an economic disadvantage to Britain to be out in front of other countries in setting very challenging targets for cutting carbon emissions, it might actually be an enormous business and economic advantage if the result of those targets meant that British businesses were in the forefront of innovating and developing the low-carbon technologies which would subsequently become saleable around the world?

Lord Lawson of Blaby: I think that these are two different things which you have somewhat confused. There may be business opportunities, there are no doubt business opportunities in palmistry, but that does not mean to say that they are conferring any great economic benefit (although it is a free country and people are entitled to do that if they want to) but anyhow these benefits to these companies are nothing like the disbenefits and the damage that will be done, both relatively and absolutely, to the economy as a whole. I also do not also, incidentally, Mr Yeo, that opinion is moving that way. I think there is a growing, as it were, sceptical movement of opinion, if you realise how serious the lacuna is of the failure to take into account adaptation. Man (woman, people) is extremely adaptable. If you just take the world today, for example take two very effective, flourishing, bustling cities—Helsinki and Singapore—in Helsinki the average annual temperature, if you even it out over the 12 months of the year, is less than five degrees and if you take Singapore, it is over 27 degrees; so under five degrees in one case and over 27 degrees in the other. In other words, the difference between these two very successful cities is over 22 degrees centigrade. That does not prove anything but it does demonstrate that mankind is extremely able to adapt to differences in temperature and when you reckon that what we are talking about now is the IPCC's best case is somewhere between (on assumptions as I say which are contested but nevertheless let us have them for the time being) two and a half and three degrees over 100 years, to suggest that we would have huge difficulty and even insuperable difficulty in adapting satisfactorily to that, I think is implausible.

Q37 Mr Yeo: What proportion of the world's population lives below sea level?

Lord Lawson of Blaby: A very small proportion. If there are people in danger—not necessarily in the Maldives where we have been told the Maldives is going to be inundated any day now, and in fact, as it happens, sea levels in the Maldives have been falling slightly over the past 30 years—then you build effective sea defences. This costs a tiny fraction of the cost of putting a huge carbon tax and making energy extremely dear. Indeed, the Dutch did this very effectively 500 years ago and technology has moved on a little bit over the past 500 years. There are certain things that might well need to be spent but we should wait and see and if it is necessary the money should be spent. Economic aid is very important in this respect. One of the nonsenses about the IPCC's assumption that there is no change or development in adaptive capacity is they are very concerned that the countries that might be most affected are the countries which in their opinion (and they use this frequently in their document) lack adaptive capacity. They are not worried about Europe so much, they are not worried about the United States, they are not worried about Australia and New Zealand where they say adaptive capacity is high, but in the developing countries they say there is low and very poor adaptive capacity. Quite apart from the fact that as they get richer over the past 100 years of economic growth, as technology develops, adaptive capacity will improve, we can help them. Overseas aid can be geared towards helping them with their adaptive capacity if there is an adaptive capacity problem.

Q38 Mr Chaytor: Lord Lawson, are you accepting that human beings can live with a temperature rise of possibly four degrees and, if so, why would it be necessary to impose a carbon tax?

Lord Lawson of Blaby: I do not believe it is necessary to impose a carbon tax.

Q39 Mr Chaytor: But you said that the imposition of a carbon tax was the only way to deal with the consequences of climate change?

Lord Lawson of Blaby: No I did not. I said the imposition of a carbon tax is the only sensible way if you want to cut back carbon dioxide emissions. If that is what you want to do, then the only sensible way is to put on a carbon tax.

Q40 Mr Chaytor: But if your argument is there is no need to cut back on carbon dioxide emissions because human beings are sufficiently adaptable to cope with a temperature rise of up to four degrees, then there is no argument whatsoever for a carbon tax.

Lord Lawson of Blaby: No, there is no argument for a carbon tax except for the fact that you have got to have taxation and, bluntly, chancellors of the exchequer have to finance public expenditure and up to a certain point, if a carbon tax is more acceptable to the public than some other forms of taxation, then it is perfectly reasonable for there to be a carbon tax, but in my judgment there is no necessity to put on a carbon tax.

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Q41 Mr Chaytor: So your solution then or your response to the IPCC reports and to Stern is to do nothing because of your confidence in human beings' ability to adapt?

Lord Lawson of Blaby: I think I would go further than that, but not a lot further. I think the situation should be watched very, very carefully and insofar as there is a role for government in helping people to deal with the adverse effects of a rise in temperature, like, say, the building of sea defences, then it is sensible it do that. It does not take an awful long time to do it compared with the 100 year or the 200 year horizons of these reports. It is also worth pointing out, talking about these reports, that there are great benefits from warming. Indeed, the IPCC reports themselves say that with a temperature rise of up to three degrees centigrade globally agriculture will be improved, there will be no disadvantage, it will be an advantage, and in fact the picture is much more disparate than that because there are some advantages and some disadvantages, and if you adopt the approach that I am advocating you pocket all the advantages and then you mitigate the disadvantages. That seems to me a more sensible way to approach the issue. Another way of approaching it is that all these problems of possible droughts in some parts of world, so you need better water resource management, possible increases in malaria (although that is contested by malaria experts), and so on, are problems now. They are not problems that have not appeared, they are problems which afflict the poor in the world now, and therefore if you go and try to deal with these you will be helping with a problem which is a very acute, serious problem, irrespective of whether there is any further warming or not. Incidentally over this century as a whole, the 21st century so far, there has been virtually no further global warming. It does not feel like that here because we are very conscious that there has been some slight further warming in the northern hemisphere and a continuation of the trend of the last quarter of the 20th century, but in the southern hemisphere there has been a slight cooling over the first few years of this century, which none of the models have predicted and none of the models can explain. Nobody knows why that is so, but it means that the average of the northern and southern hemisphere is for this century so far little change, so it is a hugely uncertain area.

Q42 Mr Chaytor: But if we accept that human beings can adapt to certain consequences of climate change like sea defences, are you confident that nation states can adapt to the increase in the large-scale migration of people as a result of desertification or conflicts over water supply?

Lord Lawson of Blaby: I do not accept there will be conflicts because of changes in the climate. There is a real danger of conflicts, I am not complacent about the world, I think there are huge dangers of conflicts in various parts of the world, in the Middle East and in many other parts of the world, but I think the idea that climate change will be the main source of conflict in the world or indeed the sorts of conflict where there is going to be this very gentle warming,

I do not accept that at all. I think, incidentally, that there is ample experience to show that there is a crying need for improved water resource management as of now, irrespective of what may happen in the future, and that is perfectly practicable.

Q43 David Howarth: I am not too sure your solution of sea defences for small islands works because of the effect on water supply in small islands. The Dutch example depends on the Rhine being behind them rather than all around them. Just supposing that sea level rises threaten the very existence of a small island nation, would that be an acceptable cost?

Lord Lawson of Blaby: I think that if you are suggesting that if there is some small island where sea levels are rising (and there is no sign of this in the present time, sea levels have been infinitesimally rising for the past 100 years but there is no sign of acceleration) and if there were to be a risk to some small island nation and you had to say are we going to re-settle that population or are we going to try and enable them to stay living on this small island at the cost of a huge burden for the rest of the world, including the whole of the developing countries of the world, I think it would be nuts, it would be crazy. You cannot justify that decision at all, but, anyhow, I think you have to start from where we are. There is no way—and the Chinese have made this absolutely clear—in which they are going to agree to cutting back on their huge, rapid industrialisation programme with one new coal-fired power station being built every five days and the other things they have in mind. According to the International Energy Agency (and other developing countries like India are following a rather similar path) this year China is likely to overtake the United States as the biggest single emitter of carbon dioxide, even though, incidentally, its economy is only one-sixth the size of that of the United States but because it is very energy intensive and it specialises in energy-intensive manufacturing industries. That is the IEA's forecast. The IEA's further forecast is that in 50 years' time the Chinese will be emitting as much as the whole of the rest of the world put together, and they are not prepared, very understandably, to hold back on this rapid programme. After all, China until about 500 or 600 years ago, was the greatest economic power in the world. They went wrong economically and they made a number of foolish mistakes and they fell back and they say, "Now is our chance to catch up again and do what we are capable of doing. We are not responsible for all the concentrations of carbon dioxide there are in the atmosphere. If you are concerned about them, you, the West, deal with them. If you want now to do something about it, fine, you do it, but we are not going to be part of it," so the whole thing does not add up.

Q44 David Howarth: It sounds very familiar, but can I just come back to the point at the start which is not about who is going to do what in terms of prediction of political science but as a matter of ethics and a

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matter of justice. How big an island and what size of population of island would you be prepared to relocate in order to save costs on other people?

Lord Lawson of Blaby: I think I have made my position very clear. That is not a sensible question.

Q45 David Howarth: May I say that is not an answer, sensible or not! Just one final point on a different matter, right at the start you were talking about discount rates and I was not clear whether the point you were making was about the pure time preference point or it was about the future generations being richer point and the two interacted. Could I just ask you specifically about the pure time discount point which is the point about whether we should value people in the future as to be of roughly equal value to ourselves, regardless of whether they are rich or poor, just as people. Do you agree or disagree with Stern's view of pure time discount? I should add, before you step in, that at least one of the economists you mention, Partha Dasgupta, agrees fully with Stern's view on the pure time discount even though he might disagree about the wealth point.

Lord Lawson of Blaby: Conventional welfare economics is a very shady and dubious aspect of economics, it is highly subjective, as is everybody who is engaged in it, but conventionally, following on from Ramsey many years ago, it divides the discount rate into two things, the delta and the eta. One is a pure time discount and the other is a composite, which I think is a very unsatisfactory composite because it is meant to measure two things at the same time, what is called risk aversion, which you understand, and inequality aversion—different people having different incomes et cetera—and these are two quite separate things, and I think that is a major flaw in it. There is an interesting piece on this in the current issue of *World Economics* by Beckerman and Hepburn on this whole area which, if I may respectfully commend it to you, it is well worth reading. So we can form views on pure time preference, we can form views on what our risk aversion is, and we can form views on what our inequality aversion is and, you know, it is all very well if you add everything together you get an overall rate of discount which is applied, but I do not think it is for Stern I must say, to tell the whole of the world what they should feel about these things. Different societies and indeed different cultures at different forms of development may have different views on how risk averse they wish to be and how inequality averse they wish to be. As to how we should think about future generations, I do not think it is a central issue, it is only a small part of the overall problem, but if you look at how we do actually behave as people, I think probably we do give instinctively greater weight to the welfare of our children than we do to the welfare of generations yet unborn. I am not saying we should do that but I think that is how human beings are and I think in the same way we tend to give greater weight (maybe we should not) to looking after the citizens of our own country than we do, say, to looking after the citizens of China. That is what people are like. You can preach as much as you like about how people should

be but I do not think it is going to change human nature much and I do not think it is terribly realistic to say the approach which Sir Nicholas Stern takes is correct. As you said, Dasgupta agrees with the delta but disagrees with the eta and other economists disagree with the delta but may be prepared to agree with the eta component. There is certainly no agreed economic position on this and the majority of economists I have read who have pronounced on this are extremely dubious about the Stern analysis. They may agree that climate change is a problem but they disagree with his analysis.

Q46 Chairman: Professor Henderson, would you like to add anything to Lord Lawson's comments?

Professor Henderson: Not specifically on this, Lord Chairman.

Q47 Ms Barlow: Lord Lawson, you have spoken at some length about rising sea levels but in terms of a rise of four degrees, the only other mention you have made is of better water management. Studies have estimated that up to 20 per cent of all species could be eradicated in terms of the effects of climate change. You have said this is a moral issue. What about the effect on biodiversity and from an economic issue have you factored into your analysis the economic effects of incredible changes in agriculture and horticulture as a result of this rise?

Lord Lawson of Blaby: As I said, talking about agriculture, even the IPPC—which I think gives a grossly false impression of reality because in explicit terms they do not allow for any changes or improvements in adaptive capacity, which I believe is a completely absurd assumption, there always have been changes as a result, as I say, of a combination of greater wealth and development of technology, even on that basis they say that up to three degrees centigrade agriculture will benefit net from the change of temperature and it probably would at even higher than that. As for the biodiversity point and species, what they actually say is that a lot of the species already in danger may be in greater danger. These are species already in danger. I am not sufficiently knowledgeable about how great the danger is. It is interesting that one of the things that people are concerned about is polar bears and polar bears have been around for millennia during which the change in the world's temperature has been quite considerable and they have survived, so I think that there is a huge amount of alarmism in this. Everybody is aware of alarmism. Alarmism has always existed and you have to aim off for it. You remember Malthus 200 years ago saying that there was going to be war, pestilence and famine, very much like the IPPC/Stern Review, because there was no way in which food production could grow as fast as the population was rising. There was the famous limits to growth thing. We were all going to be in a terrible mess. The Club of Rome in the 1960s—I remember that very well—saying that the world was going to run out of raw materials and it would no longer be able to grow. There would be no more economic growth, it was going to come to a halt within 10 or 15 years. We are

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now told it is the consequences of economic growth going on and on and on which is going to cause all the problems because of carbon dioxide emissions. Then again in about 1970 scientists said that there was going to be a new Ice Age because at that period there had been some cooling in the world, and even James Lovelock, who is now one of the extreme alarmists about global warming, was predicting then that at any moment we were going to plunge into a new Ice Age. And of course the media love those scare stories, they love these alarms, and they are given huge amounts of publicity. The is true with medical scares, we read them all the time, there is a huge amount, that is the nature of the world in which we live. If you are a sophisticated legislator, which I am sure you are, you have to discount this.

Q48 Lord Whitty: You seem to be saying that at three per cent the world becomes a better place and at four per cent we can live with it with a bit of adaptation and sea defences, but actually from a business as usual case we are looking at about 1,000 ppm by the end of the century and the implied temperature rise for that is very substantial and we have not had that level of carbon concentration for roughly 50 million years when the world was much hotter and a very different sort of place. Is there a point in your scale where the trade-off changes? If we can survive at four per cent, can we survive at six per cent or Helsinki becoming as warm as Singapore and Singapore presumably going up another 22 degrees? Either you accept the causal relationship between carbon concentration and temperature and if you do not accept that then that is one point, but if you do, then is there a point on the temperature scale at which in economic terms the investment in adaptation ceases to be the best way to deal with it and you have to invest in mitigation? If so, what is that point approximately?

Lord Lawson of Blaby: I think that the point really is this: that of course carbon concentrations in the atmosphere have been rising substantially and are set to rise substantially but those are not the only determinant by a long chalk of the temperature of the globe. First of all, carbon dioxide is not the most important greenhouse gas by a long way. The most important greenhouse gas is water vapour, whether in the form of clouds or water droplets in the atmosphere. That is the biggest single greenhouse gas. Carbon dioxide is only a small part of the total greenhouse gas picture, so it is extremely complex and extremely difficult, and nobody, not even the IPCC, thinks that anyhow that is the sole cause of the modest rise in temperature that we have had. They accept that there are natural forces at work too but they think probably it was the greater part, over 50 per cent, but it is all inevitably uncertain. Other people think it is less but very few scientists think it is zero per cent. However, it is very difficult to decide how much of this modest warming that we have had is due to that. So it is not simply a question of carbon

dioxide concentrations in the atmosphere. It is a question of what effect they are having, which we should obviously be monitoring and watching very carefully. I have to say I do not have the confidence that you have, Lord Whitty, to be able to know what the world is going to be like in 100 years' time or 200 years' time.

Q49 Lord Whitty: But you have said that effectively—never mind the cause for a moment of global warming—even it was totally natural causes that four per cent is liveable with by investing in adaptation rather than attempting any serious mitigation, but there must be a point on the temperature scale at which the opposite becomes true, at which the cost of adaptation is so huge, directly and indirectly, that mitigation becomes—

Lord Lawson of Blaby: There are all sorts of things that are going to happen some time. One day the sun is going to burn itself out and that is going to be the end of it.

Q50 Lord Whitty: Probably not in the next 100 years though.

Lord Lawson of Blaby: No, but I find it difficult to say with confidence what is going to happen over the next 100 years. We do not know what is going to happen in the development of technology, whether it is technology in renewables or the development of technology in adaptation. How man is likely to adapt given greater wealth, given better technology, we cannot say. We do not know what is going to happen to sea levels. There are all sorts of projections but, as I say, so far there is no sign of any great rise in sea levels. However, we have got to watch all these things and we should take the sensible steps at the time to deal with them. I am not dogmatic about this but I do think that rushing into what is in the Climate Change Bill would produce great damage to this country, if it were taken seriously. I suspect it is just posturing, incidentally, it is very fashionable, very trendy, and I suspect it will never actually happen, but I am afraid that it might. There is an outside chance that it might and if it did it would be very damaging.

Q51 Chairman: You can see that the clock has beaten you and there is a division. Because we are inquorate, would you write to the Committee with your final statement. If we could receive it in writing we can include it in evidence.

Professor Henderson: I have already made an offer to the Clerk to put in a note on one or two other questions that may come up.

Q52 Chairman: Thank you very much indeed. Sorry but, as I say the clock beat us, not for the first time. Thank you both very much indeed.

Lord Lawson of Blaby: Thank you.

The Committee suspended from 3.02 pm to 3.12 pm for a division in the House of Commons

Witnesses: **Dr Kevin Anderson**, Tyndall Centre, **Dr David Griggs** and **Dr Chris Gordon**, Hadley Centre, examined.

Q53 Chairman: Thank you very much to the three of you for joining us. One of my colleagues has pointed out that you are the last best hope for mankind! Would any of you like to make a brief opening statement, otherwise we will go straight into the questions?

Dr Griggs: I would like to make a very brief opening statement, if I may. Some of the members may not be aware of what the Met Office Hadley Centre is. We are a research centre into climate change. It is our job to assess whether the climate is changing and, if so, by how much, if the climate is changing to what can we attribute those causes, is it due to human influence, and to predict future climate change using complex numerical models. We are there to provide basic, authoritative scientific advice about climate change and in that light I have the IPCC Fourth Assessment Report, Summary for Policymakers here, which the previous speaker was alluding to at various points in his presentation, and I would be very happy to provide a detailed scientific critique of some of inaccuracies in some of the presentations that were made by the previous speaker in a written submission following this session if you would like me to do that.

Chairman: I think that would be very welcome. Des Turner?

Q54 Dr Turner: The 60 per cent carbon reduction target relates to the RCEP report of 2000. Climate change science has moved on since then. IPCC reports and predictions continue to become more urgent, shall we say, to say the least. The Bill is predicated on 60 per cent at the moment but does contain provisions for amending that target in the light of changing science. Do you think that the science has already brought us to the point where we should consider amending that 60 per cent target and changing it to 80 or 90 per cent, or whatever, but a higher figure than 60 per cent?

Dr Griggs: The 60 per cent target initially came from the IPCC's Second Assessment Report and was updated in the light of more recent science. The reason for that target was to come up with a stabilisation figure of carbon dioxide concentrations in the atmosphere of no greater than 550 ppm. In recent years we have had the IPCC's Third and Fourth Assessment Reports which we have played a major role in. I would say that those assessment reports have gone a long way to reconfirming and greatly increasing our confidence in the scientific findings that we had at that time. We now have much greater confidence in terms of the climate is changing and that it is being caused by human influence. More recent assessments, for example from the Stern Review, have indicated that for an aspiration of stabilising greenhouse gases at between 450 and 550 ppm, we need a two to three degree increase in temperature, and we underpinned a lot of the science in that. So I would say rather than change those assumptions, rather it has reaffirmed those assumptions.

Q55 Dr Turner: But is it not also quite clear that there is not a comfort zone anywhere, even at 450, and even if we are going to achieve 450, certainly on a world scale, countries like ourselves need to be setting a much higher target than 60 per cent because the world as a whole needs to get to 60 per cent if we are going to have a snowball's chance of achieving anywhere near 450?

Dr Griggs: Certainly the Stern indications are that for a stabilisation of between 450 and 550 we would have to reduce emissions by 25 per cent to 70 per cent below current levels, but how you get from a global target of 550 ppm in the atmosphere to a national target is difficult. A global target is how much greenhouse gas the whole world emits but how you then decide what a national share of that should be requires various assumptions to be made, assumptions about the share of international emissions such as aircraft and shipping and also about the pathway of those emissions as to whether you allow them to be frontloaded or backloaded, so as well as a great deal of scientific uncertainty—and it is a risk-based assessment you would be making here—about whether 550 would allow you to reach the target that you are setting, there are also political judgements to be made.

Q56 Dr Turner: Okay, can I ask you to comment on the trajectory that the Bill sets out and whether that is adequate even for reaching the 60 per cent target because if we are going to have to look to a higher target we presumably need to think about frontloading the targets much more heavily and of course, as it stands, they specifically do not include aviation, which is rapidly increasing as we all know.

Dr Griggs: As I say, I think the difficulty is how you then translate a 60 per cent target into what that means in terms of a global target because you are making assumptions about a pathway and the share of international emissions, and because of the scientific uncertainties you really need to do some detailed assessment and some risk assessment as to whether a 60 per cent target would be adopted by the whole world for example and whether the same assumptions that you are making would actually achieve the stabilisation in the atmosphere that you are hoping to achieve.

Dr Anderson: I would go further, I think we can actually provide some degree of quite clear guidance as a trajectory for the Bill for a country like the UK from the global perspective. If in 1990, when we were aware of a lot of these issues, we had actually decided globally to respond, we would have had a lot of options on how we split the global cake to the national level. We all round this table and the rest of the world decided, "Hey, we are not going to bother," and we have spent 17 years letting our emissions rocket. We have now got a far, far more difficult situation. No longer do you have the different mechanisms by which you can apportion that cake. It is very clear now that those people that are emitting at very high levels, of which the UK is one nation, will have to make very substantial reductions almost immediately in their current

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emissions, and the reason for this is because this focus on long-term percentage reductions has almost nothing to do with climate change. What matters are the cumulative emissions. It is a bank balance and we are spending our bank balance as if there is no tomorrow. Emissions are going up globally according to CIDEAC, the global commission, at about two and a half per cent per annum. There is no indication that is going to come down. So it would appear that we are spending far more than we actually have scope for in the bank and that would require countries like the UK, basically OECD countries, to make very radical reductions in their emissions very quickly if we are going to stay within the cumulative budgets that relate to, for instance, 2°C. I would go as far as to say I think the 2°C budget is almost impossible to achieve now. Even 3°C or 4°C is going to prove extremely difficult unless we make very radical adjustments very quickly, and hopefully the submission I made and the slides provide some graphical evidence as to why that is the case.

Q57 Dr Turner: So you are saying that in your view the science says that we should have modified those targets now before we have even presented the Bill?

Dr Anderson: The Bill is completely out of date. The idea of the Bill is excellent; the content of the Bill is almost shameful.

Dr Gordon: Can I add a comment to this about the uncertainties in the science here because I do think we have to realise that there are large uncertainties in the science of how we actually go from a stabilisation level to the global temperature rise that implies but also, more importantly, what the regional impacts are and what that actually means for people on the ground in terms of weather. That is a real active area of science research. When we talk about percentages of possibilities of certain temperature rises for certain emissions, why cannot we just say there is this emission and there is this temperature rise? Because the science is uncertain. On the timescales of a decade, provided there is appropriate investment, there is a good chance that those scientific uncertainties can be reduced. That has to be figured into this. So I do think we have to be cautious here to take the consensus central view of the science of what that is actually saying and not take too many worst case scenarios of the science of what might happen. I think this is a critical point.

Q58 Dr Turner: On the other hand, do you not think that we should consider the possibility of the very likely step change events which are currently excluded from IPCC considerations such as methane hydrate release in the Arctic Ocean, for instance, the destruction of the rainforests and so on, which could completely distort the consensus picture? How high do you think is the risk of such events?

Dr Gordon: Let me characterise it this way: there are certainly aspects, and you have mentioned two key ones, of possible feedbacks in the climate system where the science that we have today is really just not capable of giving us a quantitative assessment of

those sorts of things you are describing. Clearly therefore that is an active area of scientific research to see how that may change the picture. On the timescale of the next 100 years I do not think many people are suggesting that those strong feedbacks could come to be in play; they will be on a longer timescale. The whole thing is a risk assessment, a value, that is the point I am making, and there is uncertainty, and you have to feed into this a high priority to reduce that uncertainty. I just have a concern that when looking at the values that are quoted in the Stern Review—the Stern Review was only last year and here was a consensus-type view that certainly the Hadley Centre science supported, and of course there are other studies since then which have come up with different answers, and there will be more that come up with different answers yet. It is important I think to get a consensus view of what that situation is from the science rather than any one particular study. That is the only point I am making.

Dr Anderson: A quick addition to that is that whilst I think it is completely fair to describe the science as having these very, very significant components of uncertainty, actually when you look at it in terms of the emissions data and what that means for policy, despite the uncertainty in the science, it gives us a very clear certainty in where the policy needs to go, not the shape of those policies but where the policy needs to go. The scientific uncertainty tells you in policy terms that we have got a very dangerous future or an extremely dangerous future, and you have got a choice between the two. There is not some nice haven out there that one end of the science points towards.

Q59 Baroness Billingham: My question follows on from the questions that have already been put to you and also follows on from the previous submissions from the previous representation that we had. I am worried because I want to talk slightly outside the Bill because I think the most important thing that we have to establish in evidence is how strongly we can make sure that the purpose of the Bill is in fact valid. The Secretary of State says in his opening statement here, “There is no longer any real debate over the fact that climate change is happening and that man-made emissions are the main cause.” Well, have I got news for you because I suspect that is not yet the public perception. There is a huge debate going on outside Parliament and in the media. To us you are invaluable. You have heard already about alarmism and I should be very interested in hearing what you are saying as a rebuttal, I think that it is down to scientists and you have suddenly slightly worried me about the quality of the scientific evidence that exists now. If we were certain we could all go out with placards and we could tell the world, but I am not quite sure that we are there yet, so we need a lot more help from you and we need the counter-arguments to what you have just been hearing in the previous submission and that will give us the strength to take the Bill through because, I promise you, this is not a done deal and we need you to help us.

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Dr Griggs: Perhaps I could address that. There are some things that we are extremely confident about. The world has warmed over the last 100 years. It has warmed by greater than 0.7 degrees. There has been widespread retreating of mountain glaciers, Arctic sea ice thickness has decreased, there has been a lengthening of the growing season, lake and river ice is melting earlier and freezing later, the sea level has risen. These are things that we can be enormously confident about. In terms of the future we can be very confident that human beings through emissions of greenhouse gases have caused warming and are going to cause increasing amounts of warming over the coming century. There are going to be further sea level rises, further widespread retreat of mountain glaciers, the precipitation is going to increase, there is a potential increase in floods and droughts. These are all things we can be very confident about, but when you start to talk about what does that mean in terms of the fine regional detail, what is going to happen in a very small region, what does it mean in terms of actually making decisions on how we adapt to the local changes in climate that we are going to see, and that is moving the research into a whole different level, and it is a level where the science is really only now beginning to get to grips with it, and the only tools we have to get to grips with that science are the very complex climate models such as the ones that we run, and in order to run those complex climate models you need very large amounts of some of the world's most powerful supercomputers. So the requirements in terms of investment in the science in order to reduce the uncertainties, and they are the key uncertainties on which you are going to base your decisions, is absolutely vital.

Dr Gordon: Can I just add one thing to this, as scientists particularly in climate change, and it was very pertinent from the last session, we are very used to being accused of underplaying the science and overplaying the science. It depends who is talking. The IPCC process is a consensus process. That is a good thing and that must happen in a debate that is this big. We will be accused from both ends and the things that David has just gone through are some of the things that we can be certain about. We also have to be careful to not be over-certain about the things we cannot be certain about, if you see what I am saying. I appreciate it is a complicated message but there is a danger in this that the science does have to try and stay as objective as it can in terms of what we know and what we do not know.

Dr Anderson: Just to nail the point that despite the scientific uncertainty that undoubtedly exists, this is not an excuse for inaction on the policy front. Very clear action emerges from the science that is already there and we need this additional science to understand particularly the regional differences and so forth, but from the science that we have we can be very clear that we need very important actions because our emissions are rising year on year and the issue is about cumulative emissions adding to previous years' emissions year on year.

Q60 Mr Yeo: Following on directly from what Dr Anderson has just said, I wonder if you share the concern that I have that we have been talking for the

last 20 years principally about cutting emissions and it would be helpful if we shifted the focus to the concentration of greenhouse gas in the atmosphere. It is beyond doubt that that is higher than it has been for most of the human occupation of the planet and that it is rising quite quickly and will continue to rise for several decades even if we take quite drastic action soon. Do you think therefore that it will be helpful for the Bill to be strengthened? We have got this interim target for 2020 but given that the timing of any emission cuts is absolutely critical to the level of greenhouse gas concentration in the atmosphere, and the frontend and backend loading therefore has an enormous impact, do you think it would be helpful to have perhaps some more interim targets which had to be reassessed in the light of the concentration levels of greenhouse gases, if there was an obligation on the Secretary of State and the Government and perhaps on the Climate Change Committee to review the targets for emission cuts specifically in the light of the level of the build-up of greenhouse gases in the atmosphere?

Dr Griggs: I think I would even go further than that. I think it is important for that Committee to reassess on the basis of the whole science not just levels of concentration in the atmosphere but the levels of the latest science in terms of what the predictions are saying what is likely to happen in the future, so the input of objective, high-quality science into that Committee I would say is absolutely vital, yes.

Q61 Mr Yeo: I was trying to get at the point that there is no doubt what the current concentration level is; that is a fact. It is not some area of uncertainty where some scientists say one thing and Nigel Lawson says the opposite and so on. This is a fact which we will be able to update every year continuously and therefore that is one particular circumstance about which there can be no doubt and perhaps a specific duty can be laid on the Committee or the Secretary of State to take that fact into account each year.

Dr Griggs: Yes, I would say that fact along with a whole series of scientific facts that can also be very relevant.

Dr Anderson: That comes back to the budgeting periods. It is very difficult to set those longer-term budgeting periods because the science will be changing and I do not think that is dealt with sufficiently in the Bill.

Q62 Earl of Caithness: I would like to take you on to the Climate Change Committee, clause 19 of the Bill. Do you approve of the setting up of the Committee? Are you happy with the separation of responsibilities of the Committee? We heard in the first lot of evidence that there was a confusing overlap between the Committee's responsibilities and political responsibilities. And how is that Committee going to get independent advice, which it will need, when so much of the modelling is done by government?

Dr Griggs: Taking the last point first, the modelling is done by a whole range of organisations, including governmental organisations. The independence of

that modelling effort I do not think is in any doubt whatsoever. The findings of the modelling groups are published through open, peer-reviewed literature and they are assessed by their scientific peers, they are assessed by independent scientists, they are assessed by the Intergovernmental Panel on Climate Change, they are assessed by world-leading scientists on a periodic basis, and the most important thing is if there was even the remotest smell of any interference in any of those findings there would be immediate loss of credibility of those modelling groups, so I do not think the fact that that modelling is done by governmental institutions is even a remote issue. In terms of the Committee, from a scientific perspective, which is my perspective, what I am concerned about is that there is a conduit for the best and most up-to-date authoritative scientific advice to be given to that Committee so that they can make the political judgments that they have to make within the knowledge of the best science.

Q63 Earl of Caithness: Should it not be the responsibility of the Secretary of State to make the political judgments? If you are the pure scientists, surely if you are reporting to a committee that then made the recommendation for the Secretary of State to make the political decisions, that would be a much safer way to protect your reputation and also a much clearer way, in the way that dangerous emissions are now done by a committee that is separate from the Secretary of State, rather than the draft that is in the Bill?

Dr Anderson: I do not particularly like the draft in the Bill. I think in some ways it is too strong and in some ways it is too weak. Certainly in the make-up of the committee it already starts to give you an impression of where it is going to point. If you look within the committee, it says the first person on the committee is the economic analysis and forecasting, businesses competitiveness, financial investment, technology development and diffusion, and eventually when you get to (f) it says climate science. To me I would have thought climate science was probably going to be at the top of that, not economic analysis and forecasting. In fact, I think there is a real concern here that this already is shaping up as a political committee and not as a scientific committee which would be my principal point, that it should be principally a scientific committee, and whilst I have no problem with the modelling being conducted by governmental organisations, I am very concerned when the modelling of, say, economic forecasting is done. Look at the DfT's forecasting, it is appalling, look at the analysis that went into the Climate Change Programme, we all knew it was wrong when it went in but it is still there, so I am very concerned that this is a politically framed committee as it is set up at the moment and it needs a far higher degree of independence than is catered for within the current arrangements.

Q64 Mr Kidney: I would like to come back to that in a moment, if I may Dr Anderson, but first of all can I go back to the long-term targets and ask David

Griggs, did you say to achieve stabilisation of 550 ppm we needed a global reduction of between 25 per cent and 70 per cent? Is that what you said?

Dr Griggs: No, what I said was to achieve a 550 ppm stabilisation in the atmosphere the Stern Review had a target of keeping global temperature to between two and three degrees. In translating that to a national target they then obviously had to make assumptions about what to do about international emissions and what to do about the pathways, and having made those assumptions on such as things as contraction and convergence they have come up with an estimate that domestic emission levels would have to be reduced to between 25 per cent and 70 per cent below what they are today by 2050.

Q65 Mr Kidney: So can I ask then what does the global reduction need to be to achieve that stabilisation rather than our national figure?

Dr Griggs: It is around about 60 per cent. What the IPCC assessment says is that in order to achieve stabilisation of around about 550 ppm, we need to stabilise concentrations globally and to reduce emissions by 50 to 60 per cent at least, and again there is a wide range of uncertainty in those estimates.

Q66 Mr Kidney: And, Dr Anderson, when you argue for a bigger figure for the UK's contribution to reduction, more than 60 per cent, which you clearly do, is there a scientific reason for why we should take that bigger share? Is it a combination of science, politics, morality and economics that we should take a bigger share because either we contributed more or because we produce more or we live well in our lives? Is there a scientific argument?

Dr Anderson: There is a mixture of science and just following through the apparent logic of where the 60 per cent came from for the UK. The 60 per cent for the UK came from the Royal Commission report based on contraction and convergence and conveniently ignored aviation and shipping within that. What we have done is simply say that if you have a global cake, and we know what that cake looks like, and we apply contraction and convergence, we can then estimate what the amount of the total cumulative budget of carbon—that is what matters, the cumulative budget, I keep banging on about that—that we have to spend in the UK between, for instance, 2000 and 2050, and then we can simply look at what we have already spent and see what we have got left and we can therefore draw this trajectory that is based on the apportionment rules, the method that the Government used to divide the global cake that came up with 60 per cent target. Thus we are simply using the Government's approach for developing the 60 per cent target and saying let us be a bit more realistic about the numbers in there, and using your own numbers from the AEA, that is the numbers the Government's has collated, you can draw the trajectory like the model in the science there for the 450 ppm CO₂ or 550 ppm CO₂.

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Q67 Mr Kidney: That is really clear now so can I come back to my Climate Change Committee point, which is for your Dr Anderson. You were quoting to us Schedule 1 of the Bill about the content of the skills of the members of the Committee. If I go to clause 5 which is the one about the Climate Change Committee giving its advice about carbon budgeting and the things that they should take into account, we start with scientific knowledge and technology that is relevant to climate change, which you would expect. It then goes on to economic circumstances, fiscal circumstances, social circumstances, energy policy, international circumstances; clearly political issues. Are you saying it is better to keep the scientists out of those subjects and leave that to the politicians or is it not right that they should comment on those issues?

Dr Anderson: The principal purpose of the Climate Change Committee is to look at climate change and the science involved in that, to be the conduit between what is at the end of the day quite complex science and most scientists are quite poor at communicating, and the Committee is a conduit between that science and government. It does not mean to say that the Committee cannot have people who can advise and think about the consequences for these other sides of society but the principal goal has to be that conduit of science to policy, to interpret the science.

Chairman: I would have to argue that you are clearly not bad at communicating because I have got eight questions. Mark Lazarowicz?

Q68 Mark Lazarowicz: If 60 per cent by 2050 is not high enough, what should the figure be for 2050?

Dr Anderson: Clearly I am not communicating my point! It does not matter what the percentage is in 2050, that is an irrelevance. What matters is the cumulative budget. If we go up to 2049 on 31 December and say, "We'll switch all the lights off and we will drop down to 60 per cent," that will do nothing for climate change. It is the cumulative budget and we are spending it like there is no tomorrow. We know we are doing that and we are not prepared to act. We need to be honest and realistic about what it is we are trying to achieve.

Q69 Lord Jay of Ewelme: I think you said earlier on, Dr Anderson, that the principle of the Bill, the idea of the Bill was great but that the content was "shameful", was the word you used. Are you there talking about the things which you have been discussing just now, in other words the concept of the target is wrong, or did you have some more general concerns about the Bill and the whole concept of the Bill? That is one point. The second point is I would be interested in your views and those of others in that some other witnesses have said that the Bill is unbalanced because it focuses only on emissions trading rather than some other aspects of policy instruments, such as for example taxation or regulation. Do you share that view?

Dr Anderson: My principal concern when I said shameful is in relation to its interpretation of the science and its targets, particularly as it has certain

remits of how it has come up with the 60 per cent target. There is a lack of internal coherence and logic within the Bill for the targets. When it comes to the actual policies, of course the whole suite of policies are necessary, it is not simply one or the other. Some of these discussions—and I found this with the earlier discussions about the nuances of the law—shall we move the deckchair on the *Titanic* to the port side a little—are irrelevant; we are heading towards an iceberg. These are subtle points that we play on when really the issue is so much larger and we just have to find mechanisms by which we can bring about these changes. Whether we have to change the law to make it so you have some sort of recourse of government in law to drive us to the 60 per cent, or whatever target we come up with, and whether we have to change the law to allow us to do a lot more adaptation and we have a whole suite of policies that need to be there, those changes need to be made. We cannot just rely on very small mechanisms to adjust, so it is not just about the emissions trading scheme, it is not just about air passenger duty, it is all of these things, it is about minimum appliance standards, it is about building regulations, all of these factors will have to play a part in some form of joined-up thinking to bring about the sort of reductions that are necessary.

Dr Gordon: Could I add a comment just to be clear. There may or may not be a disagreement here, I am not sure. As far as the actual science, there are two things, as was said earlier on, there is the science and then there is the policy interpretation of that science. As far as I am concerned the science that actually underpins it is consistent with the Stern Review. The Stern Review used world-class science, a lot of it from ourselves at that time. How you then interpret that in going to national targets and whether we include aviation, and whether we include contraction and convergence, these are all issues and I think we have to be a little bit careful here not to mix up the science and the policy interpretation of that science.

Dr Anderson: There is no disagreement.

Dr Gordon: It is not the science that is shameful, let us just get this clear!

Q70 Lord Crickhowell: I certainly agree with Dr Anderson who is very passionate on his view that there should be joined-up thinking and a variety of measures and it is probably not enough to have emissions trading on its own, I agree with that, but he starts by saying that we need a radical reduction very clearly and really we have spent practically the whole budget already and therefore we have got to take very, very, very drastic measures. The reality is that however desirable that may be from a scientific point of view, you are living in the real world with real people adapting, industry changing, economic consequences, and therefore there is not going to be any overnight action and you have got to move at a pace at which you can economically and successfully shift the thing without having a hugely destructive economic effect for this country. Nigel Lawson was probably right on the point about international competitiveness. You cannot entirely ignore what is

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happening in the rest of the world even if you want to take the lead and be ahead of it. In that situation, surely one of the biggest contributors as to whether we get there, bearing in mind that you are not going to be able to get the sort of instant change that you want in the CO₂ figures, is the level of investment as well that goes into the alternative energy sources and the new ways of producing energy and so on. All that has got to be part of the collective package but specifically we are concentrating in the Bill on carbon dioxide. Should there be any emphasis on the other sources—methane, nitrous oxide, water vapour and so on? Is it right that the Bill should only attack the CO₂ or do you think we should broaden it at all?

Dr Anderson: It is a Climate Change Bill and there are other climate change gases so it is foolish not to include them and clearly the logic requires us to include them.

Q71 Lord Crickhowell: Would you like to see some provision for others in the Bill, is the question I am asking.

Dr Anderson: Undoubtedly, yes.

Dr Griggs: The first point you made was about the level of investment required in things like alternative technology. Probably the most cost-effective investment you could make is reducing the scientific uncertainty because adapting to the wrong target will be hugely costly, either above or below, and so investing in reducing those uncertainties is key. That is one point. In terms of the other gases, the point made in the Bill is that CO₂, depending on your view, is around about 70 per cent of global warming attribution, if you like, so if you deal with CO₂ alone you are covering round about 70 per cent of the problem. But what that does not say is the atmosphere does not care which gas is causing the global warming, so if you leave out the other gases then clearly in terms of the atmosphere's point of view you have got to do more in terms of CO₂. The other thing that is relevant is that it may be that it is easier to take action on some of the other gases than it is on CO₂. In fact, the consultation document acknowledges that the Bill is focusing on CO₂ because we have already been able to do some things on some of the other gases because they are easier, so if they are easier why are they being left out?

Q72 Lord Crickhowell: Could you follow up or come back later with a paper on what sort of things could be done on the other gases so that we have some specific advice on the kind of measures that you would advocate?

Dr Anderson: Many things of course have been done. The reason the UK's figures for greenhouse gases have come down since 1990 is not because of the CO which has actually gone up since 1990; the reason it has come down is because of a few changes to the point sources principally of some of the other greenhouse gases, so when the UK stand up and say we have had a reduction in our greenhouse gases, it can say that because it has had a few point source changes, including also I understand landfill which is another major one because emissions of methane

have been significantly reduced. I think Soltex is one of the big ones that has been knocked out from one particular site so we already are aware of the other gases and the mechanisms that can be put in place to bring those down, with an industrialised country like the UK where a lot of those gases are processed gases. A couple of other points. Firstly, I would like to say that what I am driven by is not passion for the targets I am suggesting; what I am driven by is an internal logic. If we apply the Government's logic of 60 per cent to the best understanding that we have of the science, then you come up with the numbers that I am suggesting. If you do not want to apply that logic, if you want to go for three degrees centigrade or if you want to go for a different proportionate regime, that is fine. I am simply using the Government's own apportionment regime that underpins the 60 per cent and these are the numbers that I come up with. What we require in the Bill is internal consistency and honesty. That is not there at the moment and much though I like the idea of investing in science because we need slightly more equipment, at the end of the day I would say the investment should actually be in energy demand, so it is interesting that your comment about investment was about alternative energy sources; it should be in energy demand. Energy use in this room now is about 1.7 kilowatts of light on which is about six kilowatts of power going into the system on a day when it is bright outside and the blinds are down. I do not think that requires too much technical innovation for finding a method of pulling the blinds up and turning the lights off! So there are lots of things we can do on the demand side, and education is one way, to give us some very quick returns.

Q73 Helen Goodman: I just want to go back to some of the numbers questions that David Kidney was asking and to ask you about what has come out of the recent IPCC Working Group reports. I understand that there is a range of uncertainty, of course, but what is the current view on the level of parts per million which would be needed to hold to a two degree increase in climate?

Dr Griggs: Perhaps I will start off on that and then others can come in. If we think about what we call climate sensitivity, which is the sensitivity of the climate system to a doubling of carbon dioxide concentrations in the atmosphere, the sort of uncertainty range we are talking about for the temperature increase for the doubling of CO₂ is in the range of about 1.5 to 4.5 degrees, so if you talking about stabilising at two degrees, which is somewhere in the middle there, and saying that is a doubling of CO₂, that is not really the middle of the range but equally it could be 1.5 or it could be 4.5. That is the kind of range of uncertainty.

Q74 Helen Goodman: Surely, although you have got a range, there is a point in the range which is the most probable and I am asking you for the most probable bit.

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Dr Gordon: We probably would have to provide you with the exact figures, we do not carry these round in our heads. The statement is for something like 450 ppm and there is probably something like a 55 per cent chance of exceeding the two degree target.¹

Q75 Helen Goodman: So in 2050 you might need to be at 425?

Dr Anderson: At 450 ppm CO₂, which is about 500 ppm carbon dioxide equivalent approximately, that would give you about a 70 per cent chance of exceeding two degrees centigrade. There is about a 50 per cent chance of exceeding four degrees centigrade.

Helen Goodman: I understand that, that is not my question; my question is what is the central forecast for parts per million in order to achieve two degrees? You might have to go away and write to us.

Chairman: Even if you do answer it, I do not think very many of us will understand.

Q76 Helen Goodman: When we have that can you also include what the global reduction target would be that would be consistent with that, so that we can follow through the whole chain of argument?

Dr Gordon: We will do that and I appreciate what you are trying to do, which is to simplify the problem, but there is a difficulty here, you see, because think of it this way, if the uncertainty was such that your middle of the range has peaked at that value it means something but there is a big range around that value. Do you see what I am saying?

Q77 Helen Goodman: Of course. Well, perhaps you could tell us what the standard deviation is as well, that would also be helpful. Finally, can I ask you what the impact on the current 60 per cent target would be if aviation and shipping were included both in the baseline and in where we want to get to?

Dr Griggs: Certainly in the global estimations made by IPCC, aviation and shipping are included because they are global estimates and global emissions. It is how you then translate that into a national target and national apportionment of those international emissions, that is the problem.

Dr Anderson: The slides I gave here might give you some help. Slide eight shows you the budget for the UK, according to the Climate Change Bill as it is at the moment, is about 5.5 to six billion tonnes of carbon dioxide emissions in carbon that we can emit between 2000 and 2050, there or thereabouts, and if you assume a very optimistic future for aviation (if you are a BA shareholder it is a negative one but if you are an emissions analyst then it is an optimistic future) in other words you are going to drive down the growth rates in aviation so aviation still grows but we will bring the growth rates down and that is going to be brought down quite quickly—and this is very unlikely—then the emissions for aviation and

shipping according to what we did here would be about 1.5 gigatonnes, so if you think it is about five, 5.5 to six for everything else excluding aviation and at about 1.5 if you add aviation on top, so it is a very, very large chunk, and that does assume that policies are put in place this afternoon to drive down the growth in aviation, and that is extremely unlikely.

Q78 David Howarth: I was going to ask about slide eight as well. That is a question for a different committee but I think it would be helpful to get on the record the answer to my question and it is this: on the point about international aviation and shipping, the Bill excludes international aviation and shipping but provides a power for the Secretary of State to include them later. On being challenged as to why this is the reply comes that it is very difficult to attribute the right proportion of international aviation and shipping to this country as opposed to other countries, and yet the Tyndall Centre has managed to do it in slide eight and I just wonder what the explanation was.

Dr Anderson: The Government does apportion emissions from aviation. We submit our fuel data both for ships and for planes to the UNFCCC so all countries submit the data but they are not included in Kyoto. The EU already has a policy for 2012 about how it is going to apportion emissions. It is going to apportion all emissions for incoming and outgoing flights effectively to shame the Americans into action. We cannot be off the record here but almost off the record! In the long run it is a 50/50 apportionment regime so it is completely unreasonable for the Government to say anything else. I would also suggest if they are took out aviation and shipping that houses and cars are quite difficult to apportion as well so they should also be removed!

Q79 Lord Teverson: Lord Crickhowell said that it seemed very strange that carbon dioxide was the only gas that was included, but could we come back to the question of water vapour that was raised by Lord Lawson before because I think that needs to be put to bed in terms of an argument, and perhaps as eminent scientists you could give us the real story behind water vapour because it is something that is often bought up in the literature.

Dr Gordon: The confusion here is that if our planet did not have an atmosphere and particularly if it did not have water vapour in our atmosphere we would have a very different temperature because of a lack of a greenhouse effect. The greenhouse effect is not just something to do with man's emissions, it is a fundamental part of how our system works, how Venus works, it is absolutely fundamental, and water vapour plays a very important part in that baseline process. That is the first point. When we increase carbon dioxide we increase that greenhouse effect and that also leads to an increase in water vapour in the atmosphere because warmer air holds more water, and this is one of the feedbacks. This is the confusion. Yes, it is true that water vapour is very important for the greenhouse effect and in keeping the planet at the temperature it is today—

¹ Note by Witness: Hadley Centre model results suggest that with 450 ppm (CO₂e) there is a 70% chance of exceeding the two degree target. Uncertainty estimates from other centres lead to slightly different numbers such that an equivalent CO₂ concentration of between 380ppm and 500ppm is projected to lead to a 50% chance of staying below 2 degC.

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forget anything about man's emissions, that is a statement that is true regardless of man's emissions, and it plays an important role in the feedback to the perturbation of actually increasing greenhouse gases. So it is purely an anomalous argument. You increase greenhouse gas, you warm the earth, most of the observational evidence is that water vapour is increasing, and that will enhance the greenhouse effect. The effect of clouds is harder to quantify, that is another level of difficulty, but that is the answer to the question.

Q80 Lord Teverson: Just in terms of oceans and water vapour, oceans' ability to absorb carbon seems to me also from having read various bits to be an area of uncertainty as to what effect that has. Are we clearer on that now?

Dr Gordon: Let us be clear about this. This is an important point actually in terms of an cumulative approach rather than a pathway, but, roughly speaking, half of the carbon dioxide that is emitted into the atmosphere stays in the atmosphere. The rest gets taken up by the system and a large part of that actually goes into the oceans and into other parts of the system. What is important therefore is that it is not quite as simple as saying if we know the emissions over a period of time we can just add them up because they interact with the climate system, this is perhaps the point you are making. One of these possible rather dramatic kind of feedbacks could come about as a consequence of ocean acidification which could change the oceans' ability to take up some of that carbon dioxide and this would be another rather large feedback which is not currently being properly represented in the models. I would estimate that in ten years' time it will be properly represented, so this needs to be reviewed as we go along. In terms of our understanding of the processes of uptake of carbon dioxide by the ocean we do understand that fairly well, the biology in the ocean and the carbon dioxide literally dissolves in the ocean. Both of these processes and the ability of water to hold carbon dioxide which changes with temperature, are part of the feedback into the climate system. The part that is much harder to get a handle on, frankly, is the change in that biological part of the system because we are now talking about modelling biological organisms which is complicated science, but as we sit here there are models that exist in the world and they are being further developed and I would say, incidentally, that the UK leads the world in the development of such models.

Q81 Dr Whitehead: I think we have appreciated the issue of the question of accumulation as opposed to, as it were, reaching a target in the end. I guess it is rather similar to the claim that you can eat 9,000 or 10,000 calories a day for a year and you then starve for a month and everything will be okay. Within the draft Climate Change Bill documentation is, among other things, quite a lot of information about carbon budgeting on a five-year basis and inter-budget flexibility of borrowing. On the one hand, that presupposes a carbon budget for a period whereby

you are reducing accumulation over a particular period and sticking to that reduction in accumulation and then pulling that accumulation down further with the next carbon budget. That seems to be in line with the idea of a moving accumulation as opposed to simply getting to your target in a certain period. On the other hand, the inter-budget flexibility appears to suggest that you can have your 9,000 calories for a bit and then starve for a couple of weeks and things will be all right. Within that overall target which do you think is the right approach, having accepted the point that simply getting to that point at 2050 is not by any means the whole answer?

Dr Griggs: On the five-year budgeting and the question of whether that should be annual or five year or whatever, the weather changes from year to year so emissions will change for year to year, if you have a particularly cold winter for example. However, one thing I would say about that is that that would be relatively straightforward. We understand quite well the relationship between the weather and emissions so it is quite easy for us to do some calculations and at the end of the period to work out whether you were really on target at the end of the five years or whether it was really the weather that produced it. In terms of the borrowing issue then it is a question of how much you do it. Using your analogy, if you ate a lot more for a few weeks and then starved for half a day then that is probably okay; if you did it for a month then that is clearly not okay, so probably borrowing a bit from the next period is not too bad whereas if you started borrowing a lot and you started getting into the problems of the pathways, where early action is clearly much more beneficial to the climate system than late action and if you start borrowing too much from the future then you are starting to backload your emissions targeting. It is a question of magnitude.

Dr Anderson: The emissions variations are not that great. CO₂ emissions do not fluctuate by massive amounts year on year and broadly they are related to energy consumption. The UK has made a wonderful job of collating that data for many years and adjusting it according to temperature on a very regular basis, so this is all data we collate, we understand how to do this. We may have to borrow very occasionally for some exceptional reason from one year to another, as long as the Committee was happy with the Government's change in action to ensure that the borrowing from next year was going to be paid back, so you could not just borrow from next year and do nothing, you have to show to the Committee we are going to borrow for next year and this is the additional action we put in place to ensure that next year's budget fits. I think you would have to ensure the Committee were happy with what the Government said it was going to do and it could not just borrow and hopefully at the end of the electoral cycle just pass it on the next Government.

Chairman: A final question from Nick Hurd.

Q82 Mr Hurd: Just thinking back to climate science, you all in your different ways have made quite clear the nature of the uncertainty. Mr Gordon, you

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reminded us about British leadership and, Mr Griggs, you made an interesting point about the need to sustain investment in science in order to improve our decision-making. My question to you is are you suggesting that climate science is under-resourced at the moment? Are you suggesting we could accelerate our progress up the learning curve with more investment? My third question is how far are we off from being able to present China with a credible diagnosis of the regional impacts of climate change on their country?

Dr Griggs: This is where I am going to get into trouble. The answer to your question is undoubtedly climate science is under-resourced and I am not just saying that because I am a climate scientist. I think there is a clear economic case for further investment in climate modelling in terms of reducing those uncertainties and the cost that we could avoid by reducing those uncertainties would orders of magnitude pay back any investment in terms of the science. How much you would have to invest in terms of being able to give China that information is a very, very difficult question because scientific development is uncertain. What we can be reasonably confident about is that as we increase the sophistication of the models, the resolution of the models, and the number of processes included in the models, that regional information is going to get better. At what point that becomes convincing enough for a government to take that on board, I am not really qualified to say.

Dr Gordon: There are two things to this maybe. Firstly, our five-year annual review from the Met Office Hadley Centre has now been published on the Defra website. Please do look at that in this context

because that will give you an assessment from scientists around the world and independent consultants on this question and it makes the position very clear in terms of answering your question about the funding. Where China is concerned, I will just comment that it is an interesting point, the models are better in some regions of the world than others. That is just the way it is, and China is one of those regions where at the moment the models are not very good. In other words, it is quite hard to produce a historical record of what happened in China. That is not true over Europe for example. As you are implying this is really significant. Policy and science do link together here because there is evidence from the observational records that between 1920 and 1940 there was a large rise in the temperatures in China. That was undoubtedly caused by natural causes not greenhouse gas warming, we know that. If that natural warming were to occur again coincident with greenhouse warming, China would be in enormous problems. The current generational models cannot answer that question because the climate models cannot reproduce that climate warming between 1920 and 1940. There is this linkage between policy and science that is important.

Chairman: Thank you all very much indeed. You did offer at the beginning to write to us. You had the good fortune to listen to Lord Lawson and if there was anything at all you wanted to disagree with you may wish to put it in writing and it will certainly form part of the record. Thank you very much indeed. I have certainly found it an incredibly informative session.

Witnesses: **Mr Martin Brough**, Oxera and **Mr Richard Gledhill**, PricewaterhouseCoopers, examined.

Chairman: Thank you very much for coming. I am truly sorry for the delay, I am afraid the fourth group always ends up suffering and we probably should have written and warned you. Can we start with a question from Lord Woolmer.

Q83 Lord Woolmer of Leeds: Yes, could I first of all look at the question of the long-term policy framework. At the end of the day to do anything in most sectors of the economy requires businesses to know what the rules of the game are and to know what those are going to be over a period of time that is consistent with their investment decisions. Do you think the proposals contained in the draft Bill will do enough to provide this long-term policy and regulatory framework that will reduce investment risk and assist behavioural change and investment decisions?

Mr Gledhill: Certainly the longer term targets I think would be helpful to investors, particularly in capital intensive industries, and it has been an issue that there are a number of industry sectors which have raised concerns in relation to the EU Emissions Trading Scheme which looks at a five-year time horizon. I think it is also helpful that the time-frame

you are looking at is broadly consistent with the EU time-frame for targets but it is obviously also true that investors will look to the underlying policies and regulations that are implemented in order to deliver those targets and so the targets by themselves and the time-frames by themselves are not going to be—

Mr Brough: If you look at the UK carbon emissions generation in a large part of the UK CO₂ sector, very large investments have to be made over the next ten years, so really in ten years' time looking back at those investments it is not clear to me the current framework or the framework proposed will be sufficient to take out some of the political and regulatory concerns that investors are faced with when making the investments in generation over the next five to ten years. I think some of those risks are unnecessary ones and could be addressed. I also think that the carbon market is immature by its nature. The Government needs, quite rightly, to retain some flexibility in changing the rules of the game and to the extent that it does need to retain that flexibility I think there may be a legitimate role for the government to actually take on some of the pricing risks away from investors over that period, at least until the market matures.

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Q84 Lord Woolmer of Leeds: Sticking to the Bill itself, what changes, if any, do you think should be considered or made in the Bill that would overcome some of the problems you are identifying?

Mr Brough: I have identified three principal risks that investors are facing with the carbon market at the moment which are not normal commercial market risks which investors tend to be dealing with. One is the feeling that there is a possible political cap on the maximum acceptable carbon price and certainly in the European ETS a feeling that, for instance, the German power sector is very market intensive and very high carbon prices lead to very large costs for German power consumers, and that is necessarily political. I think one thing that could be done on that is to think more about mechanisms for redistribution so that customers are not necessarily feeling all of the pain of high marginal carbon prices and if some of that political heat is taken out of the carbon price it makes it more credible that prices will be allowed to rise to levels to encourage investment. The second thing is that there are lots of different targeted instruments for reducing carbon emissions. The European ETS is one scheme but we also have renewables obligations and energy efficiency commitments, building regulations, separate taxes and duties on transport. Every time you introduce a targeted regime, you are preventing different types of carbon abatement competing against each other. You are putting them into separate pots and if I am thinking about building a certain type of power station I am not legitimately competing against the costs of renewables generation or the cost of abating carbon in the transport sector, so I think the scope of each individual market needs to be very clearly set out and to the extent it cannot be the Government should take some of these risks away. Thirdly, in terms of the scope of the schemes more widely, I think there are big problems in not placing limits on the use of international credits because it is not quite clear to me what a UK target means in terms of a carbon price if it is open to the UK Government to go into an international market and just make up any shortfall on UK emissions, potentially at fairly low prices, in global markets.

Q85 Lord Woolmer of Leeds: Could I finish my question on exactly that point. In so far as the emissions trading is referred to in this Bill is part and parcel of the European Emissions Trading Scheme, the UK could set a target of 80 or 90 per cent net reduction if UK businesses were allowed to buy from within the European Emissions Trading Scheme. That is correct is it not? Does that not mean that by setting an apparently high figure, if it was above the European scheme figure, the only effect of that would be to slightly raise the cost of carbon across the European Union and to spread the consequential adjustment of reducing carbon across the whole of the EU, not actually within the UK?

Mr Brough: That does seem to be the implication of the Bill. The other issue is the EU ETS is not even binding and there are more allowances out there currently than there are emissions, and therefore if I

were to go into the market and buy some European credits that does not deliver any marginal reductions in carbon at all, so I think there is a credibility issue. We are talking about the idea of maybe banking one per cent of your emissions. One per cent of your emissions in a global market may cost you £50 million and £50 million is not all that much if it is avoiding the credibility issue of missing the target, and I am just wondering whether it actually means anything to hit your targets if you always have that release valve and if I think that release valve is there I am not going to be investing in high-cost carbon abatement in the UK when I feel that it can be met through emission reductions elsewhere.

Mr Gledhill: I am not sure that I agree with all those points. I think to dismiss the credibility of the emissions trading scheme on the basis of the first trading period, which is always a learning by doing period, is a mistake. The carbon price in the second period is now around 20 Euros and the expectations in the trading sector are that this is around the level it will remain at or higher in the future. I think it is also a mistake to look too narrowly at the UK. Clearly one of the objectives of the Government must be to look at the economic impacts of decisions taken in relation to climate change policy in the UK but it also must have regard to the fact that companies and other investors are taking investment decisions not just about the UK but about Europe and internationally, and I think there is an opportunity here to benefit not just the UK policy but also to inform and encourage sensible policy at a European level and more generally, and to have an effective global carbon market is much better than having an effective UK carbon market.

Q86 Mr Chaytor: Could I ask Martin Brough about the question of buying overseas credits. You are sceptical of the capacity to do that but should there be a limit, a maximum number of credits that the Government could purchase in order to meet a specific target and, if so, what should that limit be?

Mr Brough: Clearly there are benefits of having a global carbon market. It is scientifically true that saving a tonne of carbon here is the same as saving a tonne of carbon in China and therefore we should in the long run be valuing them the same. Secondly, I think in the long run the global carbon market would be quite an effective way of getting global action to be taken. There is no doubt that UK funds and UK know-how can help to make that global carbon market happen. From a UK plc point of view, I think it may be desirable for us to be a central part of the global market, but I guess my concern would be that if there is no limit on the use of those that it could undermine domestic action, and also I think there is a danger if we are really saying that buying a global credit is exactly equivalent to taking action in the UK, it potentially constrains the action we can take in the UK because how can we justify taking policies on renewables here that have a cost of carbon abatement that is higher than global credits when the Government could just go out and buy some global credits? It is very difficult to see how that passes any kind of economic test of being the lowest

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cost way of taking action. I think this is a legitimate question of saying yes we want to do both but it does not mean to say they are exactly equivalent and there should not be an unlimited substitution between the two.

Q87 Mr Chaytor: If there should be a limit what should be the percentage of the whole that forms the limit?

Mr Brough: It is very hard to answer that question in a way. I think that there needs to be a balance struck between an amount of money which is credible to get the global carbon market going and a percentage figure which does not undermine domestic views about constraints on carbon action. It might be ten per cent, it might be 20 per cent, the exact number will depend on the balance between those two issues, but it seems to me unlikely that the right answer is 100 per cent.

Mr Gledhill: I think I do agree with those points. An additional point there is it is quite difficult to be precise about what cap is appropriate now in the context of uncertainty about the regime post-2012. If you are to set caps you would probably tend to err towards higher caps rather than lower caps.

Q88 Mr Chaytor: If I could ask you both about the Clean Development Mechanism. Are you confident in the integrity of the CDM and what is your reaction to the stories that are emerging presently about the way the CDM is abused and is not achieving its objectives?

Mr Gledhill: I have read a lot of the press comments and I think the comments focus on the policy framework behind the CDM perhaps rather than the governance framework. I think there is a relatively robust governance framework which is working well and I think it is important that the UK plays an active role in this market and supports the governance of CDM and JI going forward. Clearly, policies and rules in relation to methodologies and so on will develop over time and no doubt they will improve, but I think it is doing what it was designed to do at the moment.

Mr Brough: I would agree that in some ways the mechanism is working astonishingly well for a global and such an immature instrument, and the fact that these blank pieces of paper are actually deemed to have value and that billions of dollars are trading on the back of these pieces of paper is a testament and we should be very careful about not criticising these things too much and seeing it as a progressive exercise. I guess your question is whether it forms a solid base for making investment decisions on UK power stations for the next ten years.

Q89 Lord Teverson: In terms of emissions trading, which is very much at the heart of this Bill, what lessons can we learn from the rather shaky start to the European system? Should we also be more aggressive in terms of auctioning entitlements rather than just giving them away for free? If we do that too strongly is there a real risk that we offshore our

emissions and so rather than actually leading globally all we do is export our emissions somewhere else?

Mr Brough: I think the ETS, in my view, has shown that you can encourage behavioural change, at least in the short term. If I have a coal-fired power station and a gas-fired power station and there is a market out there, I will look at the price today and make a decision on which one I turn on based on the carbon price, I think that has happened over the last few years, so in terms of using our existing capital stock the signs are quite encouraging. In terms of the instrument it is certainly politically successful in the sense that capital trade schemes all over the world seem to be the way to go. The allocation issues are important but they are a way of trying to get the installations and the institutions involved to buy into the scheme and if there was ever a scheme where you want to play a long-term game then surely global emissions is one where the long term is important. Initial allocations are perhaps less important but I certainly do not do not think that there is a mature enough market to say it is a basis for investment.

Q90 Dr Whitehead: Do you think there are any fundamental logical points in terms of cap and trade relating to what a number of people have stated as an aim of a guaranteed high price for carbon? That is, during periods of settlement in capping, capping always has to be inaccurate to the extent that there has always to be a greater demand for carbon than supply and the more the market matches the lower the price becomes and over an accounting period in principle, the price should lower towards the end of the period rather than remain high on a constant basis? A number of the investment assumptions on low-carbon technology seem to rely on the idea that a carbon price would be constantly high. Do you think that is a built-in difficulty or one that can be overcome in terms of carbon trading as it progresses?

Mr Gledhill: I do not think that is a fair assessment of how markets work. I think once you get a track record of trading periods and progressive reductions in caps that the market will factor in the issues that you spoke of and you will get a steadier track record in carbon prices. Clearly we are still at a very early stage and there is quite a lot of volatility in prices. The more we get moved towards global carbon markets and the greater harmonisation we have within those markets the less that volatility will be.

Mr Brough: I would agree that, in general, markets and investors are used to dealing with risk and I do not think the fact that the price of carbon is volatile or variable in itself is a problem. It is a problem if the risk around carbon is perceived to be a regulatory and political one and one of scope change and rule change rather than me forming a view as an investor about who I am competing against when making a carbon reduction decision, which may be a very long-term one, and that is what I am more worried about—the rule change and scope change.

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Q91 Dr Whitehead: Presumably, the central element is the belief that the cap will progressively and continually be tightened and there is a known slope on that tightening and, secondly, that the tightening is real, that is, the hot air in the system is, so to speak, driven out over a period? Those are presumably key issues in terms of that confidence that you have described as far as the markets are concerned?

Mr Brough: I guess the market has to be confident that the level of the cap will be consistent with what the scientific evidence says emissions should be and the market will work sufficiently well and the costs and benefits of abatement will be taken into account in terms of the price. It does not necessarily have to be that the cap tightens every time, just that there is a credible long-term price out there, and that when people are forming investment decisions the figure they have got in their mind for carbon is consistent with what we are saying the social costs of carbon are over the period of investment that they are making.

Mr Gledhill: They will not just take account of the science but they will also take account of the technological developments which could push down the price of carbon.

Q92 Earl of Caithness: You have raised some doubts in my mind about the credibility of the carbon credits because of political influences and other influences that could be brought to bear. What would you add to the Bill to give investors greater security and a better foundation on which to make these decisions for the big capital projects, whether it be renewables or conventional or nuclear power stations in the future?

Mr Brough: I would probably suggest two things. One is a review of all of the different targeted instruments that are out there to try and work out what the implied carbon price for all of these different instruments is, and to try and explain why there are different apparent carbon prices in all of these different instruments, and to be clear about whether we expect that to converge over time,

because then if I am sitting in the middle in a carbon market I am a bit more confident that there are no special rules about the technologies and my investment decisions might not be undermined. Secondly, I think that it is unrealistic in the short to medium term that you are going to derisk everything and I think it needs to be clearer in the Bill whether the Government thinks it is going to put money on the table potentially to hedge some of the carbon price risk that the UK generation sector in particular will be taking over the next five or ten years when making investment; and I think that is a perfectly legitimate role for the public sector to have in the short to medium term until the market is mature.

Q93 Earl of Caithness: Coming back to your first point, is that work for the Committee or for the Government?

Mr Brough: I think it has to some extent be the Government because a renewables objective is not just about carbon abatement, it might be about energy security of supply or diversity or long-term technology encouragement rather than just today's reductions. That instrument needs to explain how much of it is to do with carbon reduction today, how much of it is to do with R&D promotion, and how much of it is to do with energy security, and I do not think the Committee can really tell us that, I think that has to come from government.

Mr Gledhill: Certainly I can see that there could well be a need for support to certain technologies in some form of underpinning of carbon markets or some other form of support to encourage the roll-out of technologies such as carbon capture and storage. I think it is difficult to enshrine that sort of support in the Bill but it may be appropriate to include that within the ambit of the Committee.

Chairman: Thank you very much indeed. You have given us our first evidence session on the Bill and we lean so heavily on the area of your expertise, I would be very surprised if we did not come back to you in writing and ask for some additional support. Thank you very much.

Tuesday 5 June 2007

Members present:

In the absence of the Chairman, Mr Tim Yeo was called to the Chair

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| Billingham, B | Ms Celia Barlow |
| Caithness, E | Mr David Chaytor |
| Crickhowell, L | Helen Goodman |
| Jay of Ewelme, L | Nia Griffith |
| Miller of Chilthorne Domer, B | David Howarth |
| Selborne, E | Mr Nick Hurd |
| Teverson, L | Mr David Kidney |
| Vinson, L | Mark Lazarowicz |
| Whitty, L | Mr Tim Yeo |
| Woolmer of Leeds, L | |

Witness: Professor Sir David King KB ScD FRS, Chief Scientific Adviser to HM Government, examined.

Q94 Mr Yeo: A warm welcome to you. Thank you for coming along. We have quite a lot we would like to put to you in the time available. Unless you want to make an opening statement, I will kick off with a general question. The science, to an interested lay man like me, seems to be getting stronger every day. The consensus is emerging that early action is likely to be less expensive and disruptive and painful than late action. In view of that, do you think the 60% target is now adequate, particularly in the light of growing concern about the consequences of a rise in temperature of more than 2°C?

Professor Sir David King: Chairman, in responding, we are discussing this in connection with the draft Bill.

Q95 Mr Yeo: Indeed.

Professor Sir David King: Starting from the science. The science is subject to uncertainties. If you were to ask me what is the best estimate on a 95% probability basis for a given temperature rise at a given ultimate level of carbon dioxide, my answer would be 450 ppm, 1.7 °C to about 3.7 °C. That is the best and most accurate answer I can give. If we go to 550 ppm, then those numbers go up. Where do we hit dangerous climate change levels? I am afraid we have probably already hit them. The summer in Europe of 2003 led to 32,000 fatalities and I believe that I can argue very clearly that that is a climate change event. On that basis I would have to say that we need to do the best we possibly can. We have already let it run for too long and we need to do the best we possibly can. I think the 450 ppm equivalent, is probably that best. Setting a good target, we would go for 450 ppm. I think that would be in the category of avoiding catastrophic climate change events. If we went beyond 550 ppm, I would say then we are entering into the domain of risking catastrophic climate change events with massive feedback potential which could cause sudden increases in temperature. Having said that, the question now comes back: What does that mean in terms of reductions in targets? Now we have to answer the question, first of all, with global targets and then with targets for the United Kingdom. If we

look at the developed world, I believe that in order to remain at or below 450 ppm equivalent within the developed world we would want to be heading towards a reduction target of around 70% by 2050. I say “around” because we would have to revisit these figures as we move forward in time. If you then translate that into the UK, I believe it is absolutely critical that the target that is set in the Climate Change Bill has to be demonstrably doable; in other words, it has to be something that can be achieved. The Energy White Paper sets out a process and I think it is a hard-headed process which indicates that a 60% reduction is achievable and it is achievable with technologies that are already around or need a little bit of tweaking up. If, as I expect, we get international agreement over the next ten years and other countries all fall into line or we fall into line with them, whatever the line is, and there is therefore a general agreement on, let us say, a cap and trade process, and within that agreement the science indicates that sharper targets are required, I think it is perfectly feasible to ratchet it up at that later point. At that point, we will be able to see new technologies coming through. In any event, the objective has to be to decarbonise our energy system over the first half of this century, but a big part of this process is that it is highly granular if you look at a single country. By that I mean that the electricity on the grid is produced by power stations that have a significant lifetime. If we introduce, as the Government will, new legislation on the built environment, by 2050 all the houses being built between now and then would amount to about 30% of our housing stock. Each of these factors indicates the kind of timescale over which policies can begin to bite and produce these results. The granularity that I am now referring to also has to be taken into account in setting realisable targets. I think that is where the Climate Change Bill is trying to focus. It is a rather longer way of saying that I think 60% is the correct target now. I believe that as science moves on and as we see the impacts of climate change moving on as well, and as new technologies come forward, all of this will need to be revisited, but, at the same time, it is critically important, if we are going to see these new

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technologies developing, that we set targets into the future; in other words, so that investments can be made which will be made with confidence on the basis of a long-time scale ahead.

Mr Yeo: Thank you. That is a very helpful answer.

Q96 Mark Lazarowicz: It is obviously a very complex area. I am not trying to oversimplify what is a complex set of policy choices which depend upon assessments of risk and all the rest of it, but it did seem to me that where you were heading to simplify it, perhaps too far, was almost saying that the developed world needs 70% of the action by 2050, but 60% is doable so 60% is the right target. If that were to be the policy followed across the developed world, we presumably would not get to 70% at a later stage. Is there not sense, therefore, because of the difficulties that will undoubtedly come along the line in trying to reach the target, in giving a higher target and trying to reach that as the objective rather than going for a lower target and trying to ratchet that up at a later stage?

Professor Sir David King: It is a good question although you did not quite summarise what I said. I actually said that a 70% target would still be achievable if there was a general global agreement to move forward in that direction. I am just distinguishing between where the UK is now and where it will be, let us say, in ten to 15 years' time and how targets may be ratcheted up. I just give you the experience some of us have been through on targets being ratcheted up. I am referring to the Montreal agreement on CFCs, where the targets were quite quickly ratcheted up once it was seen that agreement was being obtained and actions were taking place amongst many nations around the world and that it was doable. I think the ratcheting up of targets is something I would anticipate, but probably over the next ten to 15 years.

Q97 Mark Lazarowicz: The doability issue is not to do with domestic technical ability as far as we can foresee it or to do with political acceptability but it is also to do with the international agreements on these issues as well. Is that part of the picture which affects the feasibility of ratcheting up to a 70% target at a later stage?

Professor Sir David King: Let us suppose—and I am not a pessimist, so I do not generally suppose this—that there was not a global framework emerging with all nations buying into that, I think the tenability of a target beyond 60% would become difficult. I do think, because this is an international problem, that the international situation is crucial.

Q98 Mr Kidney: Sir David, the Bill permits the 60% to be amended at some stage in the future. You talked about the possibility of ratcheting it up. Are there any foreseeable circumstances at all in which you would want to amend the target downwards or should we absolutely rule that out of the Bill itself?

Professor Sir David King: You are talking to a science adviser. My answer would be that it is highly unlikely on the basis of the science that would come in that we would see that lower targets would be fine.

I doubt very much that it is going to be a science driven process that would bring targets down but I think it comes back to doability. I very much hope we do not see it coming down.

Q99 Mr Hurd: Sir David, why does the Government persist in continuing to use a range that goes up to 550 ppm when you have indicated that 450 ppm is optimal and I think Stern describes 550 ppm as an extremely dangerous place to be. Why do we persist in sending that signal? Secondly, in relation to doability of targets, are you satisfied that the 26% to 32% range for an interim target of 2020 is doable? In relation to 60% are you satisfied that there is enough transparency around the underlying assumptions behind that target? We have heard some evidence that this is an old target, taken from 2000 work done by the Royal Commission which makes some assumptions about equity and Britain's fair share of the cake under the principles of comparative burdens and which may not have been adequately debated or discussed?

Professor Sir David King: 450 ppm to 550 ppm. A slight correction on what Stern said—and I worked with Stern on that report. It was essentially rewording what I have just said, that if we go to 450 ppm we still have dangerous climate change events but it is a doable sum, but it requires focus from every major nation around the world on the problem. Beyond 550 ppm we are saying that the science indicates that we are moving into a very risky stage. Really Stern is saying: "Don't let it go beyond 550 ppm; let's aim for as close to 450 ppm as we can manage." That is really my position and it is, I believe, also the Government's position. In relation to the 26% by 2020, I think your question is whether or not that is doable. I think everything depends on whether you feel the Energy White Paper combined with the other measures that would be taken, for example, in the built environment—which is absolutely crucial: almost 50% of our carbon dioxide comes from the built environment—is deliverable. I am persuaded that it is. I think 26% on carbon dioxide emissions is doable. The 60% figure, it is right, emerged from the RCEP when Sir Tom Blundell was chairing it. That figure has stayed with us since 2000. At the same time, I think the figure is robust, but I am saying that within the framework we will have to watch it over the next ten to 15 years, in the sense that the science will sharpen up, the impacts will become clearer. At the moment, I think the 60% is a good target figure.

Q100 Mr Hurd: The question was more about the transparency of the assumptions underlying it in terms of equity and Britain's fair share of the cake.

Professor Sir David King: This is a question of comparison with what other countries will be doing. I think all we can say at the moment is that Britain has been playing a very strong leadership role by making that statement in 2003 about a commitment to a 60% reduction by 2050. I do not think anyone should underestimate the importance of that leadership role. Instead of sitting down, as many other nations were doing, negotiating, straight up

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negotiating, we were saying, unilaterally, “We are reducing by 60%, what are you doing?” That did give us a very strong position. I think the 60% figure I am defending not on the basis of equity but on the basis of the important place it gave Britain in the leadership on this issue.

Q101 Lord Jay of Ewelme: Would you be happy to stick with 60% if aviation and shipping were included?

Professor Sir David King: I have no doubt that aviation and shipping ought to be included. Just to pick up your point, I feel it is an anomaly that should be dealt with. At the same time, I would still be happy with a 60% figure.

Q102 Baroness Billingham: Sir David, it was three years ago that you came to give evidence to the European Sub-Committee. There was virtually no public awareness, no press coverage, and the change in that time has been astonishing. I remember well that we were talking about global targets and what other countries were doing and at that time you yourself said there were great difficulties here. In the light of this enormous change, does the Bill that we have currently before us draw adequately on what is happening in other countries to combat the climate change and to use their experiences to improve this Bill?

Professor Sir David King: First of all, I am going to repeat that Britain has been playing a leadership role and I think that has been critically important. Not so much other countries but the State of California has also been leading, at least within the US context, and so I would acknowledge their action in heading towards a 25% reduction in carbon dioxide emissions by 2020 and how they have set that out. We certainly have examined their process in my looking at how to advise the Government on this. We have recently seen statements from the Australians, from the Brazilians, from almost each of one of the nations that will be in Germany at the end of this week to discuss this issue, but these statements are all coming after ours, so I come back to the point that we have been leading the way, we have been cutting the ice, and so it is quite difficult to look for examples of best practice to imitate.

Q103 Earl of Selborne: Sir David, you have stated, and I am sure it is right, that in 2003 we showed considerable leadership by this unilateral announcement of a target of 60% by 2050 and that clearly earned us a leadership role. What does this draft Bill do to add to that?

Professor Sir David King: I used to believe that all one required was a good fiscal process to deal with this issue and with that fiscal process the markets would deliver everything we required. I now believe that is not enough. I think the fiscal process is necessary; we should move to a much better cap and trade process. I would like to see a cost on carbon dioxide which would be around €40 to €50 per tonne of carbon dioxide and then we would tend to drive through most of the alternative technologies that we need, and energy saving processes. At the

same time, I am aware of the fact that people drive cars that are very expensive to drive, so there is an elasticity in demand that is not totally met by the fiscal process. The Climate Change Bill offers a way of watching how the process is moving ahead. I think the analogy with the Bank of England can be overdrawn but nevertheless it is an important process to see that carbon dioxide emissions are being reduced on a regular basis and that actions are continually tweaked to make sure that we need that. I happen now to believe that the Climate Change Bill is an essential part of doing delivering on these measures.

Q104 Earl of Selborne: It is a fairly limited remit, therefore. Would it be more appropriate to call the Bill the “Climate Change (Budgets and Targets) Bill”?

Professor Sir David King: I do not name bills.

Q105 Nia Griffith: What experience have you had in talking to colleagues from elsewhere in terms of their attitude towards the Bill and anything you think may result in other countries from having looked at what we are doing? What are the vibes you are picking up?

Professor Sir David King: I think it would be wrong for me to sit here and say, “Look, all these countries are following us” but it would certainly be fair of me to say they are all picking up on what we are doing, examining it, going through it, seeing how much of it is applicable to their situation. I do think you would find the understanding and knowledge of what we are doing here in the UK is really quite remarkably good in other countries.

Q106 Lord Teverson: In terms of leadership, there are two things I would look at. In terms of carbon emissions, yes, we have had the target since 2003 but since about 1998 our carbon emissions have not gone down at all. In terms of renewable energy, in the European Union we are 26th out of 27. We show leadership in terms of a sort of bravado, in targets and setting, but not action. The thing that genuinely concerns me about this Climate Change Bill, the aims of which are absolutely laudable, is whether it is an excuse for not doing the real business. In other European countries or elsewhere beyond that, is action not more important—which we have not done very well—than going through a process of setting targets? Will this act as an excuse to say, “Right, set the targets. By 2050, it would be great, but let’s all just get on with life in the meantime.”

Professor Sir David King: Of course that would be really disastrous. Let me take this on board. There has been a reduction in greenhouse gas emissions since 1997. It has very largely been achieved through reductions in landfill emissions: a 41% reduction in methane emissions, very largely since 1997, from landfill. I think if we look at the basket of greenhouse emissions, we would have to say that we were doing fairly well. When we look at carbon dioxide emissions, we have seen a 2% or 3% increase over the last five years. It is worth pondering for a moment the origin of that increase, because we are seeing,

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slowly emerging, renewable energy sources around the UK. We have at the moment around 2 giga-watts of wind-farm energy up in the UK and another 8.5 giga-watts to 9 giga-watts caught up in planning conditions. So there are blockages which the Government is rightly looking at in terms of the planning process. I think as well that we need to take into account what is happening to the nuclear area. I happen to think this is the critical part of the answer to your question. We used to have about 30% of our electricity on the grid from nuclear; we are now down to just below 19% and the reduction in nuclear onto the grid means that we have had an increase in either coal or gas electricity onto the grid which has meant an increase in carbon dioxide emissions. If I analyse the reason for the increase, it is not for the lack of policies on renewables, it is not for lack of policies on energy efficiency gains; it is because the nuclear plant has not been replenished as it becomes decommissioned. As a matter of fact, part of that is also that the older nuclear plants are having to be taken out of commission for a period to repair them, so, once again, it brings that granularity, that we see a sudden increase in emissions during a year when there is a switch from a nuclear plant to a coal-fired plant. All of these are very important issues to grapple with. I come back to the point I made earlier about the timescale over which these policies were played through. The timescale we are talking about is of the order of the lifetime of a building and of the lifetime of a power station, so it does take time for these policies to play through. I am not trying to defend everything that has happened but I think we need to understand the origin of what is happening.

Q107 Lord Vinson: My question has been slightly posed already. This is not in any way to denigrate the attempt to try to control our target, but the setting of targets, as you would be first to know, is the easiest possible thing to do; the hardest task is implementation. The road to hell is paved with unmet targets. It worries me, in relation to this Bill, that there is very little talk about how the credits are going to be measured, how they are awarded, how they are enforced, and the micro-management of a far wider scale of emissions trading credits than hitherto. We are going to have presumably a very large regulatory force developed to look into this and, meanwhile, if I could quote from the *Financial Times* dated 5 May: "Carbon trading is a huge scam." I am anxious. Are we going down the right route? It may be a route. If I could come to the second part of my question, I just wonder whether we ought to be a little more positive. Necessity is the mother of invention. To rely on windmills—the load factor of which in the last year, as you know, was less than 26% of their installed capacity—means that we still have to have huge reserves of back-ups of base energy. If we were to go down as quickly as we can and make this part of a whole central thesis of eliminating or of reducing climate change to a more electric world. We know the technology for creating electric heating, electric lighting, electric trains. Electric cars are around the corner (the battery will

give us 300 miles now, which is what most people do for shopping) and there is CO₂-free electricity through nuclear which you have mentioned. We need to have a programme of really getting down to massive reductions of carbon-produced base load, to CO₂-free, principally nuclear-produced, base load. Then we could probably forget about aviation, which is one of the great freedoms of the 21st century. If the aviation footprint went up from 2.5% to 5% or even 7.5% over 30 or 40 years, we would offset that more than enough through base power heating generation through nuclear, so that we can keep flying, which is what everybody wants to do. I think this whole policy should have a positive as well as a restrictive outlook to it and I fear that the Bill as it has been put to us is rather too restrictive and not enough in terms of the positive way through it.

Professor Sir David King: You make two points. To take the first one: is Carbon trading a huge scam?—I am going to rephrase your question in those words—I do not think so. For example, the carbon trading process was first developed here in the UK in 2004/2005. It was then developed in the European Union and, at its peak, carbon dioxide was trading at €27 per tonne and several billion pounds were changing hands in the City of London. The new commodity had arrived and the Square Mile sat up and took note.

Q108 Lord Vinson: And other people fiddled their credits.

Professor Sir David King: I cannot comment on whether or not they were fiddling their credits. All I am saying is that we in Europe have had some experience of carbon trading and, as we move forward in time, I believe that experience has really paid off and we will see a much improved version of the carbon trading process and checking on the credits. If we could now look at the question of what you call "windmills"—and I understood from that where you are coming from: you certainly approve of nuclear energy—I think we need nuclear energy. But you are making a very good point: if we have carbon-free electricity going on to the grid and we are charging our cars, for example, so that we get our road transport also charged on the grid, then we are removing carbon from the road transport system, we are removing carbon from the housing system, and we are achieving a very large part of what we are after. I do think we need to be targeting all sorts of technologies that will put carbon-free electricity onto the grid. I say "all sorts" because I am one of those who feels that we need another generation of nuclear power stations and that we will benefit enormously from another generation but we ought also to continue doing research into fusion power stations, because, once fusion power is available, we have a source of power with no radioactive waste and where the feedstock is abundantly available. I think there are 2,000 or 3,000 years worth of feedstock available for fusion power. I think that is an important target for us all to aim.

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Q109 Lord Crickhowell: Following up on that point, reference has already been made by Lady Billingham about your evidence three years ago to the European Sub-Committee. You spoke then with great enthusiasm about fusion power. What progress has been made in the three years that have passed? What is your view about timetable now we are getting somewhere on fusion power?

Professor Sir David King: Since three years ago the decision has been made where to build the next fusion machine, Cadarache in France. I spent a lot of time travelling around the world persuading various countries that it would be a good idea to join that project, so we began with the project run by European Union, Japan and Russia. China, South Korea and the United States joined, in that order, and we now have India on board. It is the biggest ever fully international technology project that the world has seen. There is an enormous effort going into this with top scientists from all those countries coming in to work at Cadarache. The process has begun. There is a Japanese director who has been appointed—he was previously an ambassador—and the team is being constructed as we speak. You asked me about the timescale. What is being constructed at Cadarache is a machine the size of a cathedral that will contain this plasma operating at around 10 million °C, which will provide the power source that will generate electricity in the future. It is experimental. The first thing is: What is the probability that a power station will emerge? I would put it at better than 50:50. Secondly: What is the timescale? I would say 35 years.

Mr Yeo: Could I remind the Committee we are supposed to be considering the Climate Change Bill. Bearing in mind the timetable, it is possible we may get the opportunity to amend the Act before nuclear fusion comes in!

Q110 Baroness Miller of Chilthorne Domer: What do you see as the key difficulties facing the Government in setting carbon budgets for up to 15 years ahead? Perhaps you could expand a little bit on the difficulties sector by sector as well.

Professor Sir David King: I am not in a position to give you chapter and verse on the difficulties sector by sector in setting targets 15 years ahead. I would say that I think setting targets 15 years ahead is critically important. Each sector needs to know where it is expected to go and that justifies private investment funds going into these sectors. I think the targets are very important but I am afraid I would not be able to answer the detailed questions that you are asking.

Q111 Earl of Caithness: You mentioned, Sir David, the analogy of the Bank of England and I want to take you on to the committee. Do you think the proposed committee is sufficiently independent, robust, able to take independent advice to be of any use? Or is it just going to be a rather wishy-washy committee with ultimately a political decision?

Professor Sir David King: I certainly do not think it is going to be a wishy-washy committee because this committee has an enormously important remit on

which to deliver. I think it is a very challenging remit and I think the committee members will have to work very hard to deliver on that remit. I do not see the political decisions being crucial to its operation. It has been given a very clear remit in operating. It is advisory but I am rather expecting that its advice will be adhered to most of the time.

Q112 Earl of Caithness: It is modelled on government modelling based on a DTI programme on energy. It does not have any independence at all.

Professor Sir David King: If I were on that committee, I would be calling for independent advice. I would use the officials available to me, I would use the funds available to me to go out and get that independent advice. I think your question is absolutely correct, in the sense that any committee operating in this way would need to be able to check that the advice it is getting from government is the best and is robust. In my view, that is a very important part of the process. I have not read into the documentation that such advice would be excluded from it, but quite the reverse.

Q113 Lord Woolmer of Leeds: On the subject of the committee, you yourself talked about nuclear power. The question of aviation was raised. Transport, cars and so on, and shipping were raised. Do you expect the Climate Change Committee to make recommendations over a 15-year period, looking ahead as to where carbon changes should be secured in each of those sectors? If so—and I anticipate that is so—that is a very challenging role. It becomes very quickly very political and it is very, very difficult to keep its discussions out of a political dimension before it gives its advice. If it is transparent in its operations, a[acute] la Bank of England Committee—and in my view there is no comparison, in reality, between the two—then its discussions and who voted in which way would become a matter of great controversy. These would affect whole industries and businesses on a very big scale, their profitability and otherwise, and consumers. Do you think almost too much is being asked of a small committee of a handful of people? There will be enormous pressures on them.

Professor Sir David King: I am not going to abandon just yet the analogy with the Bank of England, so let me persist with that for the moment. The Climate Change Committee will not have the institutional back-up and status of the Bank of England. That I understand very clearly. But I think in time it will need to develop that sort of status. We are dealing with a new issue, a new problem, and I think this can be a critically important new institution as we move forward in time. As I have just said, this is a very challenging remit for this committee and it will have to operate, in my view, with transparency for just the reasons you have given. I happen to think this is the right way to do it. I think it should be done at arm's length from government. I think the Bank of England model is correct. I think in time it will develop the sort of institutional status that the Bank of England has.

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Q114 Lord Woolmer of Leeds: I would draw an analogy with the position in Scotland at the moment, where a party with a small number of people, the Green Party, had an effect before the election and afterwards on the position being taken by the Scottish administration no nuclear power. That hung Parliament or a mixed position in Parliament is not impossible in the UK Parliament as a whole. Do you think the committee can be robust enough to maintain its strong recommendations—and they have to be strong and they have to be clear and consistent—in the light of changing political consensus? I think principally, at the moment, for example, of nuclear power. It could become an issue on aviation. It could become an issue on car transport. It is quite possible that different political parties would take a different view. How could the independence of the committee be maintained in the light of fluctuating political balances?

Professor Sir David King: Your question is absolutely the right question. A political consensus is what we have now and I believe we have a political consensus on the importance of the climate change issue. I am not suggesting a political consensus on the Climate Change Bill but the consensus that exists at the moment, I believe, would be sufficient to carry the committee through its initial phase of development. In my view, it is absolutely critical that this committee develops a reputation for action and for transparency with all parties that maintains the kind of belief in it that it will need for sustainability. I think your question is absolutely crucial. As we move forward in time we really have to see the stature of this committee growing until there is national respect for what they are doing.

Q115 Lord Crickhowell: In the last few questions we have been talking about the advisory role of the committee primarily, but we have been spending a lot of the session talking about forecasts and budgets. The efforts to forecast have not been notably successful within government over the last few years. One of the key tasks in forecasting is going to be getting the structure right. Do you imagine that the committee is going to have to take on board the existing instruments of DTI and Defra and the Interdepartmental Analysts Group? If so, is that going to work effectively? Or does it have to create itself a structure for forecasting and budgeting so that it can have its own confidence in the mechanisms? How do you see the structures emerging? It is not just a question of advice; it is going to have to have a good deal of precise and detailed material coming to it. Have the Government given thought as to how that structure might be devised? Or is that a matter that is going to be left to the Committee?

Professor Sir David King: The ability of this committee to win the confidence of all political parties and the public is going to be dependent totally, I believe, on the strength of its advisory system. The ability to go out to modellers who can check the models of the Government I think will be crucial. You are asking me a question about

decisions being made within the political sphere. I can only speak, as I say, as a scientific adviser. I am not trying to duck behind that but your question is really better directed—

Q116 Lord Crickhowell: I do not think I am. At the moment we have modelling systems established by political departments under political control but the committee surely has to satisfy itself that the modelling, whether it is from government or from independent sources, is satisfactory. That is the decision, surely, that the committee is going to have to make based on its technical and scientific assessment of the modelling skills. Surely it is not a political decision at all.

Professor Sir David King: I agree with you. I think the Committee has to have that sort of independence.

Q117 David Howarth: Could I bring you on to a different topic, that of the interaction between carbon budgeting and the targets. It seems to me from most of the evidence that I have heard that there is an argument for saying the budgeting is more important because what matters is the amount of carbon in the atmosphere as a stock rather than the annual flow. You could succeed in reaching a particular percentage reduction by a particular year and yet at the same time in the interim have come vast amounts of carbon dioxide into the atmosphere to make the situation worse. So the budgeting seems to me to be crucial. I have a problem with the interaction between the targets and the budgeting. In the targets, only CO₂ is referred to, not the other gases, yet in the budgeting, the credit system (the trading of international credits) allows other greenhouse gases to be taken into account. It seems to me that the Bill ought to have one view or the other: either “all gases” or “just CO₂[cdq]” for both the targets and the budgets, and preferably in my view—and I do now know whether you would agree with this—to have the view of all the gases for both and not just for the budgeting.

Professor Sir David King: The Bill, I believe, is building on the experience that I referred to earlier of trading on carbon dioxide in the European Union. We really need to build on that experience. I think that is an argument for staying with carbon dioxide. Of course another argument is that it is 84% of our emissions and it is the piece of our emissions, as the previous question indicated to me, on which we need to focus very heavily. I think the argument for focusing on carbon dioxide is very clear as well. I think this is important. We are looking at a very different sort of industry. If we look at the carbon dioxide emissions, they are very much from the energy industry, and I would say, also, the building industry, whereas the emissions of other gases tend to be from landfill, tend to be from farming. It is a very different sector. I think there is quite a good argument for focusing on carbon dioxide because that is the key target. The second thing is that in terms of greenhouse gas emissions, perhaps it would not be amiss for me to point out that our emissions are around 11 tonnes of carbon dioxide equivalent

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per person per annum in the UK. In the United States it is around 21 tonnes per person per annum. In India it is 1.9 tonnes per person per annum. Our objective is to head towards where India is. We also need to note that in India 75% of that is from agriculture. We can bottom-down on the carbon from energy, but in the end we will be left with agriculture as a continuing source of methane. I think we will have solved the problem if we manage that.

Q118 Mr Kidney: In the draft Bill there are enabling powers to enable ministers to take actions later by regulations. The only actions are setting up trading schemes. Are there any other kind of enabling powers that you think should be on the Bill?

Professor Sir David King: Other than regulations and trading schemes. I am aware from discussions with economists deep into the night that we need to avoid too many different schemes coming in because we need to make sure that the market place delivers the most economic method of decarbonising our economy. I have seen with car exhaust catalyst systems, how regulation properly delivered can bring forward technologies that have not even reached first base, let alone the marketplace. The catalyst that has been recently developed here in Britain for the diesel-engined car captures all of the carbon particles, so we have seen a real clean-up. That is because in Europe standards have continually been ratcheted up by regulations. I think regulation can be a very good instrument for driving new technologies through, which is why I am in favour of that. Otherwise, I think very much it should be a price on carbon dioxide, which is what the cap and trade delivers.

Q119 Mr Chaytor: Could I ask about the trajectory of from emissions next, please. If we are intending to reduce emissions by almost 30% by 2020, in the next 13 years, why does it then need 43 years to get the other 33%? One would have assumed that if it is doable to achieve the first 30% or the first 13 years it is doable to achieve more than the second 30% in the following 30 years.

Professor Sir David King: May I come back to what I was saying about non carbon dioxide greenhouse gases. I think here the record over the last ten years has been very good, so a 41% reduction has already been achieved in methane. Equally noxious gases have been very substantially reduced so far. But then you reach a point where the low-hanging fruit have all been taken and it is no longer an easy business to reduce the non carbon dioxide greenhouse gases very substantially, so, as we move forward in time, that particular element of greenhouse gas emissions may have been squeezed already quite hard. Equally, with carbon emissions: as we move forward

in time, we will go for the low-hanging fruit first and then it will take longer. For example, I referred to the new built environment of which 30% will be newly built between now and 2050. That leaves 70% of the built environment as older buildings which came in before any regulations now being put through. Changing the old building stock for energy efficiency reasons is going to be much more challenging. I think the targets all emerge from this kind of thinking.

Q120 Mr Chaytor: Could I come back with one supplementary to the nuclear question: presumably, if there were a new generation of nuclear power stations, the first one would not see the light of day very much before 2020 and therefore nuclear will make a little contribution to the emission reductions by 2020, but a new generation will come on stream after 2020 and therefore could make a huge contribution to emissions after 2020? Again, I am struggling to see why the second 30% is going to take us all the way to 2050 if we were to have, as you would hope and assume, a significant contribution from nuclear in that second 30-year period.

Professor Sir David King: The anticipated amount of electricity. Today, as I said, we are at about 19% from nuclear. By 2020, 8% probably, and by 2025, 5%—we will be left with Sizewell B. You are quite right, there is a gap there as we build up new nuclear, if we go in that direction. I have a small difference of opinion with you. 2017 would be my target date for new nuclear build coming on stream. Then it is a question of how much longer can we keep the old stock running and obviously the Health and Safety Executive will have a clear eye on the lifetime of the existing plant. But your point is a very good one about nuclear. If it is agreed that we are going to have significant amount of new nuclear on the grid, then that does make the targets much more easily met.

Q121 Mr Yeo: I have one final question about the Bill itself. Meeting carbon budgets is going to require long-term policies which transcend the lifetime of a single Parliament. Do you think the Bill could be strengthened by provisions which might create a mechanism which would include the chances of achieving a long-term consensus across parties and across Parliaments?

Professor Sir David King: I think such a consensus is extremely important. I think it comes back to what I was saying about the Climate Change Committee gaining confidence in the public domain and in the political domain. Your point about consensus, Chairman, is absolutely crucial.

Mr Yeo: Thank you very much. You have been very generous with your time. This has been a very, very useful session. Thank you for coming in.

Witness: Mr Stefan Moser, European Commission DG Environment, examined.

Q122 Mr Yeo: Mr Moser, welcome. I am sorry to keep you waiting but you perhaps enjoyed the previous exchanges and you will have seen the procedure we are following. There is likely to be a division in the House of Commons while you are giving evidence. If that happens, we will suspend the sitting for ten minutes to allow members of the House of Commons to go and vote. Could I start off with a question about the EU ETS. Phase one, apart from demonstrating that you can have a mechanism, does not really seem to achieve much in terms of the goals we had hoped for. There has not been a reduction in carbon emissions as a result of emissions trading; there has not been significant investment in lower carbon technology as a result of the ETS. What makes you think that Phase 2 may be better?

Mr Moser: Phase 1 has, indeed, seen some difficulties. On the other hand, there is a recent study by Professor Ellerman from the MIT in the United States that the very existence, the very coming into place, of the EU ETS, even on the first phase, has already led to quite a number of abatement measures by operators covered by this scheme which may actually go up to 7%. It is of course always very difficult to know what would otherwise happen in the case if the scheme had not been put into place, but this figure is mentioned there. Phase 1 has seen a lot of difficulties in terms of data quality. Nobody, neither Member States nor the Commission had at the outset verified emissions figures and nobody knew actually how many emissions there were. This has now dramatically changed in the second phase. We have high quality data from 2005 which the Commission used as a starting point for assessing the National Allocation Plans and making sure there would be no over-allocation any more in the second phase. The market seems to share the view. We see that from the forward price for second phase allowances for 2008. It is currently close to €25 (nearly £17), which is already quite significant. It has risen recently, so the market is rather confident that there will be no similar problems as in the first phase.

Q123 Lord Jay of Ewelme: Following up on that question, I was talking to a number of businessmen yesterday at a meeting in Berlin, both European and transatlantic, and asked them at what price did they think it would begin to have a serious impact on investment decisions. They were obviously not prepared to give a precise figure but if this was €30 to €40 upwards it would begin to have a real impact. I just wondered what chance you thought there was of having a price which reached a level which would have a serious impact on investment decisions and therefore on technological development.

Mr Moser: It is not just for me, as a public official, but also for the Commission very difficult to answer this question because we do not have a view of the price. We do not have a target price in mind. The Commission has to make sure, using the powers given to it by the Member States and the Parliament, that the criteria mentioned in the Directive are respected, which are, basically, to avoid that there is over-allocation; that there is no allocation beyond

expected needs in Member States where the Kyoto target is already basically achieved, so that there is no superfluous allowances being granted; and in those Member States where the Kyoto target is still a challenge, that actually the National Allocation Plan provides sufficient reassurance that it will be met. This is what the Commission has done. The result of that is that there is scarcity in the market but it is basically a kind of consequence of what the Commission has done, so we did not sit there in Brussels and say, "What price do we need?" The price level is a consequence of the political ambition reflected in the Kyoto targets and in the resulting scarcity from that. It is basically now up for the international negotiations but also for the review of the Emissions Trading Scheme to see how much further ambition there should be in the future, and then in the third trading phase there may be even higher prices. Having said that, I think that for many abatement options the price as it is currently for the second phase, €20/€25, which may also still go further, already has a certain impact. Even for technologies which are extremely innovative, like carbon capture and storage, it is said that the marginal abatement costs are about €40 currently but they may come down to a range between €20 and €30, and maybe even at the upper level there, €27 for example. So the price gap is already quite close and, if this is coupled with government support or other public support, there would be much less need for further subsidies or further measures than if the scheme were not there.

Q124 Mr Hurd: Do you believe there is a case for setting a floor for carbon pricing in the European Emissions Trading System and what do you think the scope is for linking the European scheme to other carbon trading schemes in a post-2012 agreement?

Mr Moser: The view is basically that there should be no restrictions to the working of the Emissions Trading Scheme as a purely market-based instrument, so neither a floor nor a ceiling, basically price caps, as they are called, or other safety valves. A floor would also be an artificial mechanism, even if it is more beneficial at first sight than a price cap. The price should basically be a result of the underlying decisions taken as regards ambition and should be allowed to react to that freely, without any constraints. This is one of the major components, one of the major building blocks for linking, too. If the European Union were to see that there were schemes elsewhere in the world which would have such safety valves, such price caps notably, which would somehow cause distortions in the exchanges, then the case for linking would be rather weak. It could create problems for European operators, and there would be a distortion in the trading taking place. If you have price control in one part and there is a link to a scheme where there is no such price control, one would not really know what the outcome is. In that case, it might be better not to link. There are also other important design elements which would prevent linking, for example, very strong updating components. In the European Union we have basically said that the scheme should

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be defined at the outset of a trading phase. You have a decision on the total cap in each Member State or at EU level and this is then fixed for the whole trading phase so that operators, and everybody involved in the market, knows what to expect, but there should be no retroactive interference by public authorities or anybody else, so no ex-post adjustments, no updating component. The two issues—no price cap (no safety valves), and no updating—are the major conditions for linking. Of course, also a similar ambition level is a condition for linking, ie. that you could not link with a scheme that basically has a very weak ambition level and a natural price which would be extremely low and with a scheme which has a very strong ambition level. From the practical point of view, you would also have to make sure that the schemes to be linked had very strong monitoring, reporting and verification, so that no cheating takes place, and so that the credibility of the whole scheme when it is linked is not damaged.

Q125 Lord Teverson: On that area, auctioning of permits: for it to really bite on industry, so that they really have to take notice of it, auctioning would have a big effect. The current Emissions Trading System allows for a certain degree of auctioning, I believe, but that has hardly been used at all. Do you think that instrument, of having to auction, or an increasing proportion of auction permits, is something that is important for the future? I am also interested in that in relation to combining your point with other schemes; presumably, you would have to have similar auctioning regimes in schemes that inter-operated.

Mr Moser: Yes. At the beginning, indeed, when you link you should have similar, comparable schemes, basically for all aspects. If there is a very strong difference in design, for example, auctioning in one case, if you have 100% free allocation and in the other case, 100% auctioning, this would be a very considerable burden on the ones, while on the others it would be just the opposite and therefore it would not even work from a fairness point of view. Auctioning is probably the allocation method for the future. Even in the second trading phase now we have quite strong support, which has grown recently. The UK has been, again, one of the Member States that went ahead, which showed leadership in that respect, by saying they want to auction 7%, if I do not get the figure wrong. However, Germany has just recently decided, or at least, there is political agreement between all parties, as far as I know, that they would like to auction close to 10%, which is a huge change, a huge step forward. The government proposal was for no auctioning whatsoever, but recently the shift in opinion is due to the debate on windfall profits in the power sector, and the allowances to be auctioned are mainly to be obtained from the power sector, which is squeezed; it is allocated much less than needed to the power sector ie. they take the auction allowances from the power sector, whereas the energy-intensive industries, which are usually exposed very strongly to international competition, get free allocations.

That is also the principal idea in the United Kingdom in the first phase and also in the second phase, which has spread across Europe and which is now, I think, the primary model. Auctioning has certainly gained ground. Together Germany and the United Kingdom have quite a significant share of allowances to be auctioned, which will provide extremely useful experience for the third phase and for the review, because so far we have only very limited practical experience in four Member States, including Ireland, Hungary and Lithuania. This will change for the second round and there is now a debate on the review of the Emissions Trading Scheme. We recently had a stakeholder consultation in Brussels, on 21 and 22 May, and from academics at least and from market professionals, auctioning is advocated as the method, whereas industry, of course, interest-led, say they do not want auctioning but would prefer benchmarking. I think the way forward could be auctioning for the power sector, which has the best opportunity to pass on costs, but at the same time, auctioning would ensure that there are no windfall profits, so basically no additional money to be gained from being able to increase the price because you have opportunity costs from the allowances being created and at the same time getting free allowances. So you would have to pay for the allowances and you are then able to increase the price, so there are no windfall profits, and society can basically decide what to use the money for. It could be fed into the general budget, but it could also be used to finance further action on climate change, renewables or energy efficiency measures.

Q126 Lord Crickhowell: We have already seen quite extensive use of foreign credits, and I know a number of countries envisage growth in the use of foreign credits. A convention has grown up that 50% is the upper limit. Do you think that there should be some kind of minimum percentage that any country should take to its own carbon reductions or would you leave that entirely free to the market as well?

Mr Moser: There are different views. There are economists who say there should be no limits whatsoever and the cheapest abatement options throughout the world should be used. This is not my view but this view is voiced by rationally arguing people. The contrary view is, basically, that the developed world should not take away the lowest hanging fruits, the cheapest abatement options, from the developing world and a compromise in between is laid down in the Marrakech Accords, which are the basis for the Emissions Trading Scheme, and that is complementarity. So you would have to make sure that most of the efforts are made at home but you can make certain efforts abroad, notably in developing countries.

Q127 Lord Crickhowell: Taking that point, there is an acceptance that it has to be supplemental and I think those engaged in grading generally accept that but you have to move on. If Europe wants that to happen, it has to move on, or internationally there

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has to be a move which says it should not exceed a certain amount. Do you think that is going to happen?

Mr Moser: I think it will be maintained. I do not know what will happen but I think the general idea will be maintained. What the EU has done in the second trading phase is translate this still undefined notion of complementarity, as undefined in international law, into a concrete figure by actually providing methodology for saying what the figure should be. The idea is indeed that half of the effort can be achieved by outside action. There are two ways of doing the effort abroad: one by government action, so governments will invest in developing country projects, and bring the credits home in order to have a bigger budget for everybody, or by allowing companies to invest in such projects, either directly, or indirectly, by buying credits on the secondary market for credits resulting from such projects, and then to use them for their own compliance. The Commission has basically deducted what governments purchase abroad from the overall amount which is allowed, from the 50%, and the resulting figure can then be granted to companies, to operators. This has resulted in percentages between 10 and 20-25% so far. It was also a political necessity. Legally it was defensible but it was also a political necessity to allow some of the states to go further in bridging the gap by government purchases, otherwise they could never achieve their Kyoto target. In each Member State with government purchases the consequence is, however, that operators have less margin to use such credits, so indeed, there is quite a limit now. Some Member States are not happy that the Commission has been so strict, but there was a balanced approach and I think it will be maintained in the future.

Q128 Mr Kidney: There is a debate in respect of the draft Climate Change Bill as to whether emissions from aviation should count towards our target at the beginning or be considered later. Could you help us by looking at the European picture? What is the current thinking about whether or when aviation emissions will join the ETS? When you told us earlier that there has been robust data for emissions since 2005, is that simply for the sectors that are participating in the ETS now or does it include other sectors, and does it include aviation?

Mr Moser: It refers to the sectors covered in the scheme currently. There is a reinforced monitoring and reporting mechanism followed by third party independent verification, and these figures are the high quality data. So it does not really refer to sectors outside that. Aviation and maritime transport, international shipping, are very important sectors in terms of growth of emissions. Both, according to the plans, and to the proposal for legislation already submitted by the Commission regarding aviation, are to be included in the Emissions Trading Scheme. They are currently not covered by Kyoto but I think they will also be included in future international frameworks. It is in our opinion necessary to include both sectors in order to be sure that there will be no dangerous

climate change, so the target is always to avoid climate change of more than two degrees by 2050 and, as aviation and shipping are such tremendously growing sectors in terms of emissions, it is important that they are taken care of within the overall ambition level, and therefore I think it would be better to include them in the domestic target to give a signal that the government has made provision. There can be a review of that once international developments go ahead, but it could provide added value to give the signal now and say it should be included, given that in Europe there is a very high probability that it will also be included. The Commission has made a proposal for legislation. The inclusion should take place as of 2011 for domestic aviation and one year later for international aviation. This is still pending talks with international partners, because they are opposed to that. The legislators, the Council and the Parliament, may take a different view, but so far we have seen very strong support from Member States in the Council and also from the Parliament to go ahead and show leadership at the European level, and with your very innovative Bill in the United Kingdom, which again, moves ahead of everybody else, you could give that signal to these two sectors and say they should be included. The 60% which you mention in your Bill would then be even more ambitious because these two sectors are growing so strongly in emissions.

The Committee suspended from 5 pm to 5.10 pm for a division in the House of Commons

Q129 Earl of Caithness: You mentioned that Germany had started auctioning. What are the other EU Member States doing? Is any other Member State following Britain down the road with something like the draft Climate Change Bill? Are there any long-term targets which might fit with what we are doing?

Mr Moser: The UK is really showing leadership here. There is no other Member State which has yet even had the idea to put up a similar Bill, where you basically address the often criticised lack of certainty with respect to long-term targets. What other Member States have done so far is to announce political targets, but these are basically just political statements, not much more than that. So the UK is now moving ahead and showing, in our opinion, how it should be done by setting up an institutional framework and institutionalising the target by putting it into law. Of course—and this is a very good idea—it is subject to a review clause because indeed, in the next few years there will be quite a lot of movement on the international front, at least hopefully, so the United Kingdom might want to reconsider the figure, eventually even going further than it has now, more than 60%, if others follow suit, and also scientific evidence might accumulate over time so that even more might be needed. The EU as such has actually spoken of a long-term target of 60-80% and it seems it would be advisable for developed countries to move further on, even towards 80%, because the developing countries will of course have

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a lot to catching up to do by 2050. So in order to be sure that dangerous climate change is avoided, the developed world might want to move further on, and should actually move further on, but I think it would be expecting too much of the UK now to say it should be more than 60%. I would agree with what Sir David said before: for the time being it is a reasonable figure, but there should be more ambition for many developed countries in the future still.

Q130 Mark Lazarowicz: Although you have told us there are no other EU countries where such legislation is in place or imminent, is there any serious discussion in leading political quarters about the position of such legislation in other EU countries given that the UK is now coming forward with these proposals?

Mr Moser: The forum where such serious discussion is already taking place is the Council of the European Union, where Member States have agreed politically, even if there is no international agreement, to unilaterally reduce greenhouse gases by at least 20% by 2020 and if there are other developed countries following, if there is international agreement, it would even be 30%, and that there should be a long-term target of 60-80% by 2050. Legislation is being drafted and is to be proposed in the autumn of this year, and then of course it will go through the institutions, legislation on the Emissions Trading Scheme but also on renewables and energy efficiency. The general EU target will have to be translated into Member State targets, so there will be pressure from Brussels on those Member States who would otherwise not be doing what the UK is doing to develop more fleshly strategies in the future, once they have the guidance from Brussels, and once the dynamics in the Council have pushed things forward. I think what the UK has shown here is what many Member States should also consider, but I think the UK can also rely on European processes, of which it is part of course, and provides extremely invaluable inputs all the time in the field of climate change, but other Member States will not be out of the picture in the long term so they will also have to come up with measures. We have, as I said, several important areas which are relevant in this respect, which is renewables, energy efficiency, and the Emissions Trading Scheme. For the later, it could be agreed in the context of the review that there could be centralised allocation and cap setting from Brussels, so at a European level, for the trading sectors, notably the energy sector. Once this is done, if there is basically a target for the EU ETS sectors in Europe, and not just a target but also a fixed cap, a concrete cap, this could be regarded as a separate entity, or a “28th Member State”, as it was called in the stakeholder meeting in Brussels in May. The EU ETS sector would for the whole EU be allocated according to certain common criteria, avoiding distortions of competition arising from different national allocation methodologies, while Member States will remain responsible for delivery of results in the non-trading sectors, notably most of the transport sector and also households, et cetera,

which are still responsible for about 50% of emissions. If it should be agreed that there is centralised EU cap setting for the trading sectors, then this could be deducted from the targets of Member States and Member States would only be directly responsible for delivery of results in the other sectors.

Q131 Lord Woolmer of Leeds: In the UK draft Bill targets are to be set for five years times three, over 15 years. If this is such a good idea, why is the EU ETS not over 15 years?

Mr Moser: This is one of the crucial issues to be looked at in the review. There is a persistent and very legitimate call from stakeholders but also from academics and market participants to increase the length of the trading periods, currently five years. Let us leave aside the first period, which was a testing phase. Now we have a trading phase in the second round from 2008-12, which is five years, and which would also be the length of the third phase unless the Directive is reviewed. It is likely—and this has already been said publicly—that the next trading phase will coincide with the political date of 2020, which is the one which is so often mentioned for a variety of targets. It could be imaginable that the next trading phase will be eight years, from 2013-2020, but there are also calls to go further than that in the future. The ideal length of a trading period is disputed. It was also suggested by researchers and market participants that it is not wise to have very long trading phases, of, for example, 30 years, because then there could be a disincentive for operators covered by the scheme to reduce emissions. They could say “Thirty years is a long time; we will do nothing now and start thinking in 15 years” and that is it. So there is a trade-off between providing certainty and actually maintaining the incentives, so more or less eight to 15 years should be reasonable and should be a correct balance. Having said that, it does make sense to provide political signals, or even more political signals, as the UK is envisaging in the draft Bill, to say we will have a trading phase of however many years, for example eight or 10 years, but in addition to that provide signals as to what the outcome should be in 15 or 30 years. That is why I think it is a very good idea to have enshrined in law targets with a time horizon of 15 years and I think the EU would also need to consider that and is considering that. It is already doing that for 2020, where it has already said what it wants to achieve, but also for 2050, so the market and operators know in which direction it will be going. Operators know and companies know that there will be scarcity for carbon in Europe, therefore yesterday’s world, where you could basically pollute without any restrictions, is over and you are encouraged by this knowledge to make investments, to go further and really make sure that you are not a major emitter in the future, because the message is there that free allocation is also a thing of the past, at least for power generators. If you know that in the future there will be a restriction on carbon and at the

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same time there will be the need to buy allowances, you know it pays to invest now and make improvements.

Q132 Lord Whitty: I would like to explore one possible potential interaction between the European trading scheme and the Government attempting to meet the targets that it has set itself in this Bill. If down the line the British Government found itself under-achieving the target and it decided, or conceivably was required by Parliament, to take steps to meet that target, and one of the ways of meeting it were to be to buy credits on the market, would the intervention of the Government in that sense matter or would it have a detrimental effect on the functioning of the scheme itself?

Mr Moser: I think it would not have a detrimental effect on the functioning of the scheme because if such buying of credits is done in a reasonable way—and I have no doubt that the United Kingdom government would do so—then there would be no additional emissions; there would be emissions savings elsewhere in the world. Either you buy credits from the European Trading Scheme, therefore the overall bubble in Europe would not become bigger, or you invest in emission reduction projects in developing countries, for example, and at the same time transfer clean technologies there. Then you would also make sure that emission reductions are taking place. Many governments are doing that. The UK is relatively restrictive in that respect. It could do much more under the current framework internationally. It is a decision, a well-respected decision, not to do it, but it would be allowed to do more already, so there is no reason why the UK should not be allowed to act in a similar manner, if it chooses to do so, as other countries. As long as these projects are carried out in a credible manner, so there is no cheating and there is proper compliance, there is no problem for the market.

Q133 Lord Vinson: You have just raised the very point I would like to raise, and thank you for battling on so well with us. Our leading paper, the *Financial Times*, says international carbon trading is a huge scam, because if a company or nation buys millions of pounds worth of credits from China, how on earth does anybody verify that 20 million trees are going to be planted over the next 20 years? It has been described as another form of backhanded overseas aid to under-developed countries. What do you think the EU can or should do about it? Unless people have total confidence in the trading scheme, if some of it makes people feel good but does not actually do any good, we are all wasting our time. How do we verify that the overseas credits really do reduce carbon in the countries selling them?

Mr Moser: We are aware of the article in the *Financial Times*, and it is very good that journalists uncover the bad projects that are still around, not only in Europe but also at the international level. Also within the United Nations there has been a learning process over the last few years. All this was relatively newly set up and now it appears that there are good projects but also bad projects; even projects

which have been approved by the United Nations are not always good and they may actually be credible in terms of emissions reductions, but at the same time it appears that such projects should no longer be done in the future. Notably, in China there have been projects which are taking place in areas where China should actually reduce emissions anyway, in certain f-gases (fluorinated gases) which result in a huge transfer of resources to China. This has produced bad news in the eyes of certain observers, also for some people in the United States. We have had several visitors from there in the past who are quite worried about that and see the credibility of the Clean Development Mechanism as threatened. That would require reflection at international level also within the United Nations to see how such projects could be avoided. The *Financial Times* in a recent article also criticised offsetting projects in general, in particular voluntary offsetting projects, and there you also have black sheep. I think the market can to some extent self-regulate but there may also be a need for regulators to look into that in order to make sure that such things do not happen because if they do, the bad news will spread and confidence in general will go down. It is a matter of a few years. It is a relatively new thing and, as in many other fields which are new, you make mistakes, things were not completely thought through or things came up that you did not envisage, and you have to take measures such that they are not continued in the future.

Q134 Mr Yeo: We are running out of time, I am afraid. Can I ask one last question about the relationship between what individual Member States may do in setting carbon budgets and the overall EU strategy? We may have a situation in Britain, for example, where this independent committee sets a target which the government is obliged to meet. Do you see any risk that there could be a conflict between a national policy and the EU policy?

Mr Moser: I do not see a potential conflict if the national policy is more ambitious. There will always be certain parts of the economy which will not fall under the EU Emissions Trading Scheme, but where national policies and measures are required. Nevertheless, these policies, in such areas, for example, as households, are clearly important in terms of emissions. There is also some regulation from Brussels, but in my opinion it is not imaginable that it will ever fall under the Emissions Trading Scheme. But Member States will have to respect emission reduction targets and make sure that the overall contribution is sufficient, that there will be no dangerous climate change, and if the measures taken at national level, if the targets are ambitious enough, that is fine. If they are not, there could be a conflict. If, for example, other Member States, not the UK, decided to do nothing at all in the non-trading sectors and say “We are already part of this Emissions Trading Scheme and that should be enough,” overall delivery would not be sufficient. But in the case of the UK, I think rather the contrary is the case, in that you are providing leadership in

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showing where people should be going. I cannot imagine that you would ever consider being less ambitious about what should be done or what the EU would require in terms of overall targets.

Mr Yeo: I am very grateful to you for your time. I am sorry it was a slightly disjointed session but we certainly have some very valuable material to work with. Thank you very much.

Witnesses: **Dr Tony White** and **Mr Rupert Edwards**, Climate Change Capital, examined.

Mr Yeo: Good afternoon. I am sorry we are running behind time. Welcome to the Committee. I think I probably reflect a consensus when I say I will have to leave at quarter past six even if we have not covered every issue, but someone else might be able to take the Chair.

Lord Crickhowell: Can I start by declaring an interest, because Rupert Edwards is my son.

Earl of Caithness: Can I declare an interest too: he is married to my niece.

Q135 Lord Woolmer of Leeds: Do you envisage in the operations of this Bill when it is enacted that all UK carbon markets would be integrated, that there would effectively be a single carbon market for the various schemes operating in the UK and, following on from that, if there is, and if the UK emitters who are part of the European Emissions Trading Scheme are able to trade in Europe as well as in the UK, does that not mean that the UK carbon price can never stray away from the European emissions trading price?

Dr White: If you had a number of different schemes and you could use an allowance given to one scheme to meet your obligation in another scheme, as night follows day, they will equate to the same price, but we are in that position now; we have a European allowance, the EUA, and there is no way that the price for an EUA in the UK is going to be different from the European one. Whether we choose to make these various trading schemes able to trade with each other is another matter entirely and I am not yet convinced that that is the way that you would necessarily go to start off with. We are on very new ground here and I would recommend if we had a new scheme for the industrial and commercial sector that maybe initially it would not be tradable with the other one.

Q136 Lord Woolmer of Leeds: So you do not think it would be necessary to put on the face of the Bill anywhere the requirement for the committee or the government—probably the committee—to spell out the operation of each of the different schemes and how they relate to each other? In principle, the objective, as the first witness today emphasized, is to find the least cost way of achieving carbon emissions and the logic behind this Bill is exactly that, the least cost way, and if the markets are not inter-related, you are going to be saving carbon in very inefficient ways. Some people would argue that at the moment we are doing that.

Dr White: That is certainly correct. The larger the scheme is, the economics tells you that you will get the right kind of action being taken, but we are at a stage now where we have one decent scheme, as I

would call the EU ETS, and that, at the moment, it is complicated by the fact that there is an unknown amount of allowances that could come in from the developing world. That means, I think, we do not have one wonderful large market at the moment and, because of that, we should take that into account when we are designing schemes. If we had one big, global scheme, that is one thing, but we do not, so how do we cope with that? Rupert might like to add to this later. One of the things is that we think there should be a restriction, for example, on the number of CERs that can be given up into the European scheme. That is healthy at this early stage. In the long term, I would hope, when China and India are involved in some way, there should be no restrictions. The other thing I would say in terms of the Bill spelling out how various things work, one thing that did make my hair stand on end was the fact that the Bill seems to be saying no auctioning, that all the allowances in new trading schemes should be given free. I do not see why we should restrict in that way.

Q137 Earl of Caithness: You have answered half of my question. What would you like to see changed in the Bill given the uncertainties that businesses face at the moment of what the targets might be after 2012?

Mr Edwards: In addition to the question of auctioning allowances, there are two things that we would recommend be changed. The first relates to a bit more clarity about what the priorities of the Climate Change Committee should be, and a bit more about that in a minute. The second relates to a little bit more clarity about the concept of complementarity and the import of emissions credits into the scheme. On the first, I think it is important that the committee is not asked to do too much. The Monetary Policy Committee is asked to target inflation; not inflation, fiscal policy, social policy, the trade deficit and so forth. There is a slight risk on reading the draft Bill that the committee is asked to take into account not just what the science is saying about what the trajectory ought to be but also economic and technological and socio-political factors, and I think it would be helpful if there were a clear signal that the committee's primary objective was to take note of what the climate change science was saying and that they look to close the gap between what the science is saying and what policy is actually doing, rather than try and balance that with, for example, dealing with social issues like fuel poverty.

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Q138 Earl of Caithness: Would you want the committee to be more independent as an advisory committee and say “This is what we think the science says, this is what you should be going for” and leave it to the Secretary of State to decide from there?

Mr Edwards: The committee is being asked to make, by the looks of things, some independent recommendations. It is just that it is being asked to take into account an awful lot of factors in making those recommendations. Its primary responsibility should probably be, I assume, to look at the climate change science and decide if 32% or 60% emissions reductions trajectory is correct and then make recommendations around that, rather than try to balance that with a number of other socio-political factors which it should be up to Parliament to deal with outside of that specific recommendation.

Q139 Mr Chaytor: Is there yet an agreed definition of the concept of supplementarity?

Mr Edwards: The concept of supplementarity in international law under Kyoto and the Marrakech Accords is deliberately a bit vague. There is no specific number in there but at its loosest it can be read as and tends to be interpreted by those governments in Europe which have a larger distance to the Kyoto target as meaning that import of credits from abroad or rather domestic emission reduction should be at least half of the effort made towards the Kyoto target. That is fine for the first phase of Kyoto and has worked very well in stimulating the Clean Development Mechanism and Joint Implementation. It looks a little bit past its sell-by date in the draft Bill because I think, for example, taken at its loosest, it might mean that if the UK had a 60% target, it could meet half of the target by domestic emissions reductions and half the target by emissions reductions abroad. Whilst there are lots of extremely good arguments for least cost emissions abroad, the science is telling us that they need to be additional to industrialised countries making 60-80% emissions reductions. I think that the draft Bill may make it difficult for the Climate Change Committee to make recommendations which are not quite strict about what the UK’s own internal reduction targets should be, and I think a little bit more clarity around the need to both support international emissions trading and the bending of the emissions curve in developing and transitional economies while at the same time meeting an internal 60% domestic target needs to be clarified.

Q140 Mr Chaytor: Therefore, would you advise that the draft Bill be amended to include a cap on the number of credits that can be purchased?

Mr Edwards: It is difficult for the draft Bill at this stage to come up with a specific cap on credits from an international Emissions Trading Scheme which is going to change significantly in both character and scale over the coming few years and decades. I think behind the question of whether the draft Bill should contain a cap is an anxiety about what supplementarity means and the looseness of the domestic versus international emission reductions question. It is very difficult at this stage to set a cap

of 5 or 10% or 15%, and I do not know what that number should really be. I think that is one of the first things that the committee should make a recommendation on. But I do think that the Bill should say now with a little bit more clarity that it thinks the committee should make a recommendation on a cap based on both a strict interpretation of the UK domestic target as well as a desire to support emission reductions abroad.

Dr White: As Rupert said, we really do not know what the landscape is going to look like after 2012, and it is my hope, and one of the ways of getting the developing world in is that maybe we go for sectoral caps, soft caps or hard caps, whatever they are, for countries like China, maybe their utility sector. If we did that, I would feel, and I hope you would agree, that their emissions reduction rights, if you like, should be the same as ours because it is the same kind of industry and we would expand the market quite considerably. I feel differently from that on having maybe some HFC23 projects in India that could come in, a larger part of those allowances coming into the EU ETS, because the reason why I think at the moment we need a cap is the fact that, if there were unlimited amounts of emissions reductions available out there from developing world, you would end up with a zero price at the end of Phase 2, and that is the thing we fear most.

Mr Edwards: The important point is not to denigrate the value of emissions reductions achieved overseas, though you need to keep an eye on the robustness of the system, that they are economically efficient, because generally speaking it is cheaper to take a tonne of CO₂ equivalent out of the atmosphere in developing or transition economies than it is here or elsewhere in the industrialised world, and it sponsors north-south technology transfer, shows leadership and it provides a safety valve on very high carbon prices currently in the early stages of the EU Emissions Trading Scheme. But we need to be careful. The committee is going to need to be careful that it does two things: that it prevents the flood of cheap foreign credits into the UK such that we end up with a carbon price in the UK or within Europe that is too low to stimulate the kind of low carbon technology and infrastructure investment that we might need to make, and the price in the market will move up and down; it might be 30 or 35 euros, for example, when you might be able to achieve emission reductions in China, Brazil or India at anywhere between 2 and 8 euros at the level of the individual projects or sectors. So you need to have an internal carbon price that stimulates investment in the UK and in Europe. At the same time, the committee is going to need to factor in the way that it actually sponsors demand for overseas emission reductions and incentivises not just sovereign transactions and multilateral aid flows but also quick, speedy, innovative private sector investment in what is going to be a very scaled up attempt to change the trajectory of some of the big developing country emissions curves.

Q141 Lord Crickhowell: That is quite a good point to go over the issue which was discussed by Mr Stefan Moser. He described good and bad projects, and he

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made a reference to the market regulating itself. Climate Change Capital I know has some experience of China and so on. Have you any comments to make about good and bad projects and how they perhaps might be policed so that we have fewer bad ones and more good ones?

Mr Edwards: The *FT* made some points about the voluntary retail market, which is outside the Kyoto framework. It also made points about there being certain fluorinated gases which it was very cheap for the Chinese to reduce emissions from. That is perhaps something the Chinese Government should regulate. By and large, there is really very little questioning of the robustness of credits that come from the CDM Executive Board at the UN. Occasionally there is. The CDM Executive Board is regarded as a little bit cumbersome and slow but by and large robust, and the credit is generally seen to be representing a tonne of CO₂ equivalent taken out of the atmosphere and a number of very detailed methodologies are pored over by the Methodology Panel of the Executive Board, they are open to a process of transparency and public scrutiny, the NGOs cast a very beady eye over them and there is a review period of individual projects. Generally, I think the criticisms are about the extent to which certain projects should be part of normal developing country regulation rather than the subject of carbon finance, rather than the fact that they are “anyway” tonnes or projects that do not have any additionality. There is a lot of controversy about the subject of additionality but I think the Executive Board definitely ends up on the side of taking a very conservative approach to this. There is then a question of what happens when the system moves away from individual projects with defined boundaries, where there is a very easy monitoring of the methane emission reductions or the displaced electricity or the nitrous oxide gas emission reductions, to programmatic or sectoral or co-financing of policies, as I think we are going to see in the future, projects that cover the entire iron, steel and cement sector in India and China and we are looking at baseline data which will need to be scrutinised for validity and robustness. I think it will be, and the UN will really, in its analysis of individual nation states’ eligibility criteria on Kyoto, have to look at their inventories, and that is a pretty rigorous process. Although the scheme will develop in the years ahead, I think there will be a good deal of public analysis of it. The Science & Technology Committee, for example, of the UNFCCC is currently looking at the issue of carbon capture and storage and issues around potential seepage of CO₂ from CCS projects, which everyone recognises are an absolute necessity, and I think people will pore all over those to see if there are any weak spots, and if we end up with a CCS methodology for international emissions trading, I think it will be a very robust one that we can have confidence in.

Q142 Lord Crickhowell: You have covered very thoroughly the Clean Development Mechanism. In your evidence to the Committee, which you gave in the House of Commons the other day, you also

described the Commission’s Trading Scheme Directive in European law as a tough piece of hard law. I am not going to ask you to comment on the effectiveness of the legal disciplines contained in this Bill on the British Government because I think that would be unreasonable and I have a particular interest in it, but I would like a further comment on the lines that you gave to the Committee in the House of Commons on the tough law behind the European trading scheme.

Mr Edwards: In contrast to international law, which tends to rely on reputation and less robust compliance mechanisms, the EU Emissions Trading Scheme Directive is a very robust piece of legislation and I believe very few companies will fail to comply with it other than by accident. If you do, in the first phase you have a 40 euro fine and you still have to go and buy the allowances. In the second phase, 2008-12, you will have a 100 euro per tonne fine and you still have to go and buy the allowances and, depending on which legal system in the EU you are under, the CEO can have criminal charges put against him. So it is a system that will be complied with almost entirely.

Q143 Mr Hurd: It is quite easy for politicians to talk about the benefits of a global carbon market, single price and all these things, but there are clearly enormous complexities underlying it. Do you think we have the right institutional framework in place to manage the interoperability of these systems and to regulate those?

Dr White: I would say quite clearly at the moment we have a global market, which is the Kyoto Protocol, and we have a European system which floats around inside it. What we want to do is expand the European system to cover all the other private sector and individual sites rather than national governments, because that is what creates action. We do not yet have the institutions to be able to say what number of allowances is going to be created across the globe and how they are going to be allocated, whether auctioned or what. We just do not have those institutions in place, but I think we have an embryonic institution in place in the form of the EU ETS. What I think is interesting about that is that national governments seem to be giving up their sovereignty to a certain extent and leaving it up, in the case of Europe, to the European Commission to set the rules for the European scheme and to set the allowances for the European scheme. Maybe that is what is going to develop if we were to expand the EU ETS to include other countries and other sectors.

Q144 Mr Hurd: Does that argue for a new global body too?

Mr Edwards: I think, first of all, the Commission is doing a good job in trying to balance levels of demand in Europe with levels of supply of imported credits without the help of many of the Member States governments except the UK and Defra. It has done a good job in Phase 2 but it will become more complex as we try and link up, as we ought to ideally, with other schemes. It would be nice to link up with the Californian and West US schemes but there is a

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risk if you do that that, if they have slacker targets, you end up with a lower price and a slacker system overall. So although the ideal is to have a global trading scheme with a global body running it, and then emissions reductions achieved perfectly at lowest cost all over the world, I think the reality is that we live at the moment in a plurilateral regime where only Europe and Japan really have emissions reductions targets, where developing and transition economies are involved but they represent a source of supply, where Australia and the US are going to develop schemes that will not initially be linked, and that we will have to strike a fine balance between ensuring that we support international emissions trading on the one hand and also support the aims of the draft Bill in terms of UK emissions on the other.

Q145 Lord Vinson: The question of enforcement slightly worries me. Do you visualise a substantial secretariat, a carbon police offshoot of Defra? How in fact are these emissions (a) going to be set and (b) who is going to do the enforcing to see that there is no cheating? It is a very easy thing to fiddle, I should imagine. I am worried about the actual structure of enforcement, so as to see fair play.

Dr White: My Lord, which trading system are you really talking about?

Q146 Lord Vinson: You are granted the carbon credits, so somebody has to grant you them. Then, if you buy a carbon credit, somebody has to be seen to be genuinely selling you one. For the actual enforcement to meet your targets, you have to measure the amount of carbon that you have actually saved to be within that target, and what will the penalties be if you are not? I am talking about an individual per company basis. Somebody presumably has to supervise this.

Dr White: That happens already.

Q147 Lord Vinson: Yes, but we are talking about on a much wider scale.

Dr White: The question then is will there be self-certification going down the size chain.

Q148 Lord Vinson: The micromanagement almost of carbon control.

Dr White: That is one of the things that I would thought the Climate Committee would be looking at because that is the balance between to what extent you put massive administrative costs on the scheme and to what extent you get the change in behaviour that you want. That is one of the reasons why I think the EU ETS and any new schemes that we come up with should work, initially at least, independently. The one thing we found out from the EU ETS where we really dropped the ball was that we had no idea what the emissions were to start off with and in the end that meant we over-allocated so we had the windfall profits and everything else. If we go to another trading scheme, we would want to make sure that we knew what the emissions were in the first place and then allocate free of charge or maybe auction. I would have thought that would be the better way forward. It is a balance between do you

want to make it easy to comply or do you want to make it very, very difficult to comply with all the reporting regimes, and that is a question of costs and balances, I cannot answer that.

Mr Edwards: If you are coming up with an emissions trading scheme that is very difficult to monitor then you might be better off with a fiscal or regulatory measure and that would be something the committee, I am sure, would look at.

Q149 Lord Whitty: I have two questions, one of which is to ask for your comments, if any, on the levels of banking and borrowing provided for in the scheme. I was also going to pick you up on something you said earlier about the role of the Climate Change Committee where you were saying it needs to have a very clear remit whereby it concentrates on interpreting the science rather than looking at wider issues, in particular what you call social and political issues. I can understand why you are saying that in terms of running a scheme because a trading scheme is designed to deliver the lowest cost per tonne of carbon saved, however there are other considerations in terms of the acceptability and the deliverability of policies that broadly could be called equity between different sectors of the population which surely the Climate Change Committee has to take into account in making its recommendations. After all, the Monetary Policy Committee does take social and, if you like, distributional aspects of their recommendations on interest rates into account.

Mr Edwards: I do not want to step too much outside my sphere of expertise by going into social policy. I think it is important that people look at the Bill and believe that this is going to send signals about a meaningful carbon liability for UK industry and for investment in a low carbon economy over many decades, and if people read the Bill as, "Well, we would like to get to 60% obviously as long as people do not mind having to pay taxes on planes, or as long as housing policy is up to providing people with warm and dry houses, or as long as the CBI does not moan about it"--- The great thing about this Bill from my perspective is that it goes a long way in depoliticising the climate change issue in a way that perhaps monetary policy has been depoliticised. The same levers of power are not being given to the Climate Committee as the interest rate tool for the MPC but I think we see it has a pretty clear mandate which is to stick to inflation targets and it is up to the Chancellor and the Government to deal with social and economic issues outside of that, and there is a widespread acceptance now that is a sensible way of doing things. I think there is a risk that you can have a committee of technical experts that is asked to consider the climate science and it comes up with a 60 or 80% target and then just says, "It is too difficult for reasons of equity". I am not sure how one committee can balance all those things in its deliberations very easily, it is going to come under a lot of pressure from a lot of different stakeholders and there should be other arms of government dealing with issues of distributional impacts or

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equity impacts and targeting vulnerable communities with fiscal or other measures if necessary.

Dr White: On the banking point, we have no problem with banking in so much as that really encourages early action. Borrowing we have got more of a problem with because if you borrow too much and just keep putting off the evil day you never have to worry about anything. I would like to put a limit on the borrowing as, in fact, is already suggested. Also there should be a bit of a penalty with it maybe because there is no doubt that emission reductions now are much more valuable than emission reductions in 2045 or something. Maybe there should be a 20/30% penalty included as well. That is all I would really say about that.

Q150 Mr Kidney: Can I ask you about enabling powers. First of all, thank you for pointing out that future emission schemes permitted to be set up under this Bill do not appear to provide for auctioning. I had a quick look at Schedule 2, because you told me to, and, indeed, in paragraph five are the words: "The regulations (a) must provide the allowances to be allocated freely of charge" and "(d) may specify the method of allocation". It is pointless to specify auctions if the only valid bid is zero. Do you see that as kind of an error and it is something that just needs to be changed in the drafting?

Dr White: I think so.

Q151 Mr Kidney: You clearly argue for there to be permission for auctioning as a valid method of allocation.

Dr White: Yes.

Q152 Mr Kidney: Do you see the enabling powers as relating only to setting up new trading schemes or do you see this coming back to things that already exist?

Dr White: That is a very good and difficult question. The problem with the Bill as it is at the moment is it does not really tell industry what they have to do but it provides a framework to produce the measures that will tell industry what they have to do. I am happy with the three times five years, maybe I would amend that a little bit. That is going about it the right way. I am sorry, my brain is going, what was the other part?

Q153 Mr Kidney: Under these enabling powers would you expect ministers to pass regulations to set up completely new trading schemes or do you think they could come back to schemes already in place in another form?

Dr White: I would have thought it would be possible to expand the EU ETS into other sectors, and that is already available. I was concerned that if you did not give the Bill any enabling powers it is interesting but it does not do that much, it holds the Government up to meet the targets but we need a bit more. In terms of enabling powers only for trading schemes, does that really give the view that trading schemes are the only way in which to reduce carbon emissions. I think there are other ways. If the costs of administering a trading scheme are down to the individual then maybe forms of regulation are better. Also I think there are some things you could do where you have got fiscal policies that surely the Finance Act could put through anyhow, so it does not completely tie the hands. On the other hand, there are things being proposed in Europe where we meet the 20-20-20 targets, in other words 20% in the year 2020. It might be that if we want Europe as a whole to meet the 20% renewables target it would make darned more sense to do these renewables in Poland than it would over here, so maybe we would want a renewables trading scheme introduced for which this Bill would not give the power. On balance, I would rather stay with these rather limited powers, such as trading schemes, and if we find we need to expand it let us do it later and let the Climate Change Committee suggest it.

Q154 Mr Kidney: There are some domestic schemes where there is trading already: Renewables Obligation Certificates, Levy Exemption Certificates, the old UK Emissions Trading Scheme Certificates, which are closed now but the certificates still exist, and the Carbon Reduction Commitment will add trading. Could you see a time when these enabling powers ought to be used to tidy them up and maybe bring them into a bigger domestic trading scheme that covers the whole of them?

Dr White: In time, yes, but unless you have auctioning all the time the problem is the method of allocation. You can have one scheme that is more generously allocated than another and that could give the wrong signals. I can see in time you could bring them altogether.

Q155 Mr Yeo: I am afraid we will have to stop there. If there are any further burning points that you were going to make and you want to put that in by way of additional written evidence we would be very glad to receive it.

Dr White: We will do, thank you.

Mr Yeo: Thank you both for coming.

Wednesday 6 June 2007

Members present:

In the absence of the Chairman, Mr Tim Yeo was called to the Chair

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|-------------------------------|-------------------|
| Billingham, B | Mr David Chaytor |
| Crickhowell, L | Helen Goodman |
| Jay of Ewelme, L | Nia Griffith |
| Miller of Chilthorne Domer, B | David Howarth |
| Selborne, E of | Mr David Kidney |
| Teverson, L | Mark Lazarowicz |
| Vinson, L | Mr Graham Stuart |
| Whitty, L | Dr Desmond Turner |
| Woolmer of Leeds, L | Dr Alan Whitehead |
| Ms Celia Barlow | |

Witnesses: **Mr Brian Samuel**, Head of Policy Research, and **Mr Dan Staniaszek**, Evaluation Director, Energy Saving Trust, **Professor Michael Grubb**, Associate Director of Policy, Carbon Trust, **Mr Steve Smith**, Managing Director of Markets, Ofgem, examined.

Mr Yeo: Good afternoon. Thank you very much for coming in and for being here promptly so we can get going a minute or two early. We have got lots we would like to put to you, so I would like to ask Lord Whitty to open the proceedings.

Lord Whitty: Thank you, Chairman. You have seen the Bill and the system of carbon targeting and carbon budgets, and, also, the creation of the Climate Change Committee. All of your agencies actually have some role in this field already. What do you see as your role in the delivery of this Bill, and what do you see as your future relationship with the proposed Climate Change Committee?

Q156 Mr Yeo: In any order.

Mr Smith: Shall I go first? Steve Smith of Ofgem. Clearly, we will have a big role in this, given the significant proportion of emissions that are accounted for by the sectors we regulate, so the generation sector but, also, the gas sector. I guess we would see ourselves, to the passage of the Bill, mainly having a role in terms of providing information and expertise where it is required by the Climate Change Committee. We may also, depending on whether the powers contained in the Bill to create new trading schemes are implemented, have some role in administering those schemes. I am sure many of you are aware we have existing roles in some of those environmental schemes, so that may also be a role but that will be one that, obviously, will be determined by whether the Government chooses to exercise those powers.

Professor Grubb: I think, first and foremost, the role of the Carbon Trust, I would assume, would be to help business and the public sector deliver on its component of targets established under the terms of the Bill for the Committee advice in the short to medium term, and, longer-term, help to build up British industrial technological capacity for deeper reductions consistent with the 60 per cent targets. I would think the Carbon Trust would also potentially contribute into the analysis that I hope the Committee would be doing underpinning target-setting. That said, perhaps I should also add that I

am only half time with the Carbon Trust; my understanding is I was invited, in part, because of my IPCC role because I was, arguably, in a more direct institutional position to speak on behalf of the Carbon Trust.

Mr Samuel: With over half emissions coming from households and road transport the Energy Saving Trust believes it will have a very important high-priority role in helping deliver the Climate Change Bill targets. We believe our priority is about enabling and facilitating consumers to take action; making it simpler, easier and cheaper for them to do so. The priority for us would be to engage with consumers and to ensure long-lasting behavioural change as well as decarbonising households and road transport.

Q157 Mr Chaytor: Could I ask Professor Grubb about your observation on the importance of international negotiations and achieving targets? What sort of international agreement is going to be (a) practical in terms of the politics of it and (b) effective in terms of seriously driving down emissions in the UK and in other industrialised countries?

Professor Grubb: That is a pretty broad question which probably takes us beyond the scope of the Bill per se, but I assume that underpinning it is one of the big questions that I have about the Bill, which is the relationship of domestic target-setting to the international systems. Let me kind of answer your question in respect of that vein. First, in terms of the expected international architecture, as you know, everything is up for grabs at the moment and it remains up for grabs after the US announcement last week and, indeed, the Japanese Prime Minister's statements of last week in respect of G8. Personally, what I take away from the last six years of international discourse is: no one has come up with anything that sounds more credible or stronger than an international regime which includes clear, quantified numerical targets on allowed national emissions. I, personally, believe that is where the world is going to end up from the current round of

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lots of different ideas and lots of posturing about what countries will or will not accept. In that sense, I think the international regime will have a core which is, in principle, wholly consistent with the framing of this Bill. That, clearly, will not, in the first instance, or even in the next round, which you might argue is the second instance, include quantified, absolute targets for developing countries. That will involve a wider and more complicated penumbra of different kinds of framing of commitments. I am not saying either that there would be a general consensus even in other G8 countries about what I have expressed as a personal judgment as to where I think we will come out. The key issue that it raises for the Bill is: what is the relationship between a domestic legal requirement to set budgets 15 years ahead and an international negotiation process which is trying to establish targets 10 to 15 years head. I would be very interested in what others think about that. The best that I have been able to come up with is there is an inherent tension between unilateral commitment for the sake of leadership and, if you like, the kind of bargaining that goes on in international affairs where: "If you do that we might do a bit more". What I would say is that the ultimate test of leadership is whether anyone is following. Therefore, it seems to me, and this may raise issues about the exact framing of the terms of revision of targets, that, personally, I am very happy with the leadership position the UK is trying to strike on this, though I think it is right to unilaterally develop targets this period ahead. It is healthy for the domestic debate and the ability of industry to know what is expected, etc, but there probably needs to be an element of pretty careful thinking about: "This is what the UK is willing to do and is planning to do on the assumption that there is an international agreement to back it up", and some kind of clause, almost implicit, underlying threat, that if the whole international process falls apart or others fail to deliver one of the consequences may be it is harder for the UK to deliver on this commitment. There is no perfect way of squaring the circle; there is no perfect way of squaring the need for leadership and clarity over the long term with the fact that we are in international negotiations gaming, and if the UK succeeds in a fantastically impressive target domestically and no one else is along with that, we have not solved the problem.

Q158 Mr Chaytor: So, to be clear, you are suggesting, in terms of the draft Bill, that there ought to be a get-out clause in the 60 per cent target?

Professor Grubb: No, not the 60 per cent target, I am sorry. I think one thing we will (touch wood, if I may) find emerging from the G8 process—whether it happens this week or next year in Japan—is a much clearer rendition of the long term, mid-century goals. I thought it very significant the Japanese Prime Minister's announcement last week for a 50 per cent global emission reduction by mid-century. Any framing of long-term goals implies the UK has to be at least 60 per cent there, I think. So I am happy with the framing of the Bill as it stands, which refers to "at least 60 per cent". What it says is that

depending upon the further progress internationally that might be tightened. It is very hard to see the circumstances under which one could go back, credibly.

Q159 David Howarth: Could I just ask about the 2020 targets, particularly Professor Grubb but also the others, what are their views on that? It is 26 per cent to 32 per cent. One view is that 26 per cent is implied by existing policies, so that should be okay, in which case, the question arises why have a 32 per cent maximum anyway? What is the advantage of having any kind of maximum? The other view is that it is not clear whether 26 per cent by 2020 is achievable. Enthusiasts of particular technologies, nuclear power, say "Why not use that?" It turns out that that is pretty implausible for 2020. What is your view of the situation between now and 2020? Is it worthwhile having those goals? If so, why are they so restrictive?

Professor Grubb: I think it is worth having those goals. That is consistent with a long strand of debate, indications and objectives discussed around 2020. I think it is, also, a timescale which is highly relevant to present industrial investment, not least in the power sector. So I would absolutely recommend keeping 2020 numbers in there and, I think, giving them the additional statutory force is welcome and helpful to industrial orientation—if I can put it that way. On the specific numbers, I would need a lot of persuasion that current policies are going to get us even to 26 per cent. I think that is a non-trivial statement; it is more a rendition of where I think we are going on current policies. I should emphasise this is my judgment; this is not based upon specific, quantified analysis that we have carried out in the Carbon Trust, with the exception of the renewable energy contribution I will touch on in just a second. The reality is that relative to 1990 (we had 10 per cent or so reductions during the 1990s because of other factors we all know about) it has proved a lot tougher to continue those reductions as those chief gains have run out. I find the idea that, in practice, starting with a Bill reaching the statute books at the end of 2008, we could get down deeper than 32 per cent within the next 12 years. I think that would be an extraordinarily tough call. It is not essential in terms of the 2050 trajectory, but the range (I have to use the phrase) makes sense to me. Whether you need to express the upper bound is a fair question.

Q160 Mr Yeo: Would the other witnesses like to comment on this?

Mr Staniaszek: We have suggested a slightly different trajectory, which is on a fixed percentage reduction each year, and to achieve the 60 per cent target we are looking at about a 1.7 per cent annum reduction. The effect of that is it is a curved profile, so you will actually be saving more in the early part of the period than later. On that basis, if we were to set the target now, at the midpoint in 2020 we would be achieving a 34 per cent reduction. The implication of that is that if we only achieve 26 per cent then we will have to work very much harder in the next 30 years. So our proposal is very much that

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we accept action is needed now; we know from the science that the sooner we start saving the sooner the impact is mitigated, and we need to have a constant amount of effort throughout the period. As I say, the profile is one that requires constant action throughout the period.

Mr Smith: I can only speak for the energy sector but, as we have all acknowledged, that is a massive contributor, so to speak, and that alone, probably, shines some light on it. Again, this is not based on quantified analysis; we are actually commissioning a piece of work at the moment to look at what the power sector and the energy sector might be able to deliver, and at what cost over that time period, to try and shine some light on this. My only observation would be I am optimistic about what the energy sector could do, but as I think has been acknowledged by the Government with its recent announcements in the Energy White Paper, one of the biggest problems is, obviously, planning, because a lot of what needs to be done in the energy sector might require (as was mentioned) nuclear power, and one of the big issues about how much nuclear can be delivered by 2020 would be the planning regime. Also, we are seeing difficulties in getting renewables connected because of planning inquiries on the transmission network. So I think a lot is achievable, but there are some external barriers that might prevent that, because it does not take long to actually build the pieces of infrastructure you need; it is whether you can actually get the permission to do so.

Q161 Lord Vinson: The road to target-setting is paved with broken promises. It is easy enough to set a target, as you will be the first to appreciate, but the implementation is the tough bit. Human prosperity depends on energy and currently it is growing to the consumption of about one and a half per cent per year. Would it not be better if, instead of applying your undoubted talents to cutting back and reducing, somebody suggested picking the lower fruit is the easiest thing to start with, but if you were to put your attention to really developing, not wind turbines where the power factor is less than 26 per cent per year over the GB, but things that give really good base-load electricity, ie nuclear, get on with a rapid programme of nuclear development so that in 15 to 20 years time we could have a very substantial nuclear base that would save so much CO₂ that half the trimming that one is attempting to do otherwise would not be necessary and life could carry on. Are we not really being rather negative to the approach of carbon saving rather than taking a very positive approach and taking a span and view of target setting over say 20, 25 years when we can really do something to create massive amounts of CO₂ free base-load electrical energy?

Mr Samuel: I am not actually an expert on upstream power generation, but I know that the analysis by Oxera, as part of the Climate Change Programme Review, demonstrated that energy efficiency is the most cost-effective means of reducing carbon and the sector that it is most cost-effective to do that in is the household. So, whilst it is important to look at

all angles, I would say that the priority has to be energy efficiency improvements from a cost-effective commercial base.

Q162 Lord Vinson: It could do both is what I would suggest.

Professor Grubb: Could I add a little on that because I have specialised quite a lot in the power sector—the question is oriented towards that—and I think, in this context, it has been both the Carbon Trust and the Super Gen Consortium that I am involved in through my Cambridge University affiliation. First, I think the big strength of the Climate Change Bill is that it does not try and make those kinds of judgments on which technologies really should deliver. It says, “The job of this Bill is to vastly strengthen the framework which will require solutions to be driven by the combination of the market and the framework that the government sets for the market and for investment in low carbon solutions.” I agree entirely. I think energy efficiency is at the front edge, that striking at the Energy White Paper, despite all of the public debate, the main thing it actually did was in respect of energy efficiency as opposed to some of the supply side debates plus the planning issue is very important. But I think that, since you have made a very specific statement, I will just respond that, in my view, the UK is blessed with three very, very big very low carbon options, and they are potentially carbon capture and storage, they are potentially nuclear and they are certainly on-shore and off-shore wind energy. Any three of those can supply a very large amount of low carbon power. I think the distinction between base-load and other is to a large extent false. It is true for an old fashioned electricity system, but electrical engineers are perfectly competent to design a power system that can accommodate 30, 40 or more per cent from wind energy. Do I think it would be sensible to say we have got three big options, let us only chose one of them? No, that would be a foolish strategy. I think the great strength of the Climate Change Bill is that it does not try and make those decisions all at once, it appropriately delineates: what is this about and what are to do with other processes in governmental policy-making.

Q163 Dr Turner: The Bill is essentially built around the 60 per cent target and, between you, you have already thrown doubts on the interim targets that need to be reached on the way to 60 per cent, so the question has to be asked whether the 60 per cent target is realistic (a) in terms of whether you feel it could be achieved in itself, but then (b) whether 60 per cent is realistic in climate change terms, whether it is adequate. The Bill makes provisions for revising the target presumably, by implication, upwards, though I would be interested to know whether you would want that made more explicit in the Bill, in the light of science, and there are those who are saying that right now climate change science is telling us that 60 per cent for an industrialised country such as the United Kingdom is inadequate. Your organisations are all going to have to be playing key roles in delivering these targets; so what is your view?

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Mr Samuel: As regards the actual sixty per cent target, I would say it is inadequate because it excludes aviation and shipping, so that is probably the starting point. From the perspective of whether that target should change, I think, yes, it should change, but it should only be allowed to be changed upwards at the recommendations of the Committee. Coming back to the domestic sector, the work that was done as part of the Energy Efficiency Innovation Review identified seven million tonnes of carbon cost-effective savings by 2010 based upon early 2005 analysis. Since then energy prices have risen substantially, so therefore there is still considerable scope for further cost-effective measures as well. You then have the additional behavioural change, additional new technologies, additional improvements in products, including regulation of products such as the banning of tungsten light bulbs, et cetera. If you are looking at an overall proportional share of the 60 per cent target, you are talking of 30 million tonnes of carbon. I think by 2050, including microgeneration on top of that within homes, you can reach the 60 per cent with the right policy framework in place. I would agree that the 26 per cent by 2020 will not be reached unless there are further mechanisms put in place to support demand-side measures.

Q164 Lord Jay of Ewelme: Do all think that aviation should be included in the Bill?

Mr Smith: Yes, speaking for myself.

Professor Grubb: Yes, I think the complexity is how it is defined and whether that is then consistent with international norms developed, but, yes, in principle it must be there.

Q165 Dr Whitehead: Could I ask you about budgetary periods? Do you think that the budgetary period of five years is going to be too long to respond flexibly to what is going to be a changing international environment and do you have any concerns about the reporting proposals for the budgetary periods, the reporting, for example, two years or more after the first carbon budget cycle is completed?

Mr Staniaszek: The Energy Saving Trust has concerns about the budgetary periods. Firstly, we are only about perhaps three budgetary periods, which only takes us 15 years down the line, and that is less than half of that time trajectory we are talking about. The second concern is, as you mentioned, there are five years and then another two years to report, so each time we are looking back over a period and the clock is ticking, and so we have suggested an alternative of a rolling five-year average. Of course, the first period, you would have to wait five years for that to kick in, but thereafter there will be an annual target and each year it would obviously be a lower target, lower carbon emissions that is, and there will be reporting in terms of progress, so we would have a continual focus on the target which is absolutely necessary, because otherwise if we leave it for another five years,

another Parliament, it is someone else's problem, so our preference is for an annual five-year rolling average target.

Q166 Helen Goodman: Obviously, we want to be in a situation where we can hit the target that we set through which we operate the budget. The Carbon Trust in their written evidence have suggested what the balance of cut-backs in the difference sectors would be, but I would like to ask each of you for the power, transport and household sectors, assuming no overseas credits, what sort of reductions in carbon do you think it would be possible for those three sectors over the period to 2050?

Mr Smith: I will go first, for the energy sector. I think it is technologically feasible to see decarbonising the whole energy system, either at the upstream end through carbon capture and storage, nuclear, renewables and measures at the downstream end—micro-renewables and things like that. I think everything is possible given enough time and without constraints from planning and other things. What a trading scheme helps you do is work out whether that is the cheapest way or whether power should pick up 80 per cent of the reductions and other sectors can do it for less, but I do not think there are any technological barriers at the moment that say you cannot make enormous savings in energy. It is all about cost.

Professor Grubb: I think I would echo that. You said power, household and transport, the business, obviously, commercial and public sector, indeed, are major consumers of power. I agree with Steven. I think the easy bit is the power generation and to an important degree consumption of electricity as well, where I think there are a lot of ways of being much smarter in how we run the whole system from the inputs to the delivery of the final services. I can envisage an almost entirely decarbonised power sector, by which I mean 80-90 per cent reduction. I think distributed gas microgeneration, et cetera, poses a certain dilemma and is seen as a great step forward but actually it is much more difficult to go the last little step potentially if you think sequestration is becoming an important element. I think the much more difficult bits are around transport and to some extent households, household heating, though that is not my area of expertise particularly, to some extent some of the heavy manufacturing industry's use of directionals. In 2050 my guess is we will still be consuming some steel and concrete whether they are made in the UK or not and whether they are decarbonised is a little harder to see, but I think it has to be accepted, in terms of the power electricity system, a 60 per cent target implies that the energy sector is doing a lot more than 60 per cent.

Mr Samuel: I would tend to agree. Theoretically you can decarbonise the grid. I think it is not as simple as that, because there are other costs, public acceptance and environmental issues associated. Therefore, I think it is more a question of having a balanced response across all sectors where all sectors do make a contribution. Obviously that contribution will vary from sector to sector. In relation to households,

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I can reiterate my point that we do believe that the 60 per cent proportional contribution from the household sector is possible.

Q167 Mark Lazarowicz: Is an interim target of a 26-32 per cent reduction by 2020 consistent with a trajectory that would result in an 80 per cent reduction by 2050?

Mr Staniaszek: As I mentioned before, I think you would have to work very much harder in the subsequent period to achieve that. I have not worked out the percentages but, let us say, looking at the 26-32 you would probably end up with a one and a half per cent average reduction per annum. Thereafter it might be two and a half per cent or more. So it is a very, very significant step up.

Q168 Baroness Miller of Chilthorne Domer: You have talked about households and I noticed in their written submission Ofgem were fairly scathing about the idea of personal carbon allowances, although they agreed that the Bill as drafted would allow for them. Given the statement that the Energy Saving Trust made at the beginning about the importance of individual effort in this, could you all make some comment about personal carbon allowances and their place in achieving the target?

Mr Smith: I think our concern about them is just the practicalities. I do not think there is any concern in theory on that understanding why you might want to consider them, but given our experience particularly with vulnerable customers and the fuel poor, of whom there are many, I think we just worry about practically how they would interact with such a scheme and what the consequences might be in terms of people who did not understand it properly self-disconnecting from their use of energy because of concerns about whether they are going to go over some carbon allowance. We think that you can get the household sector to play its part just by having sensible carbon measures, things like the trading scheme. We are already seeing reductions in use of energy, both in gas and electricity, partly prompted by the higher prices we are seeing, which is in part driven by the trading scheme already in place. So, we think you can get to where you want to get to and get households to play that part, but there are better mechanisms to do it than personal carbon allowances and, as I said, they may have some quite unforeseen consequences, particularly for people who are at the more vulnerable end of society.

Mr Samuel: I would agree with Steve, there are issues and there are practical difficulties, and certainly social issues would need to be addressed. However, ultimately, when the public is ready, I do believe that personal carbon caps will be required. We do have the technology out there already to actually underpin this, both from a point of view of smart metering to provide better information on bills so that people can actually understand how much energy they use. We can help the visibility of carbon and the cost of carbon through a carbon price which is not out there at the moment and, finally, we do have the technology, through mobile telephony, et cetera, to actually make the systems

work. We do have store cards already. The technology is actually out there. People understand loyalty cards and club cards, et cetera, so I think it is practical. The key is to actually get the engagement of the public and increase the acceptability through clear and consistent messages that climate change is a real issue and they have to play a part. Once we have gone along that route sufficiently, then I believe that personal carbon caps are the only way forward long-term.

Q169 Earl of Selborne: I was going to refer to the role of the Committee, which is charged with finding the most effective pathway to achieve these budgets and targets taking into account of social, environmental and economic factors. We are already seeing, are we not, that environmental damage can and is being done, for example, by the rush towards biofuels in order to burnish people's green credentials, the loss of rain forest and much else besides. Do you feel that this Committee, which is after all advisory, is likely to be able to make an adequate balance and estimate of environmental damage in order to achieve this optimal route?

Professor Grubb: I think, given that the role of the Committee is advisory, it is perhaps less essential that it explicitly is legally charged with considering all those other environmental dimensions. I think there is a certain benefit in clarity of objectives. The Committee's job is to advise the Government on what needs to be done to tackle climate change in the way that is set out, and, as I alluded to earlier, its job is not trying to dictate "and it should be done with nuclear power, it should be done with other things". Therefore, I think, to some extent, those concerns you express probably will certainly be dealt with within the governmental processes that receive the advice and gestate how best to act on that. Could I just lay out a couple of other quick things in response to some of the earlier questions as well? One is that on the question of 60 per cent, I hope I did make my view plain in my earlier answer to David Chaytor that it might well be no bad idea and help the Committee if the Bill also is more explicit about the fact that there is a substantial possibility that 60 per cent may have to be strengthened over time, depending upon various factors. Maybe it should be more explicit and that might help the deliberation. However, I think on the sector question, it does raise in my mind the issue of whether one should ensure the Committee has the analytic capacity and the expectation that it is not only giving out a national number but it is giving some indication of at least a sectoral break down of how it believes it can credibly be done. Otherwise, it seems to me, the value of its advice at a departmental level is significantly weakened.

Q170 Earl of Selborne: But this has to be looked at on an international scale. Just taking that example I took of biofuels replacing indigenous forest, you are losing carbon sequestration, so in spite of the apparent benefit in terms of the UK, there is clearly

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globally a total deficit. So, would you not expect those calculations to be upfront and part of the Committee's calculations?

Professor Grubb: Yes, but not in terms of the UK target. You cannot export numbers abroad, given the terms of the Bill, and I think that is right, but I would expect the Committee to observe some of those risks about exporting certain kind of emissions.

Q171 Lord Crickhowell: Keeping on the Committee and the reference that has been made to clarity and objectives, we had an interesting exchange yesterday when one of our witnesses argued that the brief of the Committee as it is contained in the Bill might be altogether too wide, and we had some comparisons made with the Monetary Committee of the Bank of England, which has a very clear set of tasks given to it. The question is should the Committee really be briefed to concentrate on the scientific, the environment issues, the adequate proper level of budgeting and so on? If it also has to give advice on really quite difficult social and economic issues, it may become so diffuse, the size of the Committee and the number of its members, that it will lose its focus and that the social issues are better settled by government anyway. Do you have a view about the scope of the activities of the Committee and its focus? Is it too wide? Should be narrower? What do you think about the work and nature of the Committee's task?

Mr Staniaszek: I think the Committee should be very much focused on the carbon target and achieving that and making recommendations down the line. As you say, there are other bodies, other aspects of government that might address the social aspect, but I think having that clear, single focus, and we have drawn the analogy with the MPC's inflation target, it needs to focus solely on that one carbon target objective, however that target is set, and make recommendations or provide advice focused on that aspect and that aspect alone.

Professor Grubb: I think the Committee actually has to have those additional elements to make sensible target recommendations that have any prospect of being accepted and implemented by a democratically elected government. If I were to take a purely scientific view on the climate change problem and take no other considerations into account, I would say that there is evidence now that we should reduce emissions by well over 50 per cent in the next couple of years. That is not much use as a judgment for Government. Why would the Government not do that, the tools, the impacts, the economics, the social consequence and a whole bundle of other reasons? So, I think target-setting, which is completely divorced from the economic and political realities and implementation issues, becomes a meaningless exercise. It is an exercise that I have seen played in out in more moderate ways in certain countries that have declared really grandiose targets and then carefully and studiously avoided the debate when those targets whistled by without being met. I would, if anything, like to see the Committee's mandate strengthened and its resources

strengthened so that it can credibly say, "This is what we think needs to be delivered in terms of targets, this is why we think this is doable and this is what we think the consequences would be in terms of potential costs, in terms of some of the mechanisms, and this is why we think this is credible and, therefore, in effect far more effectively challenges the Government to explain why they might not be willing to accept this recommendation."

Q172 Lord Crickhowell: Keeping to the Bill, do you think that the Bill as it is drafted at present has got the balance right and will enable the Committee to go down the road that you think it should go down, or does it need any further change or addition?

Professor Grubb: I am not sure that there is enough detail in the Bill. Perhaps I have not studied those elements of the Committee powers closely enough to be sure of answering that question. What I would say is that to do its job effectively, I think an additional element in the powers of the Committee would be the resources at its command to do some of this analysis and to call on the best expertise available.

Q173 Lord Woolmer of Leeds: Can I turn first to the question of aviation and shipping that you have all collectively thought should be included? You mean should be included in the Bill differently to at present. At present the secretary of state has powers by the regulations to bring shipping and aviation in but it is not counted from the start. You have initially counted it from the start. Do you mean that regardless of whether or not the EU makes progress on aviation emissions in the ETU and regardless of whether shipping has an international remit within the ETU, the emissions trading scheme in Europe? In other words, should the UK go it alone and have you thought through the consequences of that by 2008?

Mr Samuel: It is an interesting question. I think certainly that aviation and shipping emissions need to be part of the remit right from the start, and that certainly ought to be reported upon. I think the difficulty is in how you actually assign those emissions associated with aviation and shipping, and until there is international agreement, it is going to be difficult for government to act on that in relation to having 60 per cent, 80 per cent reduction targets. That is not to say that the Government cannot and should not actually act in trying to reduce the emissions anyway, and I think there are things that can and should be done and, therefore, it should be part of the remit from the outset but mindful of the fact that there are not international agreements in place at the moment.

Professor Grubb: Also on that, it might be useful to separate an accounting function or a target-setting function. Currently have under the framework agenda protocols there are national inventories for national emissions and a commitment to do something on international bunker fuels, and the problem is the commitment to do something on international bunker fuels has got us nowhere of any substance. It has made some progress now with the

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decision to include aviation in the European Trading Scheme, but that would imply there are still many debates as to whether there would be allocation at a national or European level. I can understand why the Government might not have wanted to pre-empt that by saying that the target has to include aviation and marine, but surely it should be part of the framework that the Committee should at least be accounting for how much aviation and marine emissions is the UK in some sense responsible for, and maybe one separates those two.

Q174 Lord Teverson: In terms of emission trading schemes, the draft Bill very much focuses on this one instrument. How confident are you that emissions trading will deliver everything that it needs to deliver, or are we going to be in a situation in ten, 15 years' time when it is too late to go back and try something else, or should governments be more bold perhaps and go down carbon taxation and areas like that?

Mr Samuel: The simple answer is that emissions trading on its own will not deliver. You do need a portfolio of measures, which will include taxation, regulation and advice on behavioural change measures.

Professor Grubb: I think it is really helpful in this kind of debate to separate roughly half of emissions in our economy comes from big entities that respond to prices in, hopefully, fairly rational ways and will respond to a carbon price, ie power generation, heavy industry, et cetera, and household and transport patterns which are much more complicated in terms of how people behave, how they think. Their dependence on infrastructural decisions are almost nothing to do with carbon pricing. So, I think that anybody who claims emissions trading is going to solve this problem, we do not need to think of other instruments, I am not sure I have come across such people in the real policy-making world. I think that the unquestionably there is a need for additional instruments. The carbon tax route, we have sort of been there. We have had a lot of history of the politics of taxation and it certainly has not proved to be easier than the politics of emissions trading, but what I think is actually very important to stress in the current framework is that it is a system which is designed to evolve. There will be sequential allocation periods and we have already seen clear progression in the European scheme and we are, indeed, seeing the emergence of, I would say, something approaching a consensus that Phase III under the trading scheme will include more auctioning and we have almost allowed the maximum under Phase II. We must allow our maximum under Phase II. That means we can evolve the trading scheme towards looking more like the carbon tax if that is the way we want it to be over time, hopefully a more productive way of getting there than the ones we tried in the early nineties.

Q175 Lord Teverson: Where do you think we ought to aim for in terms of auctioning percentages or sectors or progression?

Professor Grubb: This is certainly an area where I have been involved in ongoing research and where we should aim for in very broad terms is moving towards 100 per cent in the power sector and 50 per cent in a number of energy intensive industries. That is a personal view. That is not explicitly a Carbon Trust position.

Q176 Lord Whitty: Further to Lord Teverson's point, if it is true that 50 per cent of the emissions are unlikely to be affected by the price resulting from trading schemes, do you think the Bill should include powers for the government—delegated powers, if you like—to act in other spheres that will affect behavioural change? In relation to the powers which are there for trading schemes, which are quite extensive and open ended, do you think they are adequate or overkill or about right?

Mr Smith: To give one example of where perhaps a trading scheme would not work and therefore you would think about a significant source of emissions, it is the burning of gas in domestic boilers and small, commercial boilers. It is unlikely, for the reasons I have given in relation to personal carbon allowances, that we are ever going to want individual households to have to go and buy permits to fire up their boiler and run their heating. It is likely you are going to want something simpler to deal with that, be it a tax or some other mechanism. That is a significant source of emissions that you are going to have to tackle, not just for domestic users but for smaller businesses for whom the costs of participating in an emissions trading scheme will be very high.

Q177 Lord Vinson: I have here a pamphlet by Professor Michael Lawton, who is regarded as one of the great experts on energy and energy supply. You are probably aware of him. He says that the EU target of 20 per cent over the next 25 years is totally unrealistic because of the huge political costs of the costs in the standard of living that would have to be achieved to make the cuts in carbon. I do not know whether you think that is realistic but he was really saying that the target figures being thrown about are one thing in theory but quite unrealistic politically. I do not know what you think about that?

Professor Grubb: I respect Professor Lawton immensely. He used to work in electrical engineering and I know him from those days. I would rewrite that statement and say that the European 20 per cent renewables target is a very ambitious one. We do not know yet what it might imply for the UK contribution. We do not know the extent to which some of the boundaries are around the definition issues. I do not think it is impossible. What is striking is that renewable energy can at least deliver more in terms of low carbon supplies over the next ten years than the other two big options to which I alluded so I think being pretty ambitious in that area does make sense. We need to build up that industrial capacity on a large scale.

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Q178 Lord Vinson: Could I come back to you on renewable energy with regard to wind? The base load figures for 2005 and 2006 are 26.1 per cent of the generated, installed capacity and 25 per cent of installed capacity. In other words, the back-up to wind power has to be colossal on certain days of the year, particularly when the wind does not blow. You have a very substantial cost coupled with it. His view and the view of many others is that if you have more than about ten per cent of wind in the grid it simply cannot absorb fluctuations. It seems to me it is important for your organisation to put its emphasis on and encourage those forms of renewable (a) where we have the technology and we do not have to wait another 25 years to prove the technology and (b) to get on with it so that if we fail to save because of the political consequences of cutting the standard of living, we are at least producing much lower CO₂ that we can substitute for existing energy demand.

Professor Grubb: The Carbon Trust very strongly encouraged the UK Energy Research Centre to make one of its first, principal studies on this issue of intermittency and indeed contributed towards that. That did have a steering committee, including Michael Lawton and others. That has

comprehensively disproved what you have just said. It shows very clearly that there is no problem in accommodating 10 to 20 per cent wind energy. The additional balancing costs are very small compared with the costs of the technology. Life gets much more complicated and uncertain as one goes beyond the 20 per cent and one is talking potentially of bigger changes in the system structure. The fact that wind energy generates about 25 per cent of its rated capacity is neither here nor there. One could double the capacity of other sources and generate the same amount. It is a figure of maximum turbine size—

Q179 Lord Vinson: It is highly unequivocal. Surely if the wind does not blow you get no energy so you have to have back-up somewhere else?

Professor Grubb: We are drifting away from the subject of the Bill. The Committee should make sure that it has absolutely the representation of people with top grade expertise and proven credibility in these kinds of areas. I disagree with what you say, having worked in that area and knowing these issues. Indeed, my PhD was on intermittency and the accommodation of things like that.

Mr Yeo: Gentlemen, thank you very much indeed.

Witnesses: **Baroness Young of Old Scone**, a Member of the House of Lords, Chief Executive, **Mr Clive Bates**, Head of Environmental Policy, Environment Agency; **Mr Andrew Lee**, Director, and **Ms Sarah Samuel**, Sustainable Development Commission, examined.

Mr Yeo: Good afternoon and welcome to this session. We are very grateful to you for coming.

Lord Whitty: I need to declare an interest as a member of the board of the Environment Agency. My silence does not denote lack of interest.

Q180 Mr Yeo: Could I kick off by asking both organisations, in the light of the changed architecture that will exist when this Bill is passed in terms of various bodies and their role on climate change policy making, exactly what you think the roles of your organisations will be?

Baroness Young of Old Scone: We are very pleased with the Bill and the establishment of the Committee. We envisage that our role will be a twin track role, as it is at the moment. We do regulate in excess of 45 per cent of all emissions in the UK and we will continue to be environmental regulator so we will have a big impact on the mitigation elements of the climate change issue. We also have primary interest in the here and now and the increasing impacts of climate change in terms of the adaptation agenda. We anticipate that we will continue to play a key role in helping bodies across government and across the country look at the adaptation issues that they have to cope with increasingly as a result of climate change. We will have, I believe, a close relationship with the Climate Change Committee in terms of the mitigation work and the adaptation agenda. We would like to see the Bill strengthened in both of those areas, both in terms of tougher compliance with the targets and a tougher enforcement mechanism and, secondly, a much

more forward looking, action based appraisal of the adaptation needs, rather than historic reporting. There are a number of other irons in the fire. Who knows what the machinery of government is going to look like in four or five weeks' time? There is loose talk around about sweeping up a number of the multitude of climate change related bodies that are already in existence or could spring up. We firmly believe that our role as an integrated regulator and a champion of the environment over air, land and water is something that needs to continue and if climate change roles were removed from that it would be a rather strange regulatory process.

Q181 Mr Yeo: If you have any inside information about what may happen in three or four weeks' time, we promise that if you share it with us it will not go outside this room.

Baroness Young of Old Scone: I have given up trying to predict the machinery of government.

Mr Lee: From the point of view of the Sustainable Development Commission, people say to me sometimes, "Surely it is all about climate change nowadays, is it not, rather than sustainable development?" I really wanted to make the point to the Committee that we see sustainable development as about how you tackle climate change. Climate change is the most urgent, graphic, pressing example of society living beyond its environmental limits. Not doing that is one of the five principles of government SD policy. We would certainly want to work closely with the new Committee. We would see our role as helping to find solutions which will help

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deliver a low carbon economy in society but a number of other things as well, not just in terms of climate change, in a way that is socially progressive and economically effective with good governance—those are the principles of sustainability—but for the Committee to have a central, powerful role in setting up the overall architecture. I talk sometimes about a car crash that is about to happen. If the car is speeding towards a wall, you need to know how fast to slam the brakes on before you hit the wall, how fast you need to stop. That is precisely what this Committee should be able to do by setting out this clear framework and architecture for reduction in emissions over a fixed time. It will involve many different organisations in carrying forward the solutions and advising government. I do not think any one body would be able to deal with the huge plethora of issues to do with technology, behaviour range, regulation, trading, taxation and so on.

Q182 Mark Lazarowicz: How far do you see your organisation, particularly perhaps the Sustainable Development Commission, effectively providing some of the support, the expertise, the independent advice to allow the Committee to do its work? How do we ensure we get the maximum benefit from the organisations rather than having unnecessary overlap?

Mr Lee: I do not think we would have an overlap. I would certainly think that this is a field where you do need as well the considerable amount of expertise that will be represented in that new Committee itself. The expertise of the Sustainable Development Commission is complementary and it covers a broad range of fields: education, health policy, and some of those areas are directly related to climate change. Some of the work we do has been focused on things like transport, buildings, energy policy. They are complementary roles. All relevant organisations will have to work very hard to provide the sort of support and advice to government to take us in this direction. I do not see that we have the luxury of overlap, frankly, there is such a huge job to be done there. We certainly do not see ourselves in the SDC as in a position to provide the evidence base on which the overall targets, the five year budgeting process and reporting, would be based.

Q183 Lord Crickhowell: Can I take you back to a point Baroness Young has already referred to, which is enforcement? The evidence you have given in your submission is extremely interesting and extremely important. We heard yesterday that on the international front the Commission's Trading Scheme Directive is a tough piece of hard law. We also heard that the Clean Development Mechanism and the United Nations operation are effective. Some of us have serious doubts, as I think you have indicated you have, about the enforceability of the duties imposed on the Secretary of State. I will pass over clause one which I think is a meaningless bit of spin in enforcement out to 2050 and come to what is a much more interesting issue which you address, which is effectively clause two and whether it is possible to produce some enforceable disciplines

which are not just transparency and the potential embarrassment of government where, like me, you are a bit sceptical; or judicial review, where I would be every more sceptical than you are if that was possible. You produce a number of very interesting particular proposals. Forcing the government if it fails to meet its targets to purchase emission allowances on the international carbon market is one. Investing in a domestic carbon reduction fund at an agreed price per tonne of carbon is another. I would be very interested to know how much work you have done on the possibilities of going down this route and whether there is yet any thorough, economic analysis of what the consequences might be. I think these are very important proposals and I would like to know whether you are setting the thing as a possibility with further work, and what sort of work it should be, to follow it up, because this brings us right back to the Bill. Can the Bill actually do what it is proclaimed to do, which is create legal obligations which can be enforced, which I do not think it does at the moment? You are the first people to come forward with the possibility that it might be done. Would you like to elaborate on your proposals?

Baroness Young of Old Scone: By way of introduction, we do need the Bill's provisions on enforcement to be toughened up. We really think it is so important that there needs to be nowhere for government to go. It needs to be a closed system that means delivery will happen. That is what our proposals are doing. We are against borrowing. We believe that there is ample opportunity to buy credits but that there should be a stringent, much lower limit on the international element of credits that can be purchased; and that the remainder, if required, should be in the form of an additional funding stream that goes into domestic emissions reduction. In overview, these are not worked up in a sophisticated manner but if there is interest in them we do believe they need to be worked up very quickly because I think the Bill will be rather flabby without them.

Mr Bates: We try to answer the question what would happen should a budget be missed. The trouble with relying on judicial review is what would a court say? A court would say, I think, "If you have the option to buy the international credits to meet your legal obligations, go out and spend an afternoon buying the international credits because you are free to do that." In a sense, one can perhaps anticipate that and build that into the mechanism and have a mechanism designed to be compliant. The problem would be is if you were too dependent on buying international credits and you were not taking enough action domestically. There are several objectives. One is to achieve the targets efficiently. We could argue that international credits help with that. The other is to create a structural change in the UK economy and get us onto a low carbon trajectory. If you take all the action overseas, you are not achieving that second objective. It is a ghastly term that has been invented in the Kyoto Protocol called "supplementarity", which argues that the international action you take should be

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supplemental to your domestic programme, an add-on. We have suggested that no more than about 30 per cent of the total abatement effort could be supplemental and sourced externally. The government can comply or the country can comply by buying more credits than that, but we are suggesting that at that point it needs to create a fund to fund more domestic mitigation to reduce emissions in the domestic economy in order to bring us back down to that 30 per cent threshold. We would guarantee that we will meet the commitments. We would stick within a supplementarity threshold. The way we do it means that the costs will fall due at the time that the budgets were missed and not at some future period, which is quite important for accountability reasons. It could be done in such a way that the polluter pays principle is applied. Since we submitted our memorandum to the Committee, we have been working this proposal up a little more and we have done more work on it to put into our response to Defra's consultation on the Bill. I am sure that when we are ready to release that we will share a copy with the Committee.

Q184 Lord Crickhowell: Can I ask you, firstly, to get on with that very urgently, because I think it is important and, secondly, can you include in your analysis about what the consequence of the government acting in this way would be for UK industry, for the performance of individual organisations and so on within the UK economy? I would like to see what the end result is going to be. You put a general principle but it would be very interesting to have the analysis of what the consequences would be.

Baroness Young of Old Scone: We are not great believers either in banking or borrowing. It does seem to us that if we are heading for a 60 per cent target knowing that that is probably inadequate, if we have over achieved in one period we should simply pocket that as a step in the right direction and set pretty stringent targets for the next three cycles.

Mr Lee: There is an issue here about risk across government as well. I strongly agree that it should be the Prime Minister who is held publicly accountable for this and I would point you to two examples of where this perhaps is not working as well as it should be. One was the Climate Change Programme Review last year where we saw Defra being sent out to bat on behalf of the whole of Government when it does not hold the policy levers in many cases that needed to be pulled more vigorously to deliver the emissions reductions targets that were already set. The other one is the current negotiations about the new climate change PSA, where again it is absolutely vital that each department is held accountable for what it is going to deliver: whether it is on existing housing stock, transport policy or procurement, all of the components that we know will be needed.

Q185 Mark Lazarowicz: Could I endorse what Lord Crickhowell has said in terms of providing information to the Committee as soon as possible? It will certainly help us in terms of pursuing questions with witnesses over the next few weeks. On the

specific mechanism you envisage for dealing with a shortfall at the end of the budget period, are you envisaging that the response required from government, which would be placed upon the government as a statutory duty, would be a response in terms of effectively producing a revised carbon budget for the next period or would it go as far as requiring to bring forward specific policy measures to achieve the reduction in the next period?

Baroness Young of Old Scone: In terms of the proposal we are putting forward, we would see this as several fold. One would be the establishment of this fund which could be used in itself as a polluter pays mechanism, which would be used to fund further actions to reduce domestic carbon emissions. We would not want it to go to the end of a five year period before government knew it was off target. The annual trajectory will be beginning to demonstrate that we have the potential of being off target by the end of the five year period. We believe that international carbon purchases and the anticipation that there is going to be a shortfall by the end of the period should be being banked all the way through so that we get a smoothness in the market. The one thing this Bill must produce is as stable as possible long term pricing in the carbon market which is what it grossly lacks at the moment. Inevitably, if there was a lack of pace in the first five year period, government would have to think very seriously in setting the carbon budget for the next five year period and whether there were additional mechanisms that needed to be put in to quicken the pace and additional policy levers.

Q186 Dr Whitehead: Can I be clear about the question of the idea of the fund? That presumably would be arguably a penalty payment to be banked for longer term improvements alongside what was purchased in the international markets in order to keep within a budget in a particular period. Arguably, those work against each other in terms of what might happen in the long term as opposed to what might happen in the short term. Do you consider that additional, perhaps long term embedded policy measures, such as for example a cap on energy supply in line with carbon budgets, might be a better way to work alongside that idea of keeping within budgets but also keeping within the budgetary period?

Mr Bates: There are some different things going on here. One is how does the government rigorously and with great certainty comply with the budgets that are set out in the Bill so that the government is compliant with the law? The other is what measures does it need to make sure it is on track through the budget period and through subsequent budget periods to stay on the trajectory through 2020 and 2050, in which case you might define measures like that sort of capping approach. That is under discussion for domestic energy, that we have some kind of cap for the amount of energy that could be sold in the domestic sector, but that is a measure. The compliance mechanism is through buying international credits. The fund is to ensure that the reliance on those credits does not go beyond, say, 30

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per cent of the total effort. The fund is then designed to correct an imbalance between international and domestic effort by channelling more of the effort back into the domestic sector. It would work a little like, say, the original UK emissions trading system where a sum of money is put up for auction. Local authorities, energy users or whoever may bid into that to reduce the amount of emissions that they are producing and so restore us back to a track in which we are reliant only on the agreed proportion of international credits which we have suggested should be about 30 per cent of the effort.

Baroness Young of Old Scone: You get the double-whammy from the fund by the way in which you raise it because you could raise it in a way which bore down more heavily on emitters who failed to respond in terms of their contribution to the target.

Q187 Dr Whitehead: That would then give you a notional credit in the next budgetary period which could itself be offset against what you might be likely to put aside for what you might have to purchase in the international market to balance your next budget out?

Mr Bates: Yes. It would contribute in subsequent budget periods to correcting the imbalance between international and domestic action and, because you would be purchasing emissions reductions through that fund, you would be contributing to success in the subsequent budget period.

Q188 Baroness Miller of Chilthorne Domer: We have had an exposition up until now about how government is going to be compliant and how the Committee is going to give government the advice on an assumption that the public are somehow going to be fairly passive in all of this. What sort of conversation do you see, if any, between the Committee and the public? Do you think that relationship is in any way recognised in the Bill as it is drafted, or does that relationship not need to exist? Could I ask particularly the SDC about this?

Mr Lee: Maybe that is not the central role of the Committee, given how much else it will have to do. The point of public engagement is absolutely vital. At the moment, the danger is that government policy tends to fall into two camps. It is either: we will take on these piecemeal measures and see where we get to, or, we will go out and exhort the public to change their behaviour. There is a slight sense of that at the moment. Although I absolutely applaud any efforts to raise awareness of climate change in the "Act on CO₂" campaign from Defra. It could stimulate a public backlash to government which is, "Now you are telling us climate change is happening. You are telling us we have to meet these targets and we have to change our behaviour. What are you going to do?" A proper approach to public engagement across government in the process of the development of the policies and measures that will be needed to get us along this carbon trajectory is going to be absolutely essential in terms of reaching those long term cuts that we have been discussing this afternoon. In the short term, technology measures and other measures on the supply side will get us

some of the way. In the long term it is also about demand. It is about public attitudes and awareness. It is not just about changes in behaviour. It is about the willingness of people in Britain to support the kinds of policy measures which will be needed to change the choices available, whether choices of products, housing, access to transport systems, and all sorts of other things as well.

Q189 Baroness Miller of Chilthorne Domer: Can I ask about the role of personal carbon allowances and when you might see those coming in, in the years up to 2050?

Mr Lee: Our view in the SDC is that personal carbon allowances are a serious potential long term player in this debate. Of course there are all sorts of issues and problems, but ultimately they do transparently demonstrate that we have to live with carbon rationing. They would bring people face to face with the consequences of the decisions they make. Of course there are lots of issues about how they would be implemented. On Carbon Trading in general, and specifically on this, the idea should be to move towards broadening and deepening the use of trading as a measure, as a central plank, of climate policy, but putting other flanking measures around in the short term that will be needed to ensure that sectors deliver. We are not going to deal with our existing housing problem by carbon trading, as an earlier witness said. Building those flanking measures in is also creating a climate of opinion where the idea of personal carbon trading becomes more acceptable than it would be now, in the same way as we had the debate about smoking in public places and other things, because it does bring responsibility back to the individual. At the moment, individuals do not have the choice to live a low carbon lifestyle because they are locked into a huge number of choices which are skewed in terms of where they live, transport access, the carbon footprint of food products and all sorts of other things. Action needs to be taken on those things.

Baroness Young of Old Scone: Can I comment on the other side of the Committee's function which is on the adaptation agenda because that is the thing, to a large extent, that the public are going to experience immediately. They are going to experience increased risk of flooding, increased drought, heat waves, the impact on biodiversity, the impact on water quality. That is something that the public are going to be intensely interested in which is why we think the reporting requirement on adaptation needs to be strengthened considerably so that it is based on a government action plan and action by a range of bodies to achieve that action plan, so that the report reviews not only what government has done and how far government has got in protecting the nation from climate change but also local government and any other body that has a key role to play, much in the way that the Civil Contingencies Act laid responsibilities for the management of civil contingencies. Clive horrified me this morning with the idea of a long term emergency but I suppose that is what you could call climate change. We believe that the emergency handling that has been laid out

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to a variety of public bodies should be laid out also in terms of the adaptation action that is required. There, the public are going to be intensely interested and I think a relationship between the public and the Committee would be important. We share the view of the Sustainable Development Commission that you must not overload this Committee. It has to be an expert body giving independent, authoritative advice based on its knowledge of climate change.

Q190 Lord Vinson: Could I come back to the political realities of failing to meet targets? Most targets in life fail to be met, particularly when they are very ambitious. The UK position is that it is setting itself an example. It is setting itself a much higher target than other nations. When we fail to reach that target, what is the government going to do? Make us all wear a hair shirt or are the general public going to say, "I do not think we can reduce our standard of living and consumption of carbon any more when we see how it is being thrown around in the rest of the world, in China, India and elsewhere"? I do not think politically enforcement of targets is going to be anywhere near as realistic as people think. My suggestion to you is that, rather than having a negative approach to endless reductions of carbon—of course we must do that—let us do it by creating as soon as we can as much carbon free energy, so that we can go on using lots of energy and not ration ourselves on energy, but energy that is CO₂ free, principally nuclear. If we were to recognise that the world has a wonderful future in the development of CO₂ free energy, it may not be for 25 or 30 years, but if we can see hope in living very satisfactorily, we would save so much carbon to that point that we would not have to start wearing too many hair shirts between now and then.

Baroness Young of Old Scone: I wonder if I could comment on the issue of where the public will stand if we miss the targets. My perception is that as the impacts of climate change begin to bite the public will get pretty antsy about whether enough is being done to mitigate climate change. We already know from the Stern Report that the cost of reducing carbon emissions is considerably less than the cost of mopping up afterwards and the impact on both social and economic prosperity. Very shortly the public will begin to press government very strongly if increased storminess, droughts, heat waves—all of the things that are going to happen—begin to really impact on the way we live in this country. That is one issue. I would love to share your exuberance for nuclear power. As the regulator in nuclear waste, our position is that we are not against nuclear power but we do believe there are still some considerable unanswered questions about the long term storage of the waste and indeed the cost associated with that. It is quite interesting at the moment that the energy generators who are queuing up for us to license them are primarily coal fired power stations. We do not have as of yet a single nuclear proposition before us because the market simply does not allow that to be an economic option as of yet. Government would have to give quite a strong signal about where the

risks of long term storage of waste were going to be laid before the nuclear industry would be happy to come forward.

Q191 David Howarth: Can I bring you back to the question of carbon budgets? Baroness Young mentioned the five year period. Could I ask whether five years strikes you as the best time period? Two criticisms have been offered to us. One is that it is longer than the length of a single Parliament so the downside measures that were being discussed by Mr Bates earlier might fall on a different government from the government that caused the problems. The second point is it is different from the comprehensive spending review period of two or three years. Particularly supporting what Mr Lee said about the importance of public service targets, they have to be in line with spending so is the five year period the correct one?

Mr Bates: There are good arguments for five years, three years and even for one year. Five years aligns with the shape of the emissions trading system and also the framework of the Kyoto Protocol which we do not necessarily have much say over. In a way, we have been thinking about the design of a compliance mechanism, where we can blend some of the benefits of having a long, predictable, clear budget with some of the shorter term accountability you can get if you scrutinise performance annually or over a shorter timescale. What we are suggesting is that if you draw up a budget for five years you can set essentially a benchmark trajectory through that budget for what you would expect in each typical year. It is not what you really expect because there is a lot of natural variability, but you could set a benchmark for that. If your method of compliance is to accumulate international credits, each year you could make an assessment of how well you are doing against the benchmark and purchase the credits at that point. Each year you would have to make a transaction in the market place, either buying or selling, that over the course of the budget period would accumulate the necessary credits by the end of it for you to be compliant. In doing that, the costs fall due in the year in which they are incurred. If you are requiring an excess of international credits, a penalty or an accumulation of a UK carbon reduction fund also would happen in that current year. One of the principles that we are keen to see is accountability which means that the costs of compliance fall due at the same point at which the targets are missed or the under achievement happens. That is one way of doing it.

Q192 Lord Woolmer of Leeds: I do not wish to get into the discussion about personal carbon allowances as an issue itself but in terms of the Bill one witness has said to us that it appears that the power to introduce new trading schemes could technically be used to introduce individual carbon allowances as the Bill stands. The government have said that they think they have no intention of using the powers in this Bill to do that. Do you believe the Bill as it stands could be used to introduce individual carbon allowances, or do you think that the

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implications of that for individuals, consumers and households are so significant that any introduction of such a scheme should be done through primary legislation?

Mr Bates: The idea of personal carbon trading has been introduced and pushed quite heavily by the Secretary of State, David Miliband. It is an important thought experiment and an important communications device. It is a good way of people thinking about their own personal responsibility and so on. To design a working system would involve quite considerably complexity. One would have to have some form of universal ID system. One would have to have a system for reconciling people's use with their budget. One would have to explain this rather arcane concept, frankly, to people who really are not bothered and probably should not be bothered. The transaction costs involved in building a system and reconciling it make it, I think, something that at best you could say requires a great deal more research. The Bill probably could be twisted to introduce a system like that but the scale of change involved is so significant and introducing a mechanism like that would be such a profound move that I think it would be unwise to do it under regulations, even if that was possible. I sort of share the SDC's enthusiasm for thinking about this but the danger is it creates a kind of opportunity cost because the real question is what can we do to influence behaviour, to influence domestic, household energy consumption, the way people lag their boilers and all the myriad of decisions that people have to make. Personal carbon trading is a very, very heavy hammer to crack that nut and it might be a bit of a distraction.

Mr Lee: In the short term there are a lot of difficulties. But to write off that approach over the timescale that this Bill is envisaging, between 2020 and 2050, would be crazy. I also do not quite agree with the Environment Agency on the public attitude to personal carbon trading. Having sat in a citizen's summit where people off the street in Manchester discussed this, it was one of the ideas they picked up very rapidly, and they immediately understood the principle behind it because it relates to many other parts of life where we do this sort of thing. We should not write it off. It would take a long time and I absolutely agree that the key issue is not so much whether the Bill would enable it to be introduced, but how you would create the conditions under which it would operate and also under which people would accept it. But we have no idea how public attitudes may change over the next five or ten years. If you had told me two years ago that carbon and climate change would be front page news every day of the week, I would have thought you were mad.

Q193 Mr Stuart: One of the problems is that things that are on the front page will cease to be later. Governments' primary concern is getting re-elected and the finances under their control. Something that does not impinge on those two tends not to bind government in the future which is the central task we are trying to set ourselves here. Assuming that a 40 seat penalty for failure by the government to be

enacted at the following General Election is not deliverable—if you wanted to make the government deliver that would do it—the only arrangement would be some form of financial fine. Would you think that a penalty where over purchasing credits, paying a financial fine on failure to meet these targets, could be something that would concentrate ministerial minds?

Baroness Young of Old Scone: We have never called it a fine but it is in real terms a fine. It is a fine that helps get the message over to those who emitted beyond what was expected and therefore drove the country off target and, at the same time, it creates a fund that allows for additional carbon reduction to take place. It is a benign fine but nevertheless it is a real public expenditure issue so it would immediately attract the attention of both the Chancellor and the Prime Minister.

Q194 Mr Stuart: The danger of a benign fine, especially when the government gets control, is if it goes offshore and they lose it they cannot manipulate its use to compensate themselves in some other area and thus make it benign. You could have a global environment facility, perhaps some way of paying a fine extra, outside of our territory. What do you think about that?

Baroness Young of Old Scone: We would still have the concerns that offshoring the credit system would mean that we would under perform in this country and we do need to re-engineer the country in a way that is considerably less carbon intensive than it is at the moment. Anything that means we see more action overseas rather in the UK is problematic.

Q195 Lord Teverson: I want to come back on adaptation. You make some quite strong comments over strengthening that part of the Bill. If New Orleans showed anything, it showed that governments, however much they think something is going to happen, do not like to make the expenditure in time to stop it. As the Environment Agency, you have a particular responsibility for adaptation. Have you done calculations of what the size of this is, even if we met all these targets? What sorts of proportion of GDP or sums are likely to be involved if we take adaptation seriously?

Baroness Young of Old Scone: There are a couple of areas where we have at least as good a handle as anybody on the costs. In flood risk management, both the Association of British Insurers and the government Foresight studies have shown that the amount we currently spend, for example, on flood risk management, about 500 million a year, needs to approach the billion mark over the next 20 to 30 years. We have a pretty big shortfall in being able to remove or obviate the impacts. The Stern Report is the other piece of work which demonstrated that doing things is a lot cheaper than mopping up afterwards and doing things now is a lot cheaper than doing things in 20 or 30 years' time. Both of those pieces of work demonstrate that the adaptation agenda has to be taken seriously. At the moment, for example, in some of our flood risk management schemes we are only doing schemes

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that have a six times payback when there are lots of schemes around that we could be doing that would be very cost effective in terms of the damage avoided, not only economic damage but social damage as well. I must confess I got into hot water last year by saying let us not kid ourselves that New Orleans could not happen here because it could, perhaps not tomorrow because we do not have the right weather but it could happen next week or next year.

Mr Bates: The Foresight report suggested that in a typical climate change scenario the damage from flooding of rivers and the coast would rise from under two billion to around 27 billion by 2080 in real terms, driven primarily by climate change risks. In a sense, there is quite a good evidence base out there that gives us a feel for that particular class of risk. Obviously other risks associated with drought and heat waves will all have costs. There is constant work going on trying to assess the total cost of those.

Baroness Young of Old Scone: That is one of the reasons why we think that the adaptation report in the Bill should be timed very carefully to come before the time at which the Climate Change Committee considers the next five year targets and before the process of the government setting those budgets, because it does seem to us that the degree of effort that is regarded as practically and scientifically sensible needs to be informed by what is happening on the ground in terms of impacts. That is what the adaptation report would partly look at: what are the impacts already happening? What are the impacts likely to happen over the next 15 year period? It would also report on how successful government and all its manifestations were being in tackling the programmes for adaptation that we want laid out in an adaptation action plan.

Q196 Mr Chaytor: Are there other aspects of the reporting arrangements in the Bill that need strengthening? Particularly, do you think the responsibility for reporting is properly matched with the structural arrangements of government? Is there a match between responsibility to deliver and responsibility to report?

Baroness Young of Old Scone: One of the things we are particularly keen on is that we establish the annual report from government and the five yearly tot ups as a prime ministerial set piece, much in the way that the Budget currently is a Chancellor set piece of that magnitude. It is as important. We would very much like to see what in some cases is political theatre—nevertheless, it is very important political theatre—established as a routine. We do believe that the reporting needs to be underpinned by a responsibility to report by a whole variety of organisations, both on the mitigation and on the adaptation objectives and actions, much as I outlined in the Civil Contingencies Act, right across government. Although at the moment it is envisaged that there would be a single point of reporting for progress, things like the PSAs for example are joint PSAs between a number of governments. They are not just located for example in Defra. There is a whole range of government institutions, both national and local, that will be responsible for

delivering elements of the action. To some extent, there needs to be an underpinning of reports that all contribute to the government being able to say securely what has happened, what action has been delivered and what therefore needs to happen for the future.

Q197 Mr Chaytor: Can I pursue the analogy of the Chancellor's Budget? The Treasury has total responsibility over the Budget. We do not have a prime minister's department to provide total responsibility for coordinating the work of different departments.

Baroness Young of Old Scone: That is one of the issues that needs addressing in government because at the moment the only cross cutting body is the Cabinet Office. Again, loose talk says that the Cabinet Office is going to be seen in future as a smaller rather than a larger department, which seems problematic. There needs to be somewhere where these very important cross cutting policies are lodged and where the work to coordinate is done, even if the responsibility is a prime ministerial one.

Mr Lee: To illustrate that the reporting arrangements and consequences of failure are inadequate, you could look at the performance of the government estate itself. The SDC produced a report earlier this year which looked, amongst other things, at the carbon targets and the data provided by departments on whether they had met those targets. It is a sorry tale. It is publicly acknowledged and David Miliband talked about it. You can ask yourself the question: is the Permanent Secretary in the dock if that department breaches its carbon targets in the same way as he/she would be in the dock on Gershon head count reduction or on exceeding budget? The answer is clearly no. Building accountability in across departments within the machinery of the Civil Service as well as with ministers is absolutely fundamental.

Q198 Earl of Selborne: The Environment Agency's proposals for a fine if government ultimately misses its target rely effectively on an international carbon market and yet the Stern Review reminded us that deforestation leads to a 20 per cent contribution to greenhouse gases or loss of sequestration. I do not think I share the Environment Agency's optimism that an international carbon market will be effective. Although this appears to go a long way from the terms of this Bill, is it not inevitable that we have to take carbon sequestration into account when we work out how to determine international carbon rates?

Baroness Young of Old Scone: Clearly, if there was a faltering of the international carbon market our plan B locks in, which is the fine which would be invested within the UK. We run a mini version of that within the Environment Agency in that we do not offset any of our remainder carbon after our efficiency programme but we invest it in further means of becoming efficient in our own activities. Sequestration is going to be an important part of the mix if technologically we can get it to happen and if the propositions come forward sufficiently fast. One

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of our concerns at the moment is that there is going to be in future a considerable growth in the new proposals coming forward for energy generation. We have to be absolutely certain that if we do go ahead with new technologies or old technologies that they are going to be able to be adapted to carbon capture and storage in the future. That is not just having enough space to put the plant or having the right back end; they are also thinking through what the issues are about long term storage and particularly transport and the right geology for sequestration. We have a number of coal fired power station applications coming forward at the moment, some of which we can see could be made carbon capture ready and others which we find it very difficult to see could be.

Mr Bates: There is a lot of controversy about the clean development mechanism joint implementation and the internationally traded instruments that they produce. Reforestation, aforestation and avoided deforestation are all part of that controversy. What we are assuming—I think it is a fair assumption—is that over time we will have a robust, reliable, international market in these traded carbon reductions. It may not include forestry. It is very difficult to show that protecting a given patch of forest is ‘additional’ and does not lead to emissions happening somewhere else. If there is a demand for pulp and paper, does some other bit of forest get cut down? It is very hard for them to pass this additionality test. Very few of the clean development mechanism credits now are generated by any type of forestry. Most of them are criticised for different reasons: that there are heavy industrial gases in plants that have been closed down in China, but I think we have to be confident that these sorts of problems with this new mechanism will be worked through at the time. It will be, as envisaged in Stern, an important link between the carbon performance of the rich, industrialised countries and the developing countries and will be important in terms of adjusting where the effort takes place and who bears the costs.

Q199 Earl of Selborne: Surely Stern said that it was time for an international initiative to try and prevent this constant erosion of forestry around the world? Presumably the Environment Agency would support such an initiative?

Mr Bates: Yes, he did and he pointed out that avoiding deforestation is very cost effective and one of the most cost effective mitigation measures that you can find, but it has just been slow. Building up enough confidence that protecting a given patch of forest produces an additional environmental benefit compared to what otherwise would have happened is a very difficult thing to achieve. Progress has been moving very gingerly, very carefully, on introducing forests into these internationally traded mechanisms. That is the sort of status but things are changing all the time. Stern’s nudge along to that idea has been quit helpful but does not make the problems any easier.

Mr Lee: I would separate the issue of deforestation itself—Stern attributes 18 per cent of global emissions to deforestation trends—from the issue of the role of sequestration in the carbon market. What we need to do is see more robust, international action by the UK government, which has a big role to play in this, on tackling deforestation. There are a range of mechanisms to be brought into play: control of illegal logging and stewardship. The Forest Stewardship Council next year will have certified 35 per cent of the world’s productive forests. That is a very significant achievement. How sequestering of carbon by forests is taken into account in the international carbon market is a factor—but the UK’s role in tackling deforestation with other countries is very important.

Baroness Young of Old Scone: Clive mentioned the fact that the clean development mechanism had very little in the way of biodiversity and forestry picked up by CDM trading at the moment. One of the interesting things that is beginning to be talked about in the international finance community is a middle course between what Andrew was saying and that. Protecting the areas that are currently up for protection, they are sequestering more carbon but there is also a huge range of incredibly valuable wildlife sites that have no protection whatsoever and where local people would be very interested in earning a living from protecting those sites if funds could be generated. I know already there is a debate going on between some of the international conservation bodies and international finance markets to see if a suitable clean development mechanism proposition could be put forward on that basis. That is an extremely interesting way forward.

Q200 Ms Barlow: You mentioned that the five yearly adaptation report should be brought out in advance of the Carbon Committee deciding on ways forward in advance. Do you think that this statutory reporting mechanism is sufficient or would you like to see more involvement in the Climate Change Committee or even possibly a separate committee to deal with adaptation?

Baroness Young of Old Scone: We swithered—I know, it is a wonderful word—long and hard about whether it should be a separate committee or a sub-committee of the Carbon Committee, bearing in mind that we said the Carbon Committee needed to be an expert committee pretty tightly focused. We think it is probably best done as a sub-committee because it does mean that the adaptation impacts, which are very important for informing the degree of ambition that we need to have on the climate change and carbon reductions, are linked. We think that it probably needs to be a sub-committee of the Carbon Committee but with a strong expert membership in adaptation issues. The report needs to be one that is not just one on what has happened in terms of adaptation challenges but is actually a report card on the government’s adaptation action plan, which we hope will follow the adaptation framework that is currently being worked on, and would be a report on how that has been implemented across all

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government bodies and would be a report also on the adaptation signs, the signs of impact. We keep on saying that there are a number of canaries in the coalmine out there, real signs of the first edges of climate change biting, and we need to have a proper reporting mechanism on those. The adaptation report would also look forward to see what was required for the next period to be met if climate change impacts were not going to become unacceptable. It would be a backward looking report card, a report on the actual impacts and a statement of what government needed to do for the future.

Q201 Lord Woolmer of Leeds: My question does not imply in any way that I am not entirely supportive of the cutbacks and so on, but is there not a danger that your proposition certainly as a sub-committee of the Climate Change Committee is in danger of giving people the impression there is a direct link between what we achieve on emissions in the UK and what happens to the global impact on the UK? There is virtually no connection between the emission reduction that is to be achieved in the next five years and the impact on the level of the sea and other things around the UK. Do you not think there is a real danger of misleading people? If the government are advised that over the next five years they have got to make an even bigger effort and five years later people see it has had no effect whatsoever on the need to take remedial action on the impact consequentially on global emissions, do you not think there is a real danger of deluding and misleading people? Should these not be quite separate, they are both very important issues, but to mix up in people's minds the duty of the Climate Change Committee with the need, I entirely agree with you, to look at palliative and remedial measures, is there not a real danger that you are going to mislead people? There is no real connection actually, although emotionally there is, between the two.

Baroness Young of Old Scone: I think that comes back really to the question of how ambitious as a nation do we want to be in the climate change scene globally in terms of emissions reduction. The arguments are very much the same as have always been the case, I suspect, and that is if we do not show we are in earnest neither will anybody else.

Personally, I believe that it will be quite valuable to have the link because these impacts that for which we need to put in place adaptation measures are for many people are going to be the first thing that really persuades that climate change is real. I did the taxi driver test: if taxi drivers are starting to believe that climate change is real something has happened. What really persuaded taxi drivers was the fact that they could not water their gardens in Essex, Suffolk or wherever last year and they started seeing measures that made it more difficult for them to drive around London. Those two things were a combination of the adaptation agenda and the mitigation agenda but it was the hosepipe bans that went on, in some cases for 18 months, that had a pretty bad impact on them and it brought it to their personal experience. If we are really going to be quite ambitious, as we need to be, on reducing emissions we then have got to somehow link it in the public consciousness with the impacts that make it important for us to do our bit globally rather than saying that what they do here will make a direct contribution to what they are going to experience. It is about us doing our bit in the face of global impacts that is really going to make a difference to lifestyles in the UK.

Mr Lee: There is also another argument for not separating adaptation and mitigation too much in people's minds. A lot of the solutions at local level, at the level of communities and neighbourhoods, the two things are together, building low carbon housing and infrastructure which is also resilient to the impacts of climate change, for instance buildings that will be cooler in the summer without needing air conditioning, the two things are linked. It would be crazy to pretend that this specific action on mitigation delivered in Essex will have a measurable effect on the rates of sea level rise but it would also be foolish to separate these two things out completely in people's minds because, as I say, the solutions will come together in some cases at local level to do with spatial planning, infrastructure and how you design buildings, for example.

Mr Yeo: We are grateful to all of you for coming in, it has been a very, very useful session. I am now going to suspend the Committee for ten minutes only.

The Committee suspended from 4.01pm until 4.10pm for a division in the House of Commons

Witnesses: **Mr Stephen Hale**, Director, Green Alliance, **Mr Martyn Williams**, Senior Parliamentary Campaigner, Friends of the Earth, **Mr Charlie Kronick**, Climate Change Manager, Greenpeace, and **Dr Keith Allott**, Head of Climate Change, WWF-UK, examined.

Mr Yeo: Good afternoon. I am sorry we have kept you waiting. I will make a further appeal to members of the Committee to keep their questions as brief as possible so we can cover all the topics that we want to. Thank you very much for coming in.

Q202 Helen Goodman: Friends of the Earth in their written submission have made clear that they think 60 per cent is not enough. I would like to ask the

other organisations whether they agree with that and also whether one way of squaring the circle would not be to front-load the carbon budgets in the first 15 years and then we could move to 60 per cent or 80 per cent, depending on what goes on internationally? What would that mean for the annual reductions in the early period?

Dr Allott: We entirely endorse Friends of the Earth's view that a reduction of 60 per cent by 2050 is not enough. If we are to have a reasonable chance of

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staying below two degrees warming, which is a vital threshold that we must not go beyond in our view globally, then developed countries and industrialised countries, such as the UK, need to be reducing emissions by at least 80 per cent by 2050. In a way the most important thing is the cumulative emissions over the whole period so we do not want to get too hung up entirely on the 2050 number and you are quite right to focus on the need to reduce emissions quickly. The faster we reduce emissions, the greater our chance of staying below two degrees. In many ways the 2020 target is particularly critical and the need to get that right and as ambitious as possible is the most important thing. Just to put the 2050 target into context, this week in Heiligendamm, the UK and the German Government and others in Europe are arguing very strongly for global emission reductions of 50 per cent by 2050, quite rightly. That is not quite enough to deliver the two degree objective but it is getting into the right ball park. However, at home we are talking about a 60 per cent reduction and given that we are one of the richest, most developed nations with a very large historical contribution to the problem we clearly need to do much, much more than the global average in terms of that 50 per cent reduction globally.

Mr Kronick: The only thing I would add to that is that Stern has been repeatedly referred to this afternoon and, as he pointed out, early action is less expensive. It is not the issue so much of the front-end reductions in the hope that we do not have to do more later because it is almost without question we will have to do more later, the issue is does it make it much more affordable and does it set us on the pathway to achieve those reductions. By all means it is essential to put the effort in now and not wait for better or easier technological options down the road.

Q203 Helen Goodman: If we were to front-end load, what would that mean for the 26 per cent, 32 per cent range?

Mr Kronick: The UK, under appropriate political circumstances, has already agreed to a 30 per cent reduction by 2020 through the EU process, so we have buried the needle on that range and realistically should take any opportunities to get an advance on that to 50 per cent. If we do not make 30 per cent by 2020 it is going to be significantly more difficult to reach even 60 per cent by 2050.

Dr Allott: I am confused as to why the government feels the need to propose a range of numbers for 2020, that seems to me to be a very strange fudge, we need to nail down a number at preferably higher than the top end of that range.

Q204 Mark Lazarowicz: Friends of the Earth and WWF have very much emphasised the importance of what are described as annual milestones. How would the annual milestones be constructed? Are they just one-fifth of a five year period? What is the status of these annual milestones? Are they legally binding and, if so, in what way do they bind the government?

Mr Williams: I think the reason that we proposed them was to deal with the problem of a five year budget period spanning two governments, which I know came up with earlier witnesses this afternoon and I am sure has come up a lot during the Committee's deliberations. When Friends of the Earth and WWF and one or two other groups got together to draw up a Climate Change Bill initially when we started campaigning for it a couple of years ago we favoured an annual target, a legally binding annual target, but we recognised there is a natural variation from year to year in the way in which carbon dioxide emissions will go up and on the weather and on fuel price moves and so on. We recognised that if you had a rigid target you had to have some sort of flexible way of not throwing in the towel simply because one year's target had been missed. We were looking for a flexible way of interpreting a rigid target. What the government has come forward with is by bringing together five years of those targets we do not think you need that level of flexibility because the natural variation in the weather is going to iron itself out over that five year cycle. We are perfectly happy to admit we have changed our position and thought that a combination of this budget, which would do the averaging work for you, does away with the need for variability, but you need to hold the government to account each year on whether it is on track for meeting that budget. Ministers, when we have questioned them on this, have said very much what you suggested, that if there is a ten per cent in five years that is two per cent a year, and if it is 15 per cent that is three per cent a year, it is all very easy, but it does not necessarily have to be that way. If the government wants to invest in policies which would deliver greater cuts in years three, four and five then it is perfectly consistent with the approach of the Bill, which is dealing in cumulative emissions, to say that emissions can stay the same for a short period and be cut deeper later. That is fine as long as the total stays the same. We would like to see the government saying quite clearly, "This is our five year budget, it is 500 million tonnes across five years and we expect to do it with 120 million tonnes one year, 110 the next and 190", whatever share out they want to say, they should set that forward because that makes it possible for Parliament, for the committee and all the other people who are going to be scrutinising this, to see whether the government has achieved what it was aiming to achieve and it makes it more difficult for ministers when they have missed their emission targets in the first year or two to simply say, "Don't worry, we'll sort it out later".

Q205 Mark Lazarowicz: What happens if at the end of year two the figures do not add up to what the milestones are saying, what does the government do about changing policy and what are the sanctions? What is it required to do?

Mr Williams: I think there are two things. One, they may have missed for a very good reason, it may have been the coldest winter that we have seen in 15 years. We can very accurately correct the way in which our emissions vary depending on the weather. If it is a

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genuine case that the breach was caused by adverse weather, or something unusual but which is measurable like that, then the government can make that case and I think it would be accepted. They would not need to do anything more because that would suggest their policies were delivering. In the case where the breach was not the result of the weather and could not be shown to be that, it was a favourable year but we still managed to miss our targets, then I think the government will be under enormous pressure and it should be put in the Bill that if you are not on track you should be coming forward with proposals and explanations of how you are going to get back on track for the rest of the budget. On my first time of hearing, I am very attracted to the idea the Environment Agency put forward that the purchase of credits to get you back on track happens in that year, because that also helps focus the mind of the government that is in power in year two, even though in year three there is a going to be a General Election and nobody knows quite who will be in power after that.

Q206 Mark Lazarowicz: I can see the argument that you want to take remedial action as quickly as possible but is there not also a danger that in trying overzealously to meet the year- by-year milestones you end up taking measures which could even be counterproductive in terms of giving the right kind of policy responses. If the answer was simply to go out and buy a big chunk of carbon credits to meet that year's shortfall, then arguably that is going to be the worst solution overseas and in terms of domestic policy as well. How do you avoid pressure of one year's loss leading to perverse policy decisions being taken?

Mr Williams: These are not done in isolation. Under the Bill there has to be a programme laid out to say how we are going to achieve these milestones. What is useful about reporting annually on whether you are on track is that the levers are not absolutely precise. If you offer a tax credit or a grant scheme for people to fit renewable energy to their homes or to insulate their lofts, or if you change the car taxation system so that you are trying to encourage people to drive greener cars, it is one stage removed from those people going and getting the cars and it is another stage removed from seeing whether once their fuel bills are lower they use their cars more often. We need real, regular ongoing monitoring to say, "The Government has introduced this, changes to vehicle excise duty, we expect it to save X millions of tonnes in each of the next three years" and to be monitoring to see whether that is happening. If that policy is not delivering it either needs toughening or tightening, maybe loosening if it is over-delivering, or other policies need to be brought in to make up the gap. If you think that is as much as you can do on cars you may have to have a rethink and think, "We need to do more on houses". It is not coming out at the start of each year thinking, "What are we going to do next year, we have got absolutely no idea", it is about adapting the plan in exactly the same way as the Chancellor each year says what he expects to take in particular tax, what he expects to spend on hospitals,

on schools, and when it comes round to the next Budget none of those predictions are quite right, they are all reasonably accurate and probably the errors often cancel each out, but policies are then tweaked to get back on track and get the economy back to where he wants it to be at the time of the next Budget. That is the kind of approach we would like to see developing.

Q207 Mark Lazarowicz: Do the other organisations here today agree that this is a fair characterisation of how this one year milestone system would work?

Mr Kronick: In principle, yes, but I think what it does is it emphasises the fact that the Climate Change Bill is not the only instrument that the government has for responding to climate change and it is not the only way that you deliver policies. With the emphasis on reporting you could be forgiven for being distracted from the fact that there is a whole range of other decisions being taken by government, or not being taken by government, whether they are issues around energy efficiency, around the energy supply system, around the expansion of airports, the expansion of motorways, big infrastructure decisions that will have impacts on the way the Bill delivers and the measures within the Bill. By just focusing on the reporting mechanism or the targets within the Bill itself would be to emphasise, maybe even over-emphasise, the situation we are currently in where there is a big mismatch between the stated intentions of government to reduce carbon emissions by 60 per cent by 2050 and nearly every policy decision that has been taken in the meantime which is leading to increases. While we support the view that annual targets are important, if they are only viewed in isolation they are not going to deliver very much.

Q208 Lord Teverson: I want to ask a very simple question. Apart from changing the percentage reductions, what would you see as the top two or three things that you would have as a priority to change in this Bill? From an overall point of view, what are the priorities that you see this Bill needs to change?

Dr Allott: Apart from the level of ambition I think we also need to make sure the scope is correct and that would be to include other major sources of emissions, principally aviation and shipping which are currently excluded, which seems to us to be totally incoherent, they are a part of our economy and if we contribute to those very significant and growing sources of emissions they need to be counted. If they are not counted and reported on we are not going to manage them properly. The annual milestone is an important part of the package to get right as well. We, and some of the groups, are also interested in the idea of using the Bill to bring in some requirements for mandatory carbon disclosure. We think the time is now right for that to be a requirement on major companies to be required to report in a standardised and comparable way their full carbon impact for their investors and other stakeholders to be able to judge their own performance. The Bill is a good vehicle to do that.

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Mr Hale: I think a lot of the focus in the Bill and of conversation has been about what targets you set and what happens at the end, what is the accountability, but of course the critical thing is what happens in-between, what policies the government actually produces that get you successfully from the targets to accountability. I think it is very important that the framework and the Committee on Climate Change open up that process to public debate because there are some quite profound choices that we have got to make as a society and at the moment decision-making processes of government are very opaque. This is an important opportunity and the Climate Change Bill provides an important framework for us to have a more visible, more public, more strategic conversation about the choices that we are going to make between sectors which are very much buried at the moment because those choices will have big effects on individuals. We need to decide, for instance, whether our apparent addiction to the motorcar is so great that we should make more dramatic changes in other sectors. They are not choices that can be buried in negotiation between departments. The visibility of the Committee on Climate Change and its interaction with government and the decision-making process within government is very important.

Q209 Lord Vinson: As you rightly say, there are two methods of trying to meet climate change by the reduction of carbon, one by trimming the consumption and use of carbon wherever we can and, two, going to carbon-free sources. There was an article in *The Times* about six weeks ago that said if we get global warming it will be due to Friends of the Earth's opposition to CO₂ free nuclear power. CO₂ free cheap electricity, which the rest of the world is getting on to—there are 432 nuclear power stations and 30 under construction—is a proven technology for giving us cheap electricity at the moment. We have had various people in here already, senior scientists, saying that this must be a major component in the production of electricity in the future, if we have the electric car at least. Why do you continue to have this opposition to what many people would feel is the right solution, ie cheap CO₂ free nuclear base load electricity?

Mr Williams: Largely because I think the premise of that question is wrong. There is sometimes an assumption among people that Friends of the Earth and Greenpeace and WWF, and actually every other major environment group in this country, are against nuclear power because we are all either ex-Communists, hippies or somehow opposed to it on the basis of some principle. In Friends of the Earth in particular we have seriously had to address this, and we wanted to seriously address it, because one of our trustees took the same view as you, that we ought to be pro-nuclear. We looked at it very carefully and the reason we are against it is nothing to do with a desperate wish to be anti-nuclear or it being a long-held principle, it is because the money that would be necessary to spend on it, as far as you can determine because if you do not know what it is

going to cost to deal with the waste you do not know how much you are going to spend on it, but so far as we can determine the money that would need to be spent on nuclear power would deliver greater carbon cuts if it was invested in energy efficiency, renewables alternatives, dealing with transport problems. That is the basic reason. It is a value for money argument that we are against it. We do have concerns about what you do with the waste but we have concerns about what happens if an aeroplane is flown into a nuclear power station or there is a leak or an accident, all the other things which have long dogged the nuclear industry, but we do not need to weigh those risks up against the risk of climate change because it is a silly way to spend the money when there is a different way that you can spend it that would cut more carbon dioxide.

Mr Yeo: I do not want the Committee to get diverted into a discussion about the merits or otherwise of nuclear power, I would like us to focus, if possible, on the Bill.

Q210 Baroness Billingham: I want to ask a question about the Climate Change Committee and I am putting it to you as perhaps four of the most powerful environmental opinion formers and your role is going to be crucial in this. Would you agree that the success of the entire project, and particularly of the Committee, is going to depend on public approval? Yesterday, on World Environment Day, we had some very interesting statistics of where that public approval currently lies. I am sure that you would agree that we need to keep that process moving forward. I would like you to tell me what concerns you have about the powers and responsibility of the Committee on Climate Change as proposed in the draft legislation and where you think you will be coming at this in order to be part of what I hope is going to be a successful project and working with government and with the agencies in order to ensure that the ultimate outcomes that we all hope for and need to establish are going to be achieved?

Dr Allott: I think you are quite right, it is vital that the committee demonstrates itself to be strong and fairly fearless, an independent and clear critic, where necessary, of government, and is seen to be such by government, by opposition parties, by all of the stakeholders, including the public and business. It needs to be led by some strong and preferably well-recognised people. If it is too technocratic it will become seen as just another dusty Whitehall quango, it needs to be rather more important than that. That is partly to do with the way the annual reporting is carried out. We heard earlier on Baroness Young talking about the annual piece of political theatre, and I think that might be quite a useful way of actually highlighting the importance of the committee in the public's mind if the report has that status in terms of the response from the Prime Minister. One specific thing that WWF is concerned about is the responsibilities which are given to the committee in terms of it has to have an eye on competitiveness, on fiscal impact and on social impacts but there is no mention about equity in

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terms of global equity, let alone equity within the UK, or in terms of environmental impacts. We heard a question earlier about biomass and whether there may be a problem with that. For instance, it is entirely theoretically possible that the UK could meet its own targets in the Bill entirely by importing unsustainably sourced biomass. We support sustainably sourced biomass but if we meet our targets purely by chopping down rain forests and burning it in the UK then that is not going to do the climate any good, let alone the wider environment. The committee needs to have a wider remit and wider environmental expertise and environmental duties as well.

Mr Williams: I would just add one thing and perhaps it is less a comment on the committee and more a comment on the Bill. In many ways I think the Bill does help people to understand why we are doing things, why we are having to have policies and so on, because it sets out so clearly, or it could set out so clearly if the targets were right, the limits and the level that we have to live within. The idea that we have a carbon budget, that is the amount we have got and if we go over that we are going to cause problems, and we have got to find a way of spending it, is a simple idea that people can get the hang of because they are used to household budgets or in other circumstances they are used to calorie controlled diets and they know the amount of calories they can eat, so people are used to that. If we set that out clearly through the Bill and use the annual reports to put that forward then people will see the policies that come forward as choices, and they could be choices between nuclear and wind or choices between driving a less fast, less sporty car but still being able to have a holiday each year. As soon as people start to see it as a choice to live within a budget I think it will be easier to get the policies through.

Mr Kronick: The only thing I need to add to that, with knobs on, is independence. It cannot be seen to be biddable to the current fashions which might be an over-emphasis, for example, on the role of markets in delivering either international or local trade markets, or an over-emphasis on individual technologies, but it is a genuinely independent voice.

Mr Hale: Just one extra point on that. We talked about the targets earlier on and that is probably the seminal issue before this committee and will ultimately be resolved in the Bill, but I think it is important to look at potential effects on public understanding and public opinion. If the target is wrong the first time, opening up the debate about choices that need to be made and policies that need to be designed based on the wrong objectives, from the public's perception I think could be highly confusing and bring down, if you like, the credibility and the level of broad support for the committee and the Act, but also from a business perspective it is misleading to encourage people to invest in technologies and infrastructure that, again, will turn out to have been the wrong choices given the more ambitious targets that collectively we need to aim for.

Q211 Mr Stuart: Can I follow up quickly on that point. Do you then think that because having a moving target or a percentage rate may just confuse the public over time it would be better on the face of the Bill to link to this the two degrees centigrade or, indeed, a budget of so many gigatonnes? Obviously a gigatonne target or whatever would move. What do you think?

Mr Williams: We would like to see the two degrees centigrade on the face of the Bill because at the end of the day that is what we are aiming for, we are not aiming for a particular percentage or even a particular number of gigatonnes. That is our—best guess is a bit of an uncertain sounding word—best assessment on the basis of scientific evidence of what we need to do in order to live up to this two degrees centigrade level. We would like to see that there. On the other hand, I do think it is important that people have a clear understanding of what it means. I know that the budget that Friends of the Earth reports from the Tyndall Centre, which was also presented to you, was five billion tonnes of carbon between 2000 and 2050, and that does not mean much to me. I can cope with the idea that we need a 70, 80 or 90 per cent cut but I cannot really get my head round the number of gigatonnes over a 50 year period. The primary aim is to make sure that the two degrees is on there and we need to find ways of communicating that to people in a way they will understand.

Mr Kronick: I think it is pretty important to realise that these targets are movable because climate change is a contested area. It is not contested whether it is happening or not, what is contested is how bad it is going to be and how big a range of uncertainty there is about what it is going to be. When you get into two degrees you get into this terrible phrase called “climate sensitivity” and basically what it means is how much will the temperature rise if we double the amount of carbon in the atmosphere. What happens is that number just keeps getting bigger and bigger the more we know about climate change. The reality is if we fix the targets now we will almost certainly get them wrong and if we express them in a language that does not allude to that level of uncertainty it would be dishonest, and I do not think anybody would like to do that.

Q212 Mr Stuart: Going back specifically to the committee, we have had different evidence where some think it should be very narrow, very expert, and others have suggested almost a divine prescience they want to give this wonderful committee that is going to lead public debate, communicate with everyone, hold the government entirely to account and cover everything that is social, environmental and economic all in one. What are your thoughts on powers and responsibilities?

Mr Williams: We would like it to be fairly narrow in the sense that it should be taking into account the scientific evidence but there are choices as well and two of the key omissions from it at the minute are the fact that if you work out what is necessary to destabilise the climate you are going to end up with a figure of a global emissions cut of something like

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60 per cent, but it is completely unrealistic to translate that into the UK having to do 60 per cent, that is not viable on the international political stage, nor is it fair, nor is it all sorts of other things. There does need to be some consideration in the committee of how that 60 per cent global cut is shared out between nations, I think that is very important. The other one is this issue of what damage could taking certain steps cause to the broader environment rather than just the climate change environment because the two seem to get confused these days. I think biofuels is a very good example of that. I would be relatively happy if they stuck to making sure they study those two things.

Q213 Lord Whitty: Can I move you on from the discussion about budgets in the committee to the one mechanism that is within the Bill for actually delivering all of this, which is the trading schemes area. First of all, it was said, maybe as a throwaway line, by WWF just now that we should avoid over-reliance on market solutions. Does that mean that any of you think there is too much emphasis put on the trading schemes? Roughly what proportion do you think, say by the interim target, could be delivered by the climate trading schemes that it is conceivable we could put into place in order to deliver the 2020 target?

Mr Kronick: It was Greenpeace. I want to absolve the WWF from any lack of faith in the delivery of markets. I think Clive Bates from the Environment Agency made a reasonable stab at it, around 30 per cent being bought in does not seem like a bad starting place, but what is important to remember is the whole point of the exercise is to reduce emissions, it is not to buy in the credits that show the emissions were reduced somewhere else. If we are looking to long-term targets, especially ones that are genuinely ambitious, if we do not create a trajectory in the short-term and start to change the infrastructure and make decisions that are not going to leave us with stranded assets in the form of, for example, seven gigawatts of unabated coal now either in the planning system or cued up to be in the planning system, there is no way in the world, with the best will in the world, that we are going to be on the right trajectory even if two or three of those power stations were built as are currently proposed. The role of the marketplace from our point of view is to deliver economic efficiency and the only way we will reach the target is if the core of the activity is reducing our emissions.

Dr Allott: I would echo many of those comments, although I did not come out with the particular phrase that was attributed to me. The key thing for us is that there is great potential as the global carbon market evolves if it evolves in the way that we all hope it will, for instance becoming a significant contributor to the global effort. We are some way from that at the moment and the Bill needs to recognise that we are in a moving picture here. At the moment, as we all know, the EU Emissions Trading Scheme, certainly its first phase, is not delivering emission reductions effectively. We also know that the clean development mechanism has many

problems in terms of delivering really credible, truly additional emission reductions. The Bill is setting a framework which is meant to last for several decades at least and we hope, and we are all working very hard in this direction, that we will get towards an international framework, including a trading regime, which is more credible. The more credible the international trading regime is then the more relaxed we should be about relying on imported credits to meet our own targets. Until we get to that stage I do think we need to be quite careful about over-reliance on imported credits which may not represent real emission reductions elsewhere in the world which would then lead to precisely the sort of lock-in that Charlie talked about.

Q214 Lord Whitty: Is your objection to buying in from abroad or, indeed, the objections that some of you have to the borrowing requirement as some sort of temporal borrowing because you think it is wrong in principle to do that or is it an issue of validation and being able to validate that the CDM mechanisms do actually save carbon and do reflect additionality, or do you think the mechanisms here are being too flexible and letting the UK or Europe off the hook?

Dr Allott: There is an issue of principle as alluded to by Clive Bates to do with the principle of supplementarity that is enshrined in the Emissions Trading Directive and in the Kyoto Protocol and we think that is a principal guidance. One thing that we would recommend would be, at the risk of overburdening the committee further, a fairly regular reporting duty in terms of looking at the integrity and robustness of the trading schemes which we are either directly or indirectly linked to. If we are relying on imported credits or allowances from other schemes to meet our targets then it is important that we make sure they do what they say on the tin as much as it is important that we look at all that we are doing at home. The committee should be reporting on the adequacy of those schemes and whether they are of comparable stringency. We would recommend that there should also be a quantitative limit on the reliance on credits, whether it is 30 per cent or I think I would counter it should be rather less than that. There is a debate to be had there. The stringency of that limit should perhaps be variable depending on the report that the committee comes back with in terms of how credible the other schemes are. If the other schemes are very, very credible then perhaps we should be having a higher limit but, conversely, if those schemes are riddled with holes and totally incredible then we should be really clamping down on these other credits.

Mr Hale: It is not a matter of principle from the Green Alliance's perspective, we are very supportive of trading, and you have obviously got to get the validation right, but there is a third dimension to this, which is efficacy. Trading is not the best instrument in all circumstances and since the publication of the Stern Review, although he set out a range of options I think he rightly tailored his message to his recipient, which is the Finance Ministry, and trading has become regarded as a kind

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of panacea but actually shifting the price per se does not resolve all of the market failures. From our perspective we are quite keen to ensure that standards and regulation and other instruments are given more prominence in the debate and more prominence in the government's response because in many areas you can get a more effective solution through means other than trading, and I would give transport as the classic example of an area where trading is not the answer.

Mr Williams: From Friends of the Earth, while we are not opposed to trading in principle we are very concerned about the efficacy, as everybody has been. We have one further concern, which I think everybody has as well, which is that we do not lock the UK into high carbon developments thinking we can buy our way out of it in the early years and then finding that the trading price hits a lot harder down the road and we are not left with airports, coal-fired power stations, and motorways all over the place and that sort of thing, so there is a lock-in issue as well.

Q215 Mr Yeo: Just on this point about the proportion of our target that that can be met from purchasing credits from abroad. I think both the agencies and Greenpeace have said that 30 per cent might be a reasonable figure. Do you want to see that written into the face of the Bill?

Mr Kronick: I am not even sure that I think it is a reasonable figure. I think it is a reasonable place to start to discuss it. I think having a clear idea that there needs to be a limit should be written into the Bill. What that limit is I think will evolve over time. It has to come back to that issue of a trajectory, what are we locking ourselves into in infrastructure terms in carbon emissions all the time, because although a 2050 target is far enough down the road that it is several parliaments away, it is the decisions that are being taken now about these infrastructure investments that are going to maybe cause us problems whether we meet our targets for 2050 or not. The lack of buy-in—maybe that is a terrible word—or overdependence on importing credits will make it impossible to do that. That is why we are concerned about it.

Q216 Helen Goodman: I want to follow up these questions about trading. I am amazed that having made these rather radical criticisms of credits you are prepared to conceive of a limit of 30 per cent of imports because it seems possible if you went down that path your target reduction could, in fact, be 40 per cent. Furthermore, is there a risk with very high reliance in the early years on credits that there is not an incentive on the non-Annex 1 countries to sign in because this is a good flow of development funds for them? Finally, would it not be better to auction carbon at a backstop price equivalent to the price of converting power stations?

Mr Williams: I actually would not support the 30 per cent, I am sorry I forgot to say that earlier on and I do not like dobbling my colleagues in. I think that 30 per cent is much too high as well and we should always be looking below ten. The government has

committed, I believe, to an eight or ten per cent limit in trading within the EU at the moment. I do not know if it is a legally binding thing but it is what they are going to aim for and I think we should stick to that. I probably would not advocate putting the limit on the face of the Bill because what is an acceptable limit changes over time and changes with the development of trading schemes. It is hard to advocate a great deal of trading at the minute when the EU ETS simply is not bringing emissions down at the rate it needs to and when the Kyoto mechanisms are trading with uncapped countries, so there is absolutely no guarantee that you will actually see an overall reduction of a tonne when you buy a tonne in from Bangalore rather than reducing it in Birmingham, to use David Miliband's example. I would look for much lower.

Q217 Helen Goodman: You saying that importing is better later rather than earlier?

Mr Williams: I think it may be but that depends on international agreements and the state of play of carbon trading markets and how they develop. At the minute I think it is very difficult to defend a great deal of trading at all but I do accept that may change in the future and as a principal matter it may be a useful thing. It may also be a useful way of transferring some of the new low carbon technologies which are developed in the developing world to the developed world at lower costs. I am sure it could have a role to play but it should be something the committee advises on because it is going to be a moving feast.

Mr Kronick: Can I just be clear that I really, really, really do not want to give the impression that Greenpeace thinks 30 per cent is a good figure. I completely agree with Martyn that the performance of carbon markets in the context of current emissions has been totally negative, emissions keep going up and transaction costs keep going up. Whether trading is better at the front end or the back end, I have literally no idea. The one thing I know absolutely for certain is that unless we actually do begin to reduce carbon emissions we will not solve the problem of climate change. If we are serious about creating better flows of overseas development assistance this probably is not the best way, not only because some of the biggest issues around overseas development and vulnerability of development is going to be because of the impacts of climate change but there is going to need to be strong adaptation and, as far as I know, adaptation has not been mooted so far for participation in the carbon markets. I was endorsing the idea of a limit, not the limit they were producing, and at the moment it would be very hard to justify very much in the way of importing credits at all.

Q218 Mr Chaytor: Given the heavy reliance of the Bill on emissions trading, or its sole reliance on emissions trading, do you think there are opportunities lost to more directly influence individual behaviour change? What are the

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provisions that can be inserted into the Bill to strengthen the impact on individual behaviour change?

Mr Williams: I find this a slightly difficult question because what we want of the government, or any government, whichever government it is over the next 20 or 30 years, is legal structure, a legal framework, within which emissions are brought down and then a set of policies that actually do the bringing down. In the way the government have chosen to draft this Bill they have included trading as a domestic measure. There are two things: first of all, they have allowed the target to be met by international trading, which I think we have probably covered enough; and, secondly, they have introduced powers to be able to introduce domestic trading schemes to get close to it. Yes, there are so many other things they could be doing, product standards, taxes, the whole list of building regulations, planning, the rest of it, all the things that we could roll out, but they do not all need to be in this Bill. They all need to be done but they do not all need to be in this Bill. It is a bit of a difficult question to say whether or not they should all be in the Bill. You could argue that less should be, take that trading stuff out, and the Bill would still stand as a logical and useful thing to come forward, it is just that those trading schemes would then have to come forward as our own legislation. It is down to the government and its time managers to say how much should be loaded into this Bill to make sure it gets down quickly and is implemented rather than being delayed and lost in the long grass.

Mr Hale: I would say I agree with that entirely, this Bill is designed to do a particular job, it is not the means to develop and review the Energy White Paper or our transport strategy or anything else. As we secure and act and as the government then draws up by the end of 2008, as it will need to do under these proposals, three carbon budgets for the first three five year cycles, that exercise is going to have to involve a fairly major reassessment of a number of policy areas. What is clearer than ever, and was very clear a couple of weeks ago when the Energy White Paper was published, is that there is a growing disconnect between the government's existing strategy and the objectives that may well be written into primary legislation even at the level currently proposed by the government. There are some big policy questions that arise from this process but the primary issue for the Bill itself is the process of target setting and establishing proper accountability and that is certainly sorely needed.

Q219 Earl of Selborne: The secretary of state is required to report at least every five years to Parliament on proposals on policies for adaptation. Is this enough? Would it be sensible for the secretary of state or the government to have an independent source of advice on adaptation?

Mr Williams: I think it does make sense to have independent advice, yes. With any independent advice though there are still political decisions to be made at the end of the day and it is useful to have a distinction between what advice is and what

ministers are deciding because independent advice should not be used as an excuse for making tough decisions. Yes, it would be useful.

Mr Kronick: I am going to confess complete ignorance of this so I will not burden you with making it up as I go along.

Mr Hale: I would just make one point which is that people keep referring back, as the Bill does, to the Secretary of the State for the Environment but even the current Secretary of State for the Environment, who is a very fast, up and coming and influential minister within the Cabinet, does not have, I suspect, the personal charisma to persuade the Secretaries of State for Energy, Housing and Transport to make the kind of new policy interventions that would be required from these targets. While he or she may remain the minister designated and reporting, there is absolutely no doubt that these issues will go to the Prime Minister of the day and not to the Secretary of State for the Environment, so there may be a case, as people were suggesting in earlier sessions, for recognising that and putting it on the face of the Bill.

Q220 Baroness Miller of Chilthorne Domer: The Environment Agency gave us quite a lot of heartfelt feeling about the fact that adaptation did not have enough weight in the Bill. Do you want to give us some examples of things that you feel should fall into the definition of adaptation which are going to be big issues that need to be addressed in the fairly short-term? The sort of thing that crossed my mind is, are grid issues adaptation? I know Greenpeace has done a lot of work on grid issues. Where would that fall in the thinking?

Mr Kronick: From our point of view the distinction between adaptation and mitigation is going to be diminished over time and it is certainly true in the developing world. The idea that there are two completely separate ways of looking at the world has almost completely disappeared and I think the coming together of environment and development groups through our international network has shown that. As far as decentralised energy goes, which is most of the work we have done on grids, it has shown us that the way that you achieve one of the objectives that the Energy White Paper set out, which is energy security, is not to be dependent on large centralised power stations which waste two-thirds of the energy that goes into them. In that sense, adapting to climate change means making far more intelligent decisions about our energy infrastructure which, as both Martyn and Stephen have pointed out, is not part of this Bill, it is part of responding to climate change in the package of measures that are going to be required to do so. One thing to remember is that sea level rise definitely means that coastal installations of all kinds, including where most of our currently sited nuclear power stations are, are going to be very, very vulnerable; in effect some of them may be freestanding islands certainly before the end of the decommissioned life of the power station and possibly before the end of their proposed operational lives. In the sense of any sensible broad interpretation of adaptation, yes, but in terms of the

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way it is classically referred to as to whether it is dealing with sea level rise or the range of crops or the northerly movement of trees and animals, I am not sure.

Dr Allott: One other very important dimension about adaptation is the adaptation requirements in the developing world which is where the impacts will be felt much more strongly than here in all honesty, partly because of the capacity issues in terms of the ability to adapt. This is an area where the UK Government, as other developed governments, has a big responsibility to help the developing countries who have done the least to cause the problem to adapt to the impacts which they are going to be feeling. This is one of the areas that we feel the adaptation requirements should cover. The government should be reporting not just on the activities in terms of adaptation within the UK where there are boundaries you want to try and draw around that, but also what its activities are in contributing towards the international effort on adaptation which is, frankly, much more serious. The World Bank itself puts the adaptation costs at \$40 billion a year already.

Q221 Baroness Miller of Chilthorne Domer: I would not disagree that those are very, very serious issues and we need to be constantly aware of them, but do you think that it weakens the Bill to start laying that sort of requirement to report on all the rest of the world in the Bill?

Dr Allott: A report on the UK Government's contribution towards that global issue is probably relevant. It is a very big issue for DFID, for instance, at the moment, and there are a lot of people within DFID who are very worried about this. They are already thinking about it and it would be sensible to bring it together in one common place.

Q222 Lord Crickhowell: I have one comment and one question, if I may. It was said some time ago that the responsibility lies with the Secretary of State for the Environment. Maybe in practice it does but, of course, like all Bills, the Bill is drafted to cover the secretary of state, which means all secretaries of state and, therefore, it is not necessarily true that the duties will only lie with the Secretary of State for the Environment. On the question of the Climate Change Committee, almost every fifth comment has been that the committee should be able to do this or that, and as these comments have been made I have been re-reading the Bill where it sets out the duties of the Environment Committee. It is actually quite narrowly drawn about the kind of job it should be doing and the advice it should be giving. I think it would be quite useful for those of us who are going to have to produce suggested amendments to the Bill to have from you collectively, or individually, some suggestions as to the way that the Bill might be redrafted to clarify or enlarge the actual duties and scope or membership of the committee. Looking at it, I was struck again and again by the very brief references there are to what it should be doing. It may be that we need to come back and amend this

section of the Bill. I, for one, would be grateful for some advice and suggestions as to how that might be done. Would you be prepared to do that?

Mr Williams: I would be very happy to do that. It seems a struggle to cope with the select committee hearings sometimes, there have been so many, but as the point has been made we will certainly be looking to see how the Bill and the detail of the Bill could be amended. I would highlight three things. One is that it should be much clearer in the Bill what the duty of the committee is. At the minute—I do not have the Bill in front of me—it has a list up to about G or H of things it must take into consideration when suggesting the way forward but it does not say anything in there about the ultimate goal that the government has, and we have all stated, of restricting global temperature rise to two degrees centigrade or, at least, of doing the UK's fair share of what is necessary to achieve that because clearly the UK will not manage that all on its own. I think that should be there and the requirement to have regard to some sort of equitable global apportionment regime for the global emissions that are necessary to do that should be there and it should have a view to wider issues of sustainable development so that we do not get perverse ideas like unsustainable biofuels suggested as a solution. I think with those three things it would round the committee quite well. There may be finer details but those are the three key things.

Q223 Lord Vinson: I would like to come back to the question of the political realities. It is quite right that our country is about to set itself extremely high, higher than the rest of the globe, targets on carbon saving. We are talking about if we fail to meet those targets the government will have to take steps. The only steps the government can take is to increase tax or put some penalty fine on if it cannot go and buy emissions from abroad, and I accept that buying them from abroad is very dicey. The cost of that failure will have to be reflected in some form of taxation and the ultimate is the citizen pays. If five or ten years into this, and we have worn a really good hair shirt to try and show the rest of the world how to do it, we find the rest of the world has done practically nothing, is not any government going to find it extremely hard to penalise its own people for failing to meet a target when the rest of the world has done next to nothing in comparison? How do you see the political realities working out?

Mr Williams: Let me start with the premise of the question. We are not setting a target that is way beyond the rest of the world. Germany, because it is hosting the G8, is making a huge deal of the fact that it has set an 80 per cent target.

Q224 Earl of Selborne: I am talking about China and India and major new economies.

Mr Williams: We are not leading the world. Germany is ahead, France is ahead and California has set itself the target that is in this Bill. A couple of the Scandinavian countries have pledged to go carbon neutral by around about the same time that we are setting this 60 per cent target. We are even

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seeing moves in America. Apart from California, at the state level we are seeing Senators Clinton and Obama backing a bill in parliament that would set a target for an 80 per cent cut in the US by 2050. We are not leading the world any more, we are falling behind the world with this Bill. I accept we are leading the world in setting out the legal frameworks on energy, other countries have not done that, but other countries are shifting and overtaking us in terms of their ambition. If that all turns out to be hot air and nonsense and nothing happens and no other countries move in the same direction and we do not see some of the movements in China and India, I fully accept you are right, it would be difficult to justify it here. It would also certainly be the case that there would be an increasingly limited point in doing it here if the rest of the world is going ahead. That is simply a statement of fact. We are not getting so far ahead that I think we need to concern ourselves that we are making ourselves uncompetitive or sticking ourselves out on a limb because the rest of the world is moving in the same direction, and moving fast, and many of them have gone past us.

Dr Allott: The argument that this is likely to cause hair shirts in the UK is probably not accurate. On the government's own figures in its regulatory impact assessment for the Bill, its 60 per cent target would require a reduction in GDP in the UK of 0.7 per cent by 2050 and over the same period GDP will go up by nearly three-fold, so it is a pretty marginal reduction in what GDP will be in 2050. That will fall to 0.3 per cent in a moderately high fossil fuel price scenario, which personally I think is quite realistic. That is a very, very small sum, especially set against what Stern was saying which was the damage costs of unabated climate change of five to 20 per cent of global GDP and he said that global mitigation costs of around one per cent are entirely reasonable. For a country like the UK, a rich industrialised country with a very heavy historical responsibility for contributing to the problem, to be going to spend less than the global average on tackling this problem seems to me to be grossly inequitable and we should be prepared to stump up and do our bit to deliver the problem if that means more than what the government is preparing to spend.

Mr Hale: Can I just add two points. I absolutely agree that the Bill should be designed, framed and delivered in a way that reflects reality, but for me there are two realities that have rather been neglected. The first is the scale of what is at stake. It is not simply a matter of whether you choose to wear the hair shirt or not, from an economically, socially, developmentally and security perspective the stakes are very, very high for this generation of politicians and where we go in ten or 15 years I am sure that none of us want to confidently predict but we should be working towards success. I think the second reality is that a lot of the conversation today has been run on a sort of binary basis that the UK should lead and then the rest of the world will follow. Our primary leverage is through membership of the European Union. We are a member of a 25 country

entity and it is through Europe acting collectively that we can bring down the economic cost of the action that we need to take and we can leverage actions by others. It is not simply about a piece of UK legislation somehow inspiring global change but what the UK Government can do is lead and act at home but also work in concert with other countries who are at least as committed, and in some cases more, to tackling this problem to leverage change and reduce the costs dramatically of some of the things that we need to do.

Q225 Earl of Selborne: Provided they deliver.

Mr Hale: Let us have that meeting in 15 years, but we should be working towards success.

Q226 Mr Yeo: Can I ask one specific point about the Climate Change Committee. If it is going to advise on targets, and critically advise on sectoral targets, could it do that without going into, relatively speaking, the detail about the mix of policy which government should actually follow to achieve those targets?

Mr Williams: I think it could do it without going into enormous detail and it can look at things like the scope for technological innovation which we already have within the car fleet, for example. We know what the best vehicles out there can do, we know reasonably well what is just around the corner from talking to car companies, so we have a pretty good idea of what we could deliver within the transport sector fairly rapidly, and I think the committee should be setting those things out. If the government chooses not to bear down on car emissions because it feels that is going to be controversial, getting people out of 4x4s or whatever, then it will be very clear from a sectoral analysis like that that it is going to have to do more in the industrial sector, in the domestic sector or whatever. I think it can set out the scope. I do not necessarily think it needs to design the way in which you encourage someone to drive a greener car or insulate their loft, but having an idea where the potential savings are and what we ought to be doing would be useful and having a stand on the committee on that would help.

Mr Kronick: I think it could do the exact opposite actually of creating tension between the sectors coming in with a strategic overview because at the moment the great challenge that we face is that we can make a great case for decentralised energy, for example, to certain departments but the DTI will not think it is such a great idea because they are very comfortable with the model they are currently promoting. If there is the capacity for adding some sensible strategic overview to the way that the government looks at reducing carbon emissions across sectors as opposed to playing them off against one another that has got to be a positive thing.

Mr Yeo: Thank you all very much indeed for coming, it has been a very helpful session. Can I say thank you to members of the Committee for enduring a second consecutive day of more than three hours. Thank you very much.

Tuesday 12 June 2007

Members present:

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| Billingham, B. | Woolmer of Leeds, L. |
| Crickhowell, L. | Ms Celia Barlow |
| Jay of Ewelme, L. | Nia Griffith |
| Miller of Chilthorne Domer, B | David Howarth |
| Puttnam, L. (Chairman) | Mr David Kidney |
| Selborne, E. | Mark Lazarowicz |
| Teverson, L. | Mr Graham Stuart |
| Vinson, L. | Dr Desmond Turner |
| Whitty, L. | Dr Alan Whitehead |

Witnesses: **Ms Megan Wheatley**, Head of Policy, UK Business Council for Sustainable Energy, **Dr Keith MacLean**, Head of Sustainable Development, Scottish and Southern Energy, **Mr Ravi Baga**, Director of Environment and Market Regulation, EDF Energy, and **Mr Philip Wolfe**, Chief Executive, Renewable Energy Association, examined.

Chairman: Good afternoon. Thank you very much for finding the time to come and give evidence to us. You know the areas that we are going to probe.

Q227 Lord Vinson: Can I thank you, first of all, for the technical nature of your replies? Most of you here today are in the business of delivering climate change, not just talking about it and setting targets, so it is quite refreshing to have some papers with some cost benefit analysis of the various approaches within them. The common theme running through them is your anxiety to make certain that on the Climate Change Committee there is representation from both engineers and scientists who have been closely associated (a) with trying to solve the technical problems of climate change and (b) the delivery of energy in its various different forms. How critical do you think it would be that the Climate Change Committee has members with broadly your background thereon?

Mr Wolfe: We certainly feel it is important that the Committee is independent and seen to be independent, that it is able to advise government from a position of technical competence but also a position where it is not going to be inveigled into party political positions. We feel it needs to be and to be seen to be independent and expert.

Mr Baga: We believe the Bill has a very important role to play in combating climate change. We would very much see it as an over-arching, umbrella legislation that would be able to bring together various strands of policy and deliver the investment that we need. One of the things that is lacking so far has been a long term pricing signal. It is essential that the powers contained within the Bill are sufficiently broad to include the provision of the ability to auction carbon contracts. We have been working very hard in our discussions with government to ensure that the provisions of such instruments are made so that we can galvanise early investment in low and zero carbon technologies.

Q228 Chairman: The purpose of this Committee obviously is to, where possible, improve the Bill. Do you have any specific criticisms or areas in which you think the Bill does not do the job it sets out to do?

Dr MacLean: One or two areas where it would be useful to have a bit more clarity are particularly around the budget setting or the ability to amend budgets. We would like to see more specific criteria and a framework set around what rules would be applied in doing that. Similarly, looking at the enabling powers, we would like to see more specific measures, not necessarily more restrictive measures, but a clearer framework and a clearer set of principles around the type of enabling powers that would be used, rather than just a carte blanche.

Q229 Chairman: Is that the general view of all of you?

Mr Baga: It is helpful if you can view carbon abatement as a product. What we are interested to know is what level of product does UK industry have to deliver. To do that, we know what the target is. One area where the Committee will have powers—it is referred to in the Bill—is the ability to set the proportion of reductions that would be delivered domestically within the UK shores and those that will be allowed through from other trading schemes such as the EU ETS and international flexibility mechanisms under the Kyoto protocols, such as the joint implementation and clean development mechanisms. Without having a firm cap on the restrictions from those elements, it reduces the clarity that industry has in terms of the demand for a product to be delivered domestically. That would be one of the areas where it is essential that the Climate Change Bill does provide some firm guidance on the level of abatement. The second area is the flexibility to adjust targets as you go forward. Our view is that the Committee should not have powers to relax targets because that creates a significant risk that you are going to have stranded investments and that you have invested to produce too much of the product and the price collapses. That would be a second important element in terms of the detail that the Bill will have in how it is implemented, going forward. Finally, the current proposal is to set budgets for three five year periods. If you look at a number of low carbon technologies that we are going to be investing in, they are not going to be online before

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2017 and they will be operational for 25 to 60 years after that. We think the Bill should allow for five five year budget periods so that we have some visibility of a 25 year timespan. We think those changes would improve the effectiveness of the Bill.

Q230 Lord Crickhowell: You talk about a limit to be placed on what is done in the UK and what can be transferred outside it. We have heard evidence on that. We have had suggestions that the current convention of 50 per cent, which has been accepted, should certainly be less than that, but that this should be one of the matters that the Climate Change Committee should recommend on and recommend on early. Are you going further and suggesting that it should be a limit written into the Bill? There have been some quite strong arguments why that it should not be done but that it is a matter of high priority for the Climate Change Committee. Do you want it in the legislation or are you content that it is a high priority for the Committee?

Mr Baga: Having it as a high priority for the Committee would be adequate, recognising that that is one of the parameters that will determine or provide further clarity for investors seeking to invest in low carbon technologies. The other parameter to bear in mind is the negotiations on the Kyoto Protocol post 2012. The primary purpose of some of the international mechanisms was to deliver carbon reductions at the lowest cost, facilitate capital transfer to developing countries and to mitigate a global problem. It is unclear whether the existing mechanisms will continue to facilitate the level of capital transfer that is needed for those mechanisms to be truly effective and to have developing countries accept targets. You need to keep an eye on those international negotiations but in parallel recognise that, in designing UK policy instruments, it will be a key parameter in providing clarity to the industry.

Q231 Dr Turner: The government has not had much luck in reducing carbon emissions over the last ten years. Electricity consumption is continuing to rise. Do you think the interim targets of 26 to 32 per cent by 2020 are achievable? If so, how?

Dr MacLean: The first part is possibly easier to answer than the second. We believe that those are stretching but nonetheless achievable targets. Clearly, the Climate Change Bill is setting a wider framework. In order to get to those targets, it is essential that other policy instruments are implemented and implemented quickly. I would stress in particular the very positive progress, looking at the Planning White Paper which has been put forward, and the expectation that that will allow what has been a big blockage on renewable energy deployment, for instance, to be removed. We would caution that that legislation will primarily cover England and Wales, in as far as the renewable deployment is concerned. Scotland is also very important so we would want to ensure that measures are taken to allow proper deployment there. Absolutely key will be getting the rest of the policy framework right and making sure that the delivery mechanisms are in place to allow that to happen.

Mr Wolfe: I believe the second part of your question is very important—in fact, more important. Our focus should not be on can we or can we not but how can we. We should be spending the majority of our intellectual capital on ways of achieving it. Our feeling is that the energy sector can make a very significant contribution to achieving that. For example, the new targets adopted within the European Union for energy in areas like energy conservation and renewables can make a very significant contribution to that. At the moment, we in the UK are one of the worst performers in Europe in terms of the contribution of renewable to our total energy at about two per cent against a European average of some six per cent. Just getting ourselves up to the same level as our neighbours enjoy in terms of renewables can in itself make a contribution of a significant proportion. Yes, we believe it is achievable. Yes, we believe we should be focusing on how and yes we believe the energy industry can make a very significant contribution.

Q232 Dr Turner: Would it be a help to the energy industry if the Committee were to set a specific sectoral target that the energy industry is expected to deliver? What is your view on the principle of breaking the overall target down in the sectors so that people can see more clearly what needs to be done?

Mr Baga: We recently announced our climate commitments where we undertake to cut the CO₂ intensity of generation by 60 per cent by 2020. That is going to require investment in renewables, in new, highly efficient combined cycle gas turbines as well as nuclear. The key to delivering those reductions is facilitating that investment. Given the timescales that we have, we do not believe the ETS on its own can satisfy the certainty and clarity that investors need to deliver in those timescales. Yes, it is achievable to achieve significant reductions by 2020 but we need specific policy instruments to help deliver them. The relevance to your question about individual sectoral targets is that that is not helpful because we are in a global trading scheme. Those certificates will be traded across different industrial sectors. The emissions reductions will come from whichever sector is able to make the investment in good time. If the electricity sector is to make a serious contribution, it is important that we back it up with specific policy instruments that are capable of bringing that investment forward. We have been working on proposals such as the carbon hedge that we put forward in our written response to the Committee that we believe are capable of delivering that investment. Investment is the key and anything that can be done to reinforce the investment will be helpful.

Q233 Dr Turner: Do you not think a sectoral target would help to reinforce that investment message?

Dr MacLean: It is very important at the moment that most of the emphasis, particularly under the Emissions Trading Scheme, has been on the power sector. For the other sectors, their business as usual projections have been taken as the basis for their

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allocations, whereas for the electricity generating sector it has been set below that. There is already, if you like, a sectoral element in the target setting from the national allocation plans. We believe that overall there has to be a proper burden sharing and our industry has to play its role towards that. In taking the legislation forward, I think it is important to see that the principles of capping below business as usual applied right across the board, not just to specific sectors.

Mr Wolfe: If you did go down the route of sectoral targets—and there are many who support them—it is important to recognise that all sectors can contribute, in particular even within the energy sector most of our focus historically has been purely on electricity. It is very important that we set targets for heat and transport as well if we are going to break it down sectorally and we do not focus all of our energy contribution purely in the electricity sector.

Ms Wheatley: That highlights the importance of a policy framework that does target all sectors across the economy and also targets the sustained reduction in the growth in energy demand as well as looking at sustainable energy supplies, as well as heat and transport. The policy framework is where we need to get our focus.

Q234 Baroness Miller of Chilthorne Domer: I am interested in your emphasis on the policy framework because one of the early lively discussions in the Committee is: is this piece of legislation a place where there should be more emphasis on policy or not. It seems that your opinion unanimously is that there should be some emphasis on the policies that will achieve this within the legislative framework.

Mr Wolfe: We feel it is very important that this should not end up as a disjointed and separate piece of legislation that floats out there without connections to the policy measures. There are already a number of policy instruments there with these aims of reducing climate change effects, things like renewables obligations, for example. It is very important that the Climate Change Bill does not just place another isolated measure alongside these, but that it acts as an umbrella under which these other policy measures can be connected together. It is important therefore that the Committee does track the effectiveness of these measures in getting us along the pathway that we have set up for ourselves.

Q235 Mark Lazarowicz: Very much on the theme of the last answer, do you have any concerns about the fact that the performance against the first carbon budget of 2008 to 2012 will not be reported on until June 2014? What is your view on the reporting mechanisms for the five year budget periods?

Dr MacLean: It is important that there is regularly updated information. Whether the final report comes out later—that may be the case if there is a problem with some of the data availability—but with an annual report giving an idea of progress that will be important. I would like to stress one particular issue with regard to the overall projections and the modelling. At the moment, the

model that has been used for energy projections is very limited in what it can do. It is time to extend it to cover the impacts on carbon. It will be absolutely essential that the system is properly updated and resourced so that it is able to run regularly and is able to take into account a number of different sets of inputs, rather than the very limited set that there is at the moment. Assuming that all fits together, there should be a far more regular, shared report on progress, hopefully coming through the Committee in a fashion that gives industry more confidence in the output than we would have at the moment. That ongoing basis is more important than having a specific end of period report.

Q236 Mark Lazarowicz: The draft Bill does propose an annual reporting mechanism. Other witnesses have suggested there should be an annual rolling budget as well so you have a five year budget updated each year. Is that a good idea? Is it practical to do that or is it asking too much from the information sources we have available at the moment?

Dr MacLean: I would be cautious on amending the budgets too regularly. All of us are looking for a long term clarity. If we are talking about setting several five year budgets in a row, we need to be careful that we do not introduce too much scope for flexibility within that. Otherwise, the value of setting them in advance would be lost.

Mr Baga: It would be unhelpful if we did not set policy before 2014. The fact that the Committee is not going to report until 2014 is of less relevance. We already have a very good view of what the emissions from our sector are going to be, up to 2015 and 2020. The assets that we have take a long time to replace. What we are looking at is a window between 2015 and 2050 where, as we go to the next capacity replacement cycle, we will be setting a carbon footprint for the UK for that time period. The fact that the Committee is not going to report until 2014 is less of an issue. What is of a higher priority to us is making sure that the work that is ongoing now with the Energy White Paper, influencing European policy on the ETS and putting in place supporting instruments, takes place quickly so that we can make the investments to make a real difference by 2020.

Q237 Mark Lazarowicz: I take it from Dr MacLean's answer that he is not too keen on annual rolling budgets, if that is not unfair. Is the view of any of the witnesses that the five year period is about the right length? Some people suggest it should be a three year period. What is your view on the feasibility or the correctness of a five year budget period?

Ms Wheatley: From the energy sector's perspective, a five year budget does seem to be an adequate period of time to provide that clarity.

Q238 Mr Stuart: On the rolling budget, the idea is not that it changes each year or is indeterminate but that the budgets are set ahead and, rather than having reporting in June 2014 and not having reporting again until five years later, our concern as

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politicians is that it is very hard to get government to put in place the difficult policy frameworks necessary to allow you to have certainty if it does not have political accountability within reasonable time to pinch on government to ensure that it does it. That is our thinking. The rolling budget idea is in order to ensure that it is not changing figures as it goes forward but it does not give another five year window before they have to come back in another Parliament to report on the fact that they have not taken the tough policy decisions that would allow you to have the certainty and to allow those who pioneer to make sure that they are not left high and dry.

Mr Wolfe: If you find a mechanism for doing that in the context of a long term visibility and very stable targets, I would have thought the industry would respond well to that.

Q239 Mark Lazarowicz: One of the proposals in the Bill is for the ability to bank and borrow in between periods. What is your view on the provisions in the Bill? Are they the right ones? Should they be changed?

Ms Wheatley: We support the provision of unlimited banking to encourage early action and very limited borrowing to discourage delay.

Q240 Lord Crickhowell: On this point about rolling budgets, surely the other key consideration is the existing five yearly budgeting of the ETC. It is surely rather important that we have policies that fit that rather than divide from it?

Dr MacLean: Absolutely.

Q241 Earl of Selborne: If I can turn to the Committee which is charged with providing an assessment of the optimum abatement pathway, if it is going to be credible and give adequate, independent advice, it has to have access to suitable data. Will it have ownership of the data? How can it generate that data independently of the government?

Dr MacLean: Our view is that the Committee should be able to draw on various sources of data but that it should not start setting up alternative data to what the government already has. Hence my comments earlier about the model which is run at the moment. It is important that that forms one source of the information that the Committee would draw upon rather than the Committee setting up an alternative to that, but there are other sources of information which we would expect the Committee to look at, including consultation with the industry, with NGOs, and to take a wider view perhaps than has been the case. At the moment, one of the difficulties the government has with its modelling is that it is limited in the assumptions it can put into those models in order to avoid distortions to the market or sending price signals. An independent Committee would be much more able to model different scenarios and publish those without those limitations. That would therefore be an advantage for it.

Q242 Lord Woolmer of Leeds: Could I turn to the question of targets again? You are obviously happy to have targets for the energy sector. You would like them for further head than is in the Bill. How detailed would you like to see sectors being broken down? For example, in the energy sector, do you envisage the Committee making a recommendation that covers the whole of the energy sector or would they break it down further?

Mr Baga: There are two parts to the question. If we look at the existing structure that we are operating in, the electricity sector trades emission permits with a number of other sectors. Therefore, in setting a cap purely for the energy sector as currently happens, it does not really drive emissions reductions because the electricity sector ends up buying permits from other sectors. The role that the Climate Change Committee can play is looking at the sectors' projections and advising on the effectiveness of existing policy measures to reduce emissions and then advising on further changes that are needed. That may well inform a UK cap built up from a number of sector caps which will inform government on where it is heading in terms of its aspirations on mitigating climate change. Simply coming up with analysis that provides a sector cap in itself does not guarantee reductions within those sectors because of the nature of emissions trading. The key is informing policy that will deliver those reductions and taking account of prioritising the most effective pathway across different sectors of the economy to ensure that the overall UK cap is met and delivered. It is a slightly different answer to the question that you asked but it is just recognising the interaction between the different sectors.

Q243 Lord Woolmer of Leeds: Where energy is concerned, there are other impacts than on emissions, of course if targets are set, even if they are met by buying in and so on. For example, the effect of energy prices on low income families. Do you think the Committee should have any role at all in considering the balance of the impact of its recommendations in terms of sectoral objectives?

Mr Baga: The Committee inevitably will be required to review the impact of any targets that it proposes. In doing so, it will look at how other policy measures have been working, such as renewable obligations, which also adds a cost to the electricity consumer, and a whole host of other macro-economic factors in terms of delivering the policy. In terms of the particular issue that you raise, the issue there is really one about poverty. Poverty should be addressed in its own right. If we start confusing household poverty with mitigating climate change, we run the risk of producing confused policy which achieves neither objective.

Q244 Mr Kidney: The enabling powers in the Bill are about new schemes for emissions trading. Can any of the witnesses envisage what other kinds of trading schemes we would be setting up over and above the EU Emissions Trading Scheme anyway?

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Mr Wolfe: Can I fail to answer that to some extent because we feel perhaps one of the weaknesses of the Bill as currently drafted is that the only things envisaged are trading policy measures or trading schemes; whereas we feel that there is scope for a variety of other measures that it should be possible to bring forward under this Bill—in particular regulatory and fiscal measures as well. For example, one of the approaches to alleviating fuel poverty is to target energy efficiency measures directly at the fuel poor. That would not be done through a trading scheme; that would be done through a much more active, regulatory intervention. Trading mechanisms are important certainly but we do not feel all of the attention should go exclusively to those as the only possible policy measure to bring forward at this stage.

Q245 Mr Kidney: I was asking what more trading schemes might there be besides the European Trading Scheme?

Mr Baga: I alluded to one in the very first answer I gave. Giving the government the option to auction carbon reduction contracts could be a key policy instrument that can deliver early action on delivering low carbon technologies. In addition to that, the future of the energy efficiency commitment is under debate now and we are looking at possibly imposing some supplier obligations post 2012. We could certainly see the Bill providing enabling powers to introduce some sort of mechanism in that respect. Looking further afield, the issue of motor manufacturers setting CO₂ targets for vehicles, you could potentially think of schemes whereby there could be trading standards or vehicle emission limits amongst themselves. The options are endless. The beauty about what the Climate Change Bill proposes is that it allows each of those instruments to be assessed against their own targets to provide a coherent and comprehensive view of the reductions that can be achieved and the instruments that can mean targets are delivered.

Q246 Mr Kidney: You slightly snuck in and answered the second question there on controls on emissions from vehicles which would be a regulatory power that is not in this Bill.

Dr MacLean: It is important to look at the trading mechanisms and how they could be applied to areas that are not well covered at the moment like transport and heat rather than yet more measures to do something with electricity only. It is difficult at the moment. Most people have been surprised at how hard the challenge of dealing with heat has been. It is right therefore that there is scope within the Bill for measures as they come along which might be appropriate for that. We would certainly like to think that the focus of new trading mechanisms would be on dealing with the gaps that there are rather than on replicating or adding to what is already there.

Mr Wolfe: One possibility, for example, in that would be a renewable heat obligation, not I know universally popular but nonetheless a way of balancing up the sectors compared to electricity.

Ms Wheatley: To support that, we are really keen to make sure that all the policies that are in place complement each other and are not seen as competing or isolated in any way.

Q247 Mr Kidney: We have had some ideas about other things other than trading schemes: regulation, fiscal measures, controls on emissions from vehicles. Are there any other things that you think are missing in terms of enabling powers in the Bill?

Dr MacLean: Again going back to a gap that we, industry, the government and everybody else, are finding it difficult to fill, it is with regard to behavioural change and how to drive that, particularly again looking at heat. In all probability, we are going to have to start finding ways of influencing lots of individuals rather than a few hands full of large companies in order to do something to make progress. That is an area particularly where we have to think about incentives, whether they be fiscal trading or regulatory, that can be implemented.

Q248 Mr Kidney: Mr Baga, you mentioned some of the trading that goes on now. There are renewable obligation certificates, levy exemption certificates and the original UK emissions trading certificates. The scheme has closed but you can still trade the certificates. If we go down this route of enabling powers for trading systems in the future, is there any advantage in there being one UK trading system that tries to draw these things together or is that a hopeless idea?

Mr Baga: We support the continued use of well designed policy instruments that target specific areas. If I could give an example, by including road transport into a UK carbon trading scheme, it would do very little to the cost of motoring. I would regard it as insufficient to really affect the behaviour or drive technological changes in that arena. Therefore, I think it is appropriate to have separate policy instruments, which by default may have a different carbon price inherent within them, to drive the change needed in all the sectors across the economy, because we do need changes across all sectors of the economy to reach our aspirations of significantly reducing our CO₂ emissions.

Q249 Dr Turner: The section on enabling powers is at the moment exclusively dealing with trading schemes and not all of us have total faith in trading schemes doing everything. Can you say what you think across all sectors, not just energy so that you are not feeling persecuted, the potential balance of contributions is that could be made, not only through various trading mechanisms and perhaps rationalising all the exemption certificates and obligation certificates et cetera, but general regulatory and fiscal approaches. What do you think the balance should be? What could be achieved if we maximised it?

Mr Wolfe: I can only answer for the renewable sector. We have looked at this, particularly in terms of achieving the new European target of 20 per cent of total energy from renewables. The largest sector

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of that would still be in the electricity industry and the majority of that would be under the renewables obligation, so it would be in relatively large scale, centralised generation. It would be influenced by trading schemes, but a very significant minority—about a third of the total—we would see for example coming from renewable in buildings. A trading scheme would not be the best way of reaching the majority of that. It would be far more relevant to use regulatory and fiscal measures to approach that. If I average that out over the total renewables industry, I would estimate that less than half would be influenced by trading schemes and slightly more than half would be in areas that trading schemes will not reach.

Q250 Chairman: I am afraid the clock has beaten us. We will be writing to you, if that is all right, to get a little more out of you. I have one question that arises from something you have all said, talking about the long term view your industry has to take and your seeming acceptance of the five year period. How much chaos could political changes make in terms of a change in the mix that different political parties might see for different sectors? How much chaos would it cause to your sectors if politics found a way into the long term decisions about where savings are supposed to come from?

Mr Baga: This comes back to the constitution of the Committee and the need for it to be independent. Political consensus is very important because of the long term investments that we have to make. If the Climate Change Committee is independent, is built up from technical experts, does draw on industry engagement and the broad scientific consensus and these processes are delivered in a very transparent manner, that would present a very strong case to government. We believe any government presented with that sort of transparent, objective case would take those points on board and follow the advice given by the Committee.

Dr MacLean: For some sectors—we are here talking about transport and some of the domestic ones—the investment timescales that people are looking at for the vehicle and so on are more aligned with the political cycles than the investment programmes that we are involved with, where we are really talking about 30, 40 or 50 year investments. You cannot play around in five year terms with things that have to be done. Otherwise, you are stuck with them for all that time. It is absolutely essential that we find some way of gaining sufficient consensus to give us the clarity to be happy to spend money on projects that are only going to give us a payback over those sorts of lengths of time.

Chairman: That is what I thought and hoped you would say. Thank you very much.

Witnesses: **Mr Michael Roberts**, Director, Business Environment, **Ms Gillian Simmonds**, Senior Policy Adviser, Energy and Climate Change, Confederation of British Industry (CBI), and **Mr John Holbrow**, Environment Chairman, Federation of Small Businesses, examined.

Chairman: Thank you very much for joining us.

Q251 Lord Jay of Ewelme: A number of people have said in giving evidence to the Committee that there is a strong business interest in the certainty particularly for investment in low carbon technologies that a clear, long term, regulatory and policy framework would provide. Could you just confirm that it is indeed the case that those organisations would share that view? Secondly, more specifically, a number of witnesses have also said they believe that the Bill is rather unbalanced because it omits aviation and shipping from the emissions targets. I would be grateful for your comments on that.

Mr Roberts: I can confirm that from a business point of view there is a strong interest in ensuring that over the medium and the longer term there is a degree of stability as well as certainty about the direction and pace of travel in terms of reduction of carbon because, as I think some of your previous witnesses were saying, that encourages rational decisions in investment in a range of sectors, some of which is long term. There is a balancing act from the point of view of business which is that, whilst trying to ensure a degree of stability and certainty, there needs to be an element of responsiveness to changing knowledge and science, changing circumstances of the international scene. I think that latter point is

particularly relevant with regard to those sectors of the economy which are exposed in particular to international competition. The CBI view is that the proposals in the Climate Change Bill go a long way to striking that balance.

Mr Holbrow: From the FSB point of view, we were disappointed to find in the Bill there is no mention that we can see of the particular concerns of small businesses. We do need certainty because we believe that small businesses can make their contribution but we would need information passed into small businesses in language they can understand rather than in the technical jargon that tends to appear in these cases.

Q252 Lord Jay of Ewelme: I was not certain whether Mr Roberts's answer was a coded answer that he did not think aviation and shipping should be included in the Bill.

Mr Roberts: Sorry. I omitted to answer the question specifically. Logically, we can see the case for ensuring that aviation and shipping are covered through measures in the UK to address emissions across the economy. My understanding is that the Bill allows for that over the course of time, as for example international conventions and how you allocate international shipping and aviation emissions between countries is consolidated.

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Q253 Ms Barlow: Do you think that the Bill provides enough of a regulatory framework to allow business to make the necessary investment in carbon technology and a long term policy framework for that? Do you think the Bill provides a framework in which it allows businesses to easily and effectively assess their carbon footprint?

Mr Roberts: The Bill does provide that framework to a large extent but in itself it is not sufficient. The extent to which it does reverts back to my earlier point about sending a clear signal about the pace and direction of travel in terms of carbon reduction. It is quite clear in the targets that are set that there is a significant degree of ambition to reduce carbon and that sends a clear signal to business as indeed it does to other sectors of the economy. Reasonably so however there are areas of the Bill that do not cover certain matters. For example, the Bill does not set out a programme of action for public policy in the round. There is a whole range of public policy measures, current and yet to come, which relate not just to emissions trading but to fiscal and regulatory policy and other forms of intervention, all of which to some degree will have a bearing on business. From a business point of view, large or small, there is an appetite to see a streamlining of this framework, this landscape, of policy measures. I think that is an important part of the picture in terms of giving that framework to encourage business to invest in a sensible way but which is not covered in the Bill and nor would we necessarily expect it to be.

Q254 Lord Vinson: The background to all our deliberations and indeed this Bill is that Britain will be an example to the rest of the world on how to do these things. If five to ten years in under pretty rigorous targets which we are obeying and, some of the time, we are buying in phoney carbon credits from China and they are going to plant trees that they do not plant and that sort of thing, if your members suddenly find that they are losing out in a highly competitive world which is not going to go away, what are you going to do about saying, "Hey, look, we are trying to set an example that could mean a huge hair shirt on our economy. Our standard of living is dropping compared to everybody else's. Why should we play the game when nobody else does?"? What would happen to targets at that stage?

Mr Holbrow: Most small businesses would probably throw their arms in the air and say, "What is the government doing to help us?" We do need certainty if those sorts of things happen. I am sure our members would be up in arms because they would like to think the UK government and European governments are doing things internationally to make the playing field level so that we are not discriminated against.

Q255 Lord Crickhowell: This whole business of connection has been worrying Members of the Committee and the previous witnesses as well as yourselves. We have a situation where targets and budgets are set by the Committee and, yes, they refer in clause five to fiscal circumstances and economic

circumstances and so on without any reference curiously to policies in that section. It is the Secretary of State who then comes along and says, "These are the policies, including the fiscal, economic and other ones, which I am going to use to meet your targets." It is not at all clear how the Committee sets realistic budgets which carry confidence if it is not fully aware of the policies that are going to be needed to produce them. Have you any views as to the way this matter should be handled better than it appears to be in the Bill as it is drafted at present? Clearly you do not want to bring into the Bill the things that are covered perfectly well in other policies but you need to establish a relationship which you can get on the trading schemes—we know what a European Trading Scheme is; we know how it is working and so on—but can you see how you get the connection with the other policies which gives you the confidence to invest?

Ms Simmonds: One of the things that we think should be in the Bill is a requirement of an advisory role for the Climate Change Committee to be assessing the most cost effective mix of policies that could help to deliver those targets to provide advice to the Secretary of State. The Secretary of State would then obviously make the final decision. It does seem to be something that is missing in the Climate Change Bill, this relationship between the targets and the policies that would be needed to meet those targets.

Mr Holbrow: We would agree. We think the membership of the Climate Change Committee and the advice they give is very important. We realise there will need to be technical people on that Committee. We think there must also be business people, both large and small, to be able to get a balance on the policy.

Q256 Mr Stuart: Can I ask you about the five year budgetary period? The first one, 2008 to 2012, will not be fully reported until June 2014. I wonder whether you have any concerns about it taking so long or whether you think five years might be too long or would a shorter period create uncertainty?

Mr Roberts: In terms of the length of the budgetary periods, we feel that five years is the right approach and strikes the right balance between, on the one hand, providing that stable framework that I talked about earlier that business seeks and, on the other hand, building in some degree of responsiveness in the light of circumstances. In terms of the reporting back after the first five year period, it makes sense to us because it is consistent with the Kyoto timescales and, as a general point of principle, it is something that we feel is important to be reflected in the Bill that the budgetary periods of the UK should be in some way synchronised with what is going on internationally. In terms of your first point, it is sub-optimal that it is going to be so long before we get an accurate report back on what has happened some years before, but these things are difficult. That does not prevent the fact that there will be annual

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reporting as a matter of course in the terms of the Bill and we are very comfortable with annual reporting within those five year periods.

Mr Holbrow: We also agree with annual reporting but, please, can it be as accurate as possible because our members tend to disbelieve things if one year it is saying one thing, the next year it is saying something else and nothing has changed in between. Accuracy and believability are essential.

Q257 Mr Stuart: One of our witnesses suggested having rolling five year budgets so that after the first five years an annual report would in a sense look back on the previous five years so that there would not be another five year window before a formal moment of decision as to whether a budget was being met. Do you have any thoughts on that?

Mr Holbrow: If it was done more frequently, things would be moving in the right direction, encouraging businesses to do more. If they have to wait for five years and then be told, "That did not work" that would be a great disincentive for small businesses.

Q258 Mr Stuart: Do you think there should be an explicit limit in the draft Bill on the amount of foreign credits which count towards meeting UK carbon targets?

Mr Holbrow: I do not have an opinion on that. We do not see it as a small business issue.

Mr Roberts: For us the important principle is that, whatever approach applies in the UK should be consistent with what applies internationally. There is a convention internationally under the Kyoto Protocol at the moment, the so-called principle of supplementarity, whereby action should be at least 50 per cent domestic. We think we should be mirroring that international approach. The international point is the important thing rather than the specific number because over the course of time the international approach may change and we need to change with it accordingly.

Q259 Mr Stuart: Do you think this whole Bill, if it came into being, would fall down and be null and void if there was not a post-Kyoto international agreement after 2012?

Mr Roberts: I do not think it would be null and void. The principle is there would be a target in statute and through statute there would be a machinery for ensuring that—

Q260 Mr Stuart: The party of government has had three manifestos in a row in which it has set targets and emissions of CO₂ have gone up so how would your members have the confidence to invest, particularly if there was not even an international agreement in the background?

Mr Holbrow: Our members would like to see an international agreement. It can only be helpful.

Q261 Dr Turner: Several witnesses have suggested that there should be front loading of the current budgets on the basis that it is cheaper to do it sooner and it is also a benefit for the environment. Do you have a view on the usefulness of breaking the main

targets down into sectoral targets in different areas of industry—not just industry but for domestic etcetera?

Mr Roberts: In terms of front loading, the important thing to bear in mind is that it is not cheaper to do everything up front. There are some interventions which are more expensive than others and from a cost effective point of view you would not pursue those as soon as possible. You would pursue the lower cost options first, of which in principle there are many in the economy, mainly around promoting energy efficiency in the home and in business. We should be pursuing those as quickly as possible, making sure that there is public policy to encourage them. Some of the technological options, particularly though not exclusively in transport, are extremely expensive and you would not pursue those in the shorter term. Stern is very clear on this. The message from Stern is to pursue the right action at the right time. Yes, he encourages us not to be complacent and to make sure that we are delivering real reductions in the shorter term but there is a danger that that becomes as much as possible in the shorter term and I think that is a slightly simplistic summary from Stern. That is not to detract from the fact that we ought to be getting on with stuff now.

Q262 Dr Turner: What is your view on sectoral targets?

Mr Holbrow: Sectoral targets, I think, for small businesses are particularly important. We have just done a survey of our members on energy use, the use of company cars, that sort of thing and each of our business sectors, albeit small businesses, are very much like domestic users and the pattern of use is very much like the domestic market, but it really helps to know what is happening and what the targets are in each of the various sectors.

Ms Simmonds: I think we would mirror support for the sectoral approach. Many of our members and the more energy-intensive members are certainly looking to the sectoral approach, not exclusively to the UK, but across Europe and then internationally, but a sector-based approach which starts in the UK and moves outwards.

Q263 Dr Turner: So, even if the Bill did not provide the sectoral targets, you are saying that industries would set their own internal sectoral targets?

Ms Simmonds: I think there are certain industrial sectors which are taking the sectoral approach and they are really looking to work up those approaches internationally. I would not say that the sector would set its own targets, but it would certainly be looking for an international approach around setting sectoral benchmarks where you could work to reduce the international competitive impacts of that.

Mr Roberts: If I can add to my colleagues' comments, I think we are focusing here mainly on the operation of the Emissions Trading Scheme and I think you are equally interested in looking across the economy as a whole. One of the important jobs of the Climate Change Committee is to reach rational views about what is the most cost-effective

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and practical way across the economy of moving towards the interim and long-term targets, and that may signal that certain sectors need to act faster than others in delivering carbon reduction. Whether that would then in turn be translated into targets for the residential community or transport as well as the industrial community is not something on which we have a firm view, but I think the Climate Change Committee has an important job to do at least in understanding which parts of the economy as a whole can do most in the most cost-effective way.

Q264 Dr Turner: Should we not at least have an objective of setting sectoral targets?

Mr Roberts: As long as they were set in a rational way.

Q265 Chairman: Just before we move on to the Climate Change Committee, I just want to clarify something in answer to Mr Stuart. Mr Roberts, are you suggesting that the CBI are in fact opposed to the concept of the setting of unilateral budgets?

Mr Roberts: When you say “unilateral”, you mean?

Q266 Chairman: I mean national, the UK, unilateral budgets.

Mr Roberts: In principle, no, we are not.

Q267 Chairman: In principle, you are not opposed to it?

Mr Roberts: No, because I think the issue is the nature of those targets. Having the targets is not a problem in itself because I think that goes back to my earlier point about giving a clear signal about what we are trying to achieve. Of course, if the target is set without any recognition of what is going on elsewhere in the world, then there is a danger that that particular target may place undue burdens on parts of the economy which would economically be unfortunate and environmentally may have the perverse consequence of exporting emissions to other parts of the world.

Q268 Dr Whitehead: When we come to the question of carbon budgeting, the setting of carbon budgets and, furthermore, the role of the Climate Change Committee in setting those budgets, as the Bill stands at the moment, the carbon budget for the next 15 years is required to be set in fact by 31 December 2008. Is that something that you think is a particular difficulty, the three carbon budgets being set at that point, or do you think that is the right way to start the process of carbon budgets?

Ms Simmonds: I think there are difficulties associated with setting three target budgets in advance. There are many, many uncertainties associated with looking that far ahead—around the pace of international developments, around clarification of the science and around forecasting economic growth in the UK. However, having said that, the CBI’s view is that a rolling target is an appropriate way to go forward; it provides some additional certainty for our members who will be making those investments. Five years is possibly an appropriate length for certain business investments,

but some of our members need much longer timescales and they need at least an idea as to the direction in which those targets will be moving. There is the possibility for revision of those targets themselves in the Bill and, whilst introducing that flexibility might create some uncertainty, and we recognise that we have to try and get a balance between the certainty and the long-term predictability, I think we would support setting the targets, three budgets, in advance, recognising that there are some difficulties associated with it.

Mr Holbrow: I think for the small businesses setting targets as far in advance as possible can only be helpful because, although small businesses can move quickly, they want to get a feel for the direction that things are going, not necessarily the absolute figures, but the direction in which they should be moving.

Q269 Dr Whitehead: In the Bill the Climate Change Committee or the Committee on Climate Change is also, along with the Secretary of State, required, as I think you know, to take a number of matters into account, some of which you have mentioned, technology relevant to climate change, scientific knowledge, economic circumstances, fiscal circumstances, social circumstances, et cetera. How might those best be balanced together in terms of that 15-year period, do you think? Do you think there are particular circumstances, for example, within that period which would temper the hard targets that might be set or do you think that they should follow from that?

Ms Simmonds: It is a difficult balance to make between them. Obviously from a business perspective, we were pleased to see that there is a requirement to take international competitiveness into account and we think that that needs to be balanced with the environmental objectives. We have some concerns that climate change policy should not be made on the basis of fiscal decisions on a tax revenue basis, and I think particularly that concerns some of our members in relation to what we already see around some of the climate change measures where we would like some streamlining of those measures, but they may have fiscal implications, so there are a number of things which we think need to be taken into consideration. I am not sure we have a firm view on how exactly it should be balanced.

Q270 Earl of Selborne: We are told that the Committee will be supported by a secretariat with a strong analytical skills base. If this Committee is to fulfil these wide functions that Dr Whitehead has touched on, what sort of resource do you think would be required? What do you see as the natural required support for the Committee?

Mr Roberts: I think we would expect there to be specialists with a background in the science of climate change, the economics of climate change, people with a good understanding of certainly the, if you like, microeconomic factors of business life, so not just the big-picture stuff, but how businesses operate on a day-to-day basis. One of the things that strikes us as unresolved in the proposals for the Bill

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is precisely how the Committee itself and the resources which support the Committee will interact with the existing and potential machinery of government, for example, Defra as it currently is, DTI as it currently is, Treasury and the Department for Transport. We feel that there is an important point here in that the Committee and indeed its supporting resource should be independent, that it should reach decisions on a rational basis and, on that basis, inform the elected Government of the day and inform the Secretary of State, but at this stage it is unclear as to how that independence will be realised, given the machinery of government that I mentioned before.

Q271 Lord Teverson: On the Climate Change Committee again, I think some people have suggested that its powers may be more like that of the Monetary Policy Committee or something like that. Are you happy with the Committee having a purely advisory role as it does at the moment? Also, there is a question I have following on from yours, Chairman, that in terms of, as you mentioned, exporting emissions, which sectors in the UK economy would offshore first if carbon emissions trading got slightly out of hand?

Mr Roberts: To take your first point, we are comfortable with the idea that the Committee should be advisory, but we feel that the areas on which it should advise should perhaps be rather wider than are at least implicitly suggested in the Bill, so, for example, they should be advising on the merits of perhaps trading schemes that might be brought into place under the enabling powers that are envisaged under the Bill, they should be looking across the range of government policies that might interact to deliver on the targets and we think that the advice could, and should, be quite extensive advice and quite comprehensive in its form and that is again not quite so explicitly obvious from the terms of the Bill as they are currently stipulated. With regard to your second point, the basic answer is that it is those sectors that are simultaneously energy intensive and exposed to a high degree of international competition and who have been allocated emissions limits in the UK that are potentially more rigorous than those limits faced certainly elsewhere in the EU and potentially globally. The sorts of sectors that we are talking about, and I am not saying that these are the sectors that are certainly going to export jobs tomorrow, but the sorts of ones at risk are steel, glass, cement, the heavy process industries classically that are most in the frame with regard to your question, and they are the sorts of sectors, particularly at the European-wide level, which, as my colleague Gillian Simmonds was suggesting, are interested in the idea of a multi-sectoral approach to allocation under the ETS in the future and one which recognises that they are truly global industries and where a global approach which allocates, for example, on the basis of benchmarking rather than auctioning might be a way in which you deliver genuine carbon reduction whilst not exporting those industries overseas. My final point, just to come back to the Chairman's question, as I

say, whilst in principle we would have no issue with a unilateral target, our clear preference would be for there to be a multilateral, international agreement on this, but that should not be taken as read that, if there is not such a multinational agreement, we should not do anything nor should we signal how quickly or in what direction we want to move.

Mr Holbrow: We would like to see an advisory role, but please could we have people there who are going to give practical advice, taking account of the needs of small business and, as I said earlier, the very needs of the domestic market so that, if it suits the domestic market, it is likely to suit small businesses.

Q272 Lord Whitty: Can I ask whether you think there is actually an issue of equity within businesses, within the industrial sectors, by which I mean you have referred to having a rational outcome both to the sectoral targets and to the budgets, but is there a degree to which the sectors that look like taking the biggest hit, like the ones you have just mentioned, steel, the high energy users and the energy sector itself, are also looking to ensure that in the sectors that so far have not been targeted, including relatively low carbon users, but also high carbon users like aviation and maybe agriculture, which have not been subject to specific measures, you have to ensure there is some degree of balance so that all sectors are taking some responsibility for this which would not strictly be rational in the sense that you are doing it in order of strict cost-effectiveness, pounds per tonne of carbon saved?

Mr Roberts: I think to answer that I would start from an understanding that, if you look across the economy, carbon abatement opportunities and cost-effective carbon reduction opportunities exist across a range of activities and the four main activities roughly in order of significance are power generation, energy use associated with buildings whether it is domestic or commercial, process industries of the sort I just mentioned, but others as well, and finally transport. I think that is a reasonably well understood division of the carbon reduction opportunity which is cost-effective within the economy, so it is not surprising that the process industries as one important part of a four-legged stool, if I can use that description, are keen to ensure that the other three areas are also delivering towards the ultimate goal of carbon reduction in the UK economy. Having said that, there are some implications about pursuing carbon reduction in those other areas for precisely those process industries that we started talking about a moment ago, so by focusing on the reduction of carbon from power generation, to the extent that that carries a cost as, for example, generators have to reinvest in low-carbon power sources, that cost has to be paid for in some way, in other words, by consumers, be they domestic or industrial, so there is an implication there as indeed there is in pursuing the opportunity in transport because in the end transport users fall within the industrial community as they do amongst individuals like you or I. Therefore, there is a good rationale why, I think, the process industries are keen to see other players do their bit, but that should

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not be taken as meaning that there is, if you like, a free lunch to be had by pursuing these other opportunities because at the end of the day the costs implied by pursuing those areas of action will come back on business as indeed on individual consumers as well.

Q273 Dr Turner: Obviously the Bill expects the Committee to be an expert advisory committee, but do you think it should have a wider role in the sense of informing the public so that there will be an informed public consensus against the background of which politicians can set the framework for long-term policies?

Mr Holbrow: I think that is absolutely vital. From a small business angle, anything that gives publicity to the Bill and anything that gives publicity to the need to reduce emissions and help with climate change has got to be good and that would be a good starting point.

Q274 Dr Turner: Presumably you would all agree that you want to see stability of policy?

Mr Roberts: Yes.

Q275 Dr Turner: So, in other words, there has to be something of a cross-party political consensus in this place, otherwise you will get constant policy shifts every general election. I do not know quite how you

draft that into legislation and there is certainly no reference to it in the Bill, but do you have any views on ways of achieving that consensus?

Mr Roberts: I think one of the important outcomes that could come from the machinery that the Bill will set up is the extent to which a genuinely independent Climate Change Committee brings some rigour to the public policy debate on reducing carbon in the UK economy. I think that, if that Committee can show that cost-effectively there are sensible approaches to be taken over the short and the longer term, then that is an important catalyst for bringing together not just the different political parties, but also business, NGOs and other stakeholders. I think there will be a risk in two ways if one tried to load greater responsibility on the Committee to pursue that consensus, the first risk being a resource constraint; it will clearly have enough to do simply to monitor the progress of policy and then, for example, make sure that there is effective measurement of those policies. Secondly, I think once a committee of that sort gets in the game of, as it were, trying to convince by lobbying, then it starts to detract from its position of independence which I think is important for the reasons I mentioned earlier.

Q276 Chairman: We unfortunately have a satellite link booked, but thank you very much. There are a couple of questions we still want to ask you on reporting and adaptation, so may we write to you on those?

Mr Roberts: Yes.

Chairman: Thank you very much indeed.

Witness: **Mr Dan Skopec**, Under-Secretary, California Environmental Protection Agency, examined via a satellite link.

Chairman: Thank you very much for being with us. You know why we are meeting and I think you know a fair amount about what our task is here, so could we move straight into a question from Lord Vinson on the underlying rationale for the Bill.

Q277 Lord Vinson: Thank you for giving us your time. When targets are set, in order for them to have any real effect, they have got to be set fairly stiffly so that they really bite. That means that there will be many occasions where there will be non-compliance. How do you see the penalties for non-compliance? Speaking in broad terms, do you turn the lights off or put the price up or how do you actually enforce compliance to meet the targets other than just buying in credits from elsewhere?

Mr Skopec: Well, Europe brings up a number of different issues and I just want to let you know that we passed our Bill last fall and we are in the process of implementing it, but the rules for implementation will not come into effect until probably 2010, so many of the discussions we are having right now are around these issues. We have strict air quality compliance mechanisms in this State and we intend to follow very closely those enforcement mechanisms which do include severe penalties, but

there is a discussion about whether you have a so-called 'safety valve' as part of the enforcement penalty mechanism, ie, if someone cannot comply, they should pay a penalty per tonne, but that penalty only goes up so high, so that number just becomes sort of a safety valve for your system. Those discussions are still taking place and we have not concluded where we are going to come down on that yet.

Lord Vinson: We are looking at the same sort of thing, thank you.

Q278 Mark Lazarowicz: Could I ask you a question as to upon whom responsibility for compliance falls. I take it from your reference to penalties for exceeding certain limits that the requirements to comply with the legislation will fall upon individual companies, individuals as well as the State Government as well. Is that correct?

Mr Skopec: The statute only says that emission reductions shall come from significant emitters and it gives the executive branch the discretion to choose who those significant emitters are, so we are in the process of determining who those people would be.

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Q279 Lord Crickhowell: How far have you got in developing emissions trading schemes and are you taking consideration of existing trading schemes in other parts of the world, particularly the European scheme which is now quite well established?

Mr Skopec: Yes, we are. We are along the path of developing our trading schemes. In fact, today we established a Market Advisory Committee of national and international experts to advise us on what the design of a market should look like and ironically that Committee is downstairs right now holding its last public meeting and it will report to us at the end of this month. On that Committee is Martin Nesbitt from Defra, so we very much appreciate his time and effort, and we have some folks from the European Commission and some other Europeans as well, so we have been getting international input on that. We also organised a climate study tour of Europe this spring in March and April that I attended and we had two full days in the United Kingdom and your Government was very gracious in hosting us and helping us with those designs. We are designing a market system, we are designing a cap-and-trade system and we want that system to be able to link with the European trading system at some point in the future; the Governor has been very, very clear about that. The process for doing so, as I say, the Market Advisory Committee will report to us at the end of this month a set of advisory principles for market design and then we will take the next approximately year and a half and in the fall of 2008 we intend to put out an interact proposal for a market design and that design will then go through a one- to two-year regulatory process. We do not anticipate trading beginning in California until 2011 and I would remind you that our first enforceable caps come into place in 2012, so we are quite a bit behind you still in terms of the calendar.

Q280 Mark Lazarowicz: Does the legislation provide for specific legal consequences for the Governor or the State Government if the targets are not met? I realise there will be no doubt political consequences if targets are not met, but are there specific legal consequences which would follow for the Governor or the State Government?

Mr Skopec: No, the legislation does not, but I would anticipate that we would do something similar to what I believe the United Kingdom has done and that is that, if we as a state as a whole come up short, the State will then take responsibility on itself to buy offsets, but again we do not have anything that requires us to do that.

Q281 Dr Turner: Do you think that dealing with climate change generally in terms of legislation in California should be placed in a single body that coordinates action across all of the State Government and its agencies?

Mr Skopec: That is a very good question and it is a difficult question to answer. If you do place it in a single body, then that body becomes enormously powerful, one of the most powerful bodies in government because climate change cuts across all

elements of government, so I am not sure that is always appropriate, but you certainly need a coordinating body that is very close to the executive of the Government, in your case the Prime Minister, that can compel other agencies or departments to pull their weight. We have somewhat of a hybrid system and, I will tell you, it is not perfect. We have one entity, the Air Resources Board, which is responsible for developing the brunt of it, the programmes, but we have a myriad of other agencies and departments that have responsibilities to reduce greenhouse gas emissions, so the responsibilities fall under what we have established as the Climate Action Team under our auspices, the California Environmental Protection Agency, to co-ordinate those efforts.

Q282 Dr Turner: When you were formulating your overall targets, did you consider breaking them down—(satellite link disconnected)—into specific targets for different sectors of the economy between different types of energy production or individual state departments and agencies or is it just one global target?

Mr Skopec: In the statute it is one global target. The responsibility of the executive branch is to determine what sectors should have what responsibilities, so we are going through that process right now, but we did not think it was appropriate for the Legislature or the legislative body to dictate that at the moment, so the legislative body left it open as one single target for the economy and then it is up to us to determine what sectors have to meet that responsibility.

Q283 Dr Turner: So, in practice, you will be using sectoral targets to achieve it?

Mr Skopec: Well, possibly. We want to create a robust market, we want to have as many entities as possible in our market system, so we may include into that market sectors and we may give certain sectors a greater responsibility for reductions in that market, so in that sense it is a sectoral approach, but I think it is more of a market approach versus a regulatory approach. We will be getting some of our emission reductions from more traditional regulatory approaches and we will be getting hopefully the brunt of our emission reductions from the market approach.

Q284 Lord Crickhowell: We have really dealt with the question that I was going to ask already on trading schemes, but there is just one further supplementary. The European Commission representative gave evidence to us two days ago and he said that what was absolutely crucial, if this was to work internationally and Europe was to link in with other schemes, is that basically it should not have slacker targets, the other schemes should not have slacker targets or safety valves, such as price caps or floors which could distort the market. In other words, Europe is anxious to have a genuine market-based scheme without distortions. Is that the line down which you are trying to go?

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Mr Skopec: Yes, it is and I would agree with that. We are at the moment trying to develop a cap-and-trade system amongst a group of western states and we are dealing with those same issues. If states or jurisdictions put different targets for emission reductions, it causes a little bit of difficulty, but certainly, if there are price caps or really big safety valves, it provides some difficulty. Now, one could say that the use of offsets, how much you allow for offsets from abroad, CDMs, for instance, is like a safety valve, so at some point you can get a little bit too picky about the differences in different systems. You do have to have certain things aligned, there has to be a relative strength of emission reductions and there have to be no clear price caps or safety valves that are ridiculously low. I would say that one of the approaches in the United States Senate is much, much too low of a price cap/safety valve of \$7 per tonne, but, if you get a safety valve in one jurisdiction of \$60 or \$70 per tonne, I am not sure that that is a make-or-break scenario for that jurisdiction trading with yours because you are far from \$60 or \$70 per tonne today. However, at some point in the future, if your price per tonne gets significantly different from a jurisdiction you are trading with, then you are definitely going to have arbitrage and you are going to have problems.

Q285 Lord Crickhowell: Are you likely to face a limit on the amount that you can trade out internationally to ease your problem at home?

Mr Skopec: We are likely to put a limit on that, yes. It is unclear where that limit is going to be and we are in the midst of a great debate, as I think are a lot of other European countries, about how much is allowed, how much emission reductions are allowed to come in from out of state, out of country, et cetera.

Q286 Nia Griffith: Just to follow up that point, you have made a lot of play of the importance of cost-effective emissions reduction. There must, therefore, be a temptation to buy in from perhaps poorer countries.

Mr Skopec: Actually the natural inclination of most Californians would be to not allow that and this Administration and the Governor have said that that is a viable option—(satellite link disconnected).

Chairman: Nia, you were half-way through a question.

Q287 Nia Griffith: I think I have actually had the answer. You were saying the Californian public probably would not go for a lot of buy-in. Is that the correct understanding?

Mr Skopec: Yes, it is going to be more of a challenge to convince people that out-of-state and out-of-country offsets are acceptable. We will most likely have an element of that, but it will not be overwhelming. The label that you focused on, cost-effective, is something that we put into every statute that has a regulatory component because we want to make sure that the regulator is doing everything it can to make sure this is cost-effective, but I think if

that is something that is done in a command-and-control regulatory approach more so than just what type of market design to use.

Q288 Lord Woolmer of Leeds: I believe that your targets cover all greenhouse gases, but perhaps I can ask you two questions. Do you distinguish, or are you distinguishing, between the target for carbon dioxide and, secondly, for other greenhouse gases, and currently what is the level of CO₂ and of other greenhouse gases now compared to 1990 in your State? In other words, where are we starting from?

Mr Skopec: To answer your first question, we are considering all six Kyoto greenhouse gases, so we will have a CO₂ equivalent number for all those things. To tell you where we are now, in 1990 we had, I think, 424 million metric tonnes emitted per year and now we emit approximately 471 million metric tonnes. We have estimated that our business as usual by 2020 would be 600 million metric tonnes, so our target is a 25 per cent reduction over business as usual.

Q289 Lord Woolmer of Leeds: In the UK, the current proposal is that the emissions covered will only be CO₂ to be further reduced on the argument that other greenhouse gases have already substantially reduced. Have you any observations on that from your own experience?

Mr Skopec: Well, in some cases they have and in some cases they have not. California has the largest dairy industry in the United States, we produce about 20 per cent of the country's milk and cheese products, so we have some enormous emissions from those industries, and we have the largest agriculture industry in general, so we do have a lot of emissions that are not CO₂, but without a doubt the majority of our greenhouse gas emissions are CO₂, but we did not feel that it was necessary to block off or not include a certain element of those. Remember though that our programme is not just a cap-and-trade programme. We will have a cap-and-trade programme, but we will also have regulatory approaches. If we feel that getting some of these non-CO₂ gases is more appropriate through direct regulation, we will do that under the authority of our Bill.

Q290 Baroness Miller of Chilthorne Domer: It is normally thought that, with emissions trading schemes, they are just applying to the corporate sector, but have you considered personal carbon allowances and, if so, what did you decide about them?

Mr Skopec: We have not decided anything yet, but at the moment we are looking at probably just focusing on large firms. We have not made the decision of who would be in the market and who would not be, but it is likely to be that a tonne of emissions per year limit or a megawatt limit and above would be in the market, something similar to what Europe has done, but we do want to be a little bit more generous than you have been about out-of-market offsets within the State of California, so we do hope to allow things like agriculture and forestry

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and other activities within the State to be eligible for offsets within that market, even though they do not have an actual responsibility to reduce.

Q291 Chairman: As you know, we are setting up a Climate Change Committee here. Could you give us a sense of what would be the role of the Environmental Justice Advisory Committee, the Economic and Technology Advancement Advisory Committee, the California Climate Change Advisory Committee and the Market Advisory Committee and to what extent is each committee independent, how will they relate to each other and where does the funding supervision come from?

Mr Skopec: They are all independent. There are actually only three. The third one you mentioned is, I think, the Climate Action Team and that is a compilation of the state bodies led by CalEPA that work on this, but the Environmental Justice Advisory Committee and the Technology Advancement Advisory Committee were both established by the statute. Environmental justice is an important issue here in California, we have a strong constituency that cares deeply about that, so we established that committee to help advise ARB on how it should implement AB32. The Technology Advancement Advisory Committee is a very clear recognition that only through technological revolution are we going to truly achieve our 2050 targets, so, one, it advises the State on what type of investments it should be making, two, to achieve those technological advancements. Then the last one, the Market Advisory Committee which, as I mentioned earlier, is giving us design principles on how cap-and-trade systems should be developed, that committee is presenting today to the public and will be wrapping up at the end of this month and then it will go away.

Q292 Chairman: Given the problems you have had in the past with the automobile industry, which of those committees interfaces with industry generally and would be expected to persuade industry of the course you are taking?

Mr Skopec: Probably the Technology Advancement Advisory Committee.

Q293 Mark Lazarowicz: Are there any sectors of industrial activity or indeed individual activity which would not be subject to the provisions of your Bill? For example, is it the case that there are activities which are regulated by the federal level and, in that case, would you be able to make requirements which would be binding on such activities?

Mr Skopec: At the moment, we are planning our system in the absence of any action at the federal level, so we are not considering any federal backdrop, but there will be sectors that we choose not to fall under our market, and again I just want to remind you that our Bill gives us the ability to create a market and decide which sectors should be in that market, but also address other sectors through regulatory approaches, so there will be

some sectors that do not fit into the market, but we can address those sectors in a more direct regulatory approach, if we choose to.

Q294 Dr Whitehead: You have chosen a process of biannual reporting as opposed to either an annual reporting system or a five-year reporting system. What are the particular reasons that you decided to go down that route?

Mr Skopec: Well, it was a compromise. I think that the approach that you are looking at, a five-year approach, makes a lot of sense. We are typically used to annual reporting, so it was a compromise to move to two-year reporting. It is still a consideration, it is not a requirement, but we are considering going to two-year reporting.

Q295 Dr Whitehead: You have also put into the legislation that that report has got to consider, I think, the impacts on water supply, public health, agriculture, the coastline and forestry. Are there particular purposes for that selection of impacts and what benefits do you think there are in having those specific sectors included?

Mr Skopec: There is no requirement that anything special be done about potential impacts to those sectors as a result of something a firm does to reduce emissions, but, as you can imagine and you are probably experiencing in the United Kingdom, there is a lot of concern amongst the public and certainly the environmental community that the focus and effort on climate change is going to come at a cost to other environmental priorities, so this was a form of a safeguard to say, "Whilst you are doing these things to reduce greenhouse gas emissions, we also want you to be reporting on what the effect is on these other areas". It is indicators to policy-makers that, if they find down the line that we are having an impact on water quality or forestry or open land or what-not, we can address them at that time.

Q296 Lord Vinson: Could you just run over who is actually going to supervise the compliance and who will actually dish out the penalties for non-compliance?

Mr Skopec: That would be the California Air Resources Board which, under the statute, is given the primary responsibility to manage the Greenhouse Gas Reduction Initiative and that is a sub-agency with CalEPA, the California Environmental Protection Agency, and the California Environmental Protection Agency is akin to Defra.

Q297 Lord Jay of Ewelme: Could I just go back to emission trading schemes for one moment. Are you proposing to link up with other trading schemes within the United States, for example, in the north-eastern region states? Is that something which you are discussing with them with a view to working towards sort of a national trading scheme?

Mr Skopec: Absolutely, yes. The Governor has made it very clear that he does want to link up with other systems. He travelled to New York and made a statement with Governor Spitzer of New York that

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he did intend to create a system that could link up with RGGI. We have also established a sixth state and two Canadian province memorandum of understanding to develop a western cap-and-trade system, so we have the states of Arizona, New Mexico, Washington, Oregon, Utah and the Province of British Columbia and soon the Province of Manitoba all committed and working together to design a cap-and-trade system.

Q298 Mr Stuart: Have you come up with an approach to the inclusion of international interstate aviation and shipping?

Mr Skopec: No, we have not. At the state level we lack the jurisdiction on those entities, so we do not have an approach on that. That is an area where we need federal government action.

Q299 Chairman: Is there any chance we will see the electric car again?

Mr Skopec: Absolutely. Despite the name of the movie, we did not kill the electric car; we reformulated the programme to encourage very-low-emission vehicles and we are starting to see a whole lot of dual-cell vehicles in California, some electric cars and a lot of plug-in hybrids, so, instead

of just getting one technology, we are getting a myriad of very-low-emission technologies and I think in the next five to ten years you are going to be really surprised at what comes out of California on that front.

Q300 Chairman: We will not be surprised, we will just buy them! Thank you very, very much, I am very grateful, we all are.

Mr Skopec: Thank you and, if I could just have a moment, I just wanted to mention that last summer the Governor and Prime Minister Blair signed an MOU to work together on greenhouse gas emission reductions and especially on carbon trading schemes and I just want to tell you that this has been such an important alliance for us. We really and truly appreciate your Government's efforts and, like I said, we have visited twice the United Kingdom and you have been a tremendous host. You have sent people out here on numerous occasions. Your San Francisco Consulate and the British Embassy in Washington DC have been tremendously helpful to us and we really appreciate that help and we feel like we have a strong alliance with the United Kingdom in this effort and we thank you for it.

Chairman: You are very gracious. Thank you very much indeed.

Witnesses: **Malcolm Wicks**, MP, Minister of State for Science and Innovation, **Lord Truscott**, a Member of the House of Lords, Parliamentary Under-Secretary of State for Energy, and **Mr Peter Brunt**, Policy Adviser, Department of Trade and Industry, examined.

Chairman: Thank you very much for joining us. We have been provided with a very glamorous show from California, saving any carbon footprint whatsoever! We start off with the role, if we may, of the climate change policy itself.

Q301 Lord Crickhowell: We have had really an argument going on among witnesses as to the exact role that the Committee should follow. Should it concentrate on the science, the technology and the expertise in how you get the emissions or should it also, and can it, take a much broader view on social policy, on fuel policy and so on which eventually are going to be political decisions taken by ministers? Do you have a view, I am sure you do, as to the exact balance that should be followed and do you accept the argument that has been put, that, if there is too wide a scope on the social issues, it will be diverted from its prime task which is concentrating on what would be good to set the targets right and see that they are achieved?

Malcolm Wicks: Firstly, may I say, Lord Puttnam, it is good to be here with your colleagues, although we cannot bring the glamour of California to bear, but we hope to be able to contribute to your deliberations. Obviously, Defra are the lead department on this, as you know very well, but, as the Energy Ministry, we are very pleased to contribute to the discussions, and perhaps I should say that I am joined by my colleague, Lord Truscott, who is our Parliamentary Under-Secretary in the Department, focusing on energy issues, and also by

our official, Peter Brunt, who is very much leading in the Department on domestic climate change. On this particular question, and my colleagues may add their views which with a bit of luck will be roughly the same as mine, I think we see the Committee as undertaking a, when I say "narrow", I do not mean that pejoratively, but a narrow technical task to help us achieve this target of reducing CO₂ emissions against a 1990 base of course by 60 per cent by the middle of this century, probably the most ambitious target ever set by a government certainly in this country. We see them as giving technical advice to us on how to achieve that, helping us to monitor it. I do not see the Committee as a kind of substitute government that would wax wide and lyrical about the whole range of issues, nuclear, renewables and so on, so I think it has more of a technical task rather than the broader one that some might wish for it. I do not know, Peter, whether you have a comment to add to that.

Lord Truscott: I would agree with that, my Lord Chairman. Particularly on issues like fuel poverty, I think the Climate Change Committee may well take into account government policies and areas like how the Government is going to tackle fuel poverty, but we think that the best way to tackle issues like fuel poverty is largely through other means, things like the grants system, particularly Warm Front which is used to tackle things like insulation and central heating in homes, and other energy efficiency measures which can effectively reduce fuel poverty. We have a strategy for dealing with British fuel

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poverty which is outlined in the recent White Paper and I will not go into great detail, but it is focused very much on targeting help towards the fuel poor and I think that is a different role and it is not really a role that we would envisage the Climate Change Committee to get involved with on the detail of policy.

Q302 Lord Crickhowell: There has been a feeling expressed that the Bill leaves all this rather in the air. It talks in wider terms about the matters to be taken into account and the suggestion has been made that there ought to be rather clearer guidance as to what its focus and priorities should be. Do you think that there could be some tightening up of the Bill in this respect?

Malcolm Wicks: I think the purpose of this interesting procedure, the draft Bill and the Joint Committee, is to help us to get this one right and that is the purpose of this procedure which I am very much in favour of as a parliamentarian. I think we are being consistent here in terms of talking about the Committee's role as a narrow and technical one, but of course, when looking at the issue, the new Committee has to have regard to other factors that will affect government policy, economic and social factors, and this is for obvious reasons. If one's only concern was to move as quickly as possible to the 60 per cent reduction, you could wholly disregard economic consequence; you could close down British industry and that would help us with emissions and you could forbid elderly people from trying to keep warm in winter or you and I from driving our motorcars. To say to the Committee, "Look, you've got to have some regard to economic and social issues which any democratically elected government is going to have regard to" is just actually plain commonsense, but it is worth pointing that out to the Committee, although the Committee, I am sure, will be full of commonsense.

Q303 Lord Crickhowell: Just as one supplementary on this group of questions, there has been an interesting set of exchanges, particularly with the CBI earlier, about how you make sure that the whole area of policy dealing with climate change and energy is joined up because the Bill essentially deals with emissions trading, but the other areas where the Government can act, fiscally or in a regulatory way, are contained in other legislation. There has been some concern about how the Committee actually sets effective and real targets without knowing exactly how the Government is going to decide how to meet those targets through the other measures. I wonder if this is simply going to be done by an ongoing exchange. It is going to be vitally important that the Committee has a pretty clear steer from the Government as to its approach to those parts of the mechanisms which are not contained in this Bill, but are contained in all sorts of other legislation.

Malcolm Wicks: Well, the crucial target of course will be set by the Government and indeed endorsed by Parliament, in other words, the 60 per cent reduction, and that is the crucial target. The job of the Committee is to advise us over five-year periods

how we might get there, and that is the crucial issue. Our whole armoury of tools is not contained in this Bill. As your Lordship knows, we have been through a process of the Energy Review and now an Energy White Paper and doubtless there will be legislation and that Energy Review and that White Paper set out a whole range of things from renewables, carbon capture and storage, question mark nuclear, energy efficiency, energy savings, the implications for housing, the implications for transport and 20 other things, which I must not detain the Committee on, which will help us, alongside mechanisms which are touched on in the Bill, such as the Emissions Trading Scheme, the Renewables Obligation and so on.

Lord Truscott: If I can add to that, also the Climate Change Committee will be able to take advice not only from the Government and different government departments, but, if it requires it, it can bring in groups from outside and take advice from consultants or other bodies to give it advice on these matters so that it does have an overview of government policy and the likely impact of the budgets that it sets.

Q304 Dr Turner: Malcolm, I believe you are the eighth Energy Minister since 1997, so you will be aware of the potentially conflicting objectives which have surrounded the debate on energy policy, notably reconciling security of supply with developing new forms of energy and so on. How do you expect the Climate Change Committee to strike the balance when it takes into account energy policy? Do you expect it to have its main focus very clearly on reducing carbon and seeing energy policy as an agent for reducing carbon or do you expect it to take a much broader view of energy policy?

Malcolm Wicks: Well, it has a clear objective and it is about climate change; indeed I think we are calling it the Climate Change Committee. There is a clear target which I touched on, this very ambitious target, where we need to be by 2050 to make our contribution to the international effort to be on the right side of global warming, so its focus is climate change, but I do not think it is inconsistent, as we have been discussing, for it to be saying, "Look, just as the Government has other objectives, we are concerned about the needs of elderly people". I do not think it is inconsistent with that key objective of the Climate Change Committee and carbon reduction through us, as it were, through Parliament and this Bill to be saying that just as Government and Parliament has other concerns about fuel poverty, elderly people keeping warm, if you like, the level of energy prices, energy security and energy supply, then the Committee will be sensible, when looking at this and giving its advice and scrutinising where we are moving to, to understand that these are other objectives for the Government.

Q305 Dr Turner: But we have never successfully quite reconciled the different conflicting currents and do you think the Committee will be able to reconcile this for the future so that energy policy is

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actually the agent of delivery or one of the most potent agents of delivery of climate change policy as well?

Lord Truscott: I think our core focus really ever since the Energy Review which Malcolm led and was involved with and our Energy White Paper which was published a couple of weeks ago was the point that really the driver for the Energy White Paper was the whole issue of, on the one hand, energy security and, on the other, tackling climate change. Increasingly, the two strands have merged and now we really see climate security and energy security as two sides of the same coin. It has certainly been the case in working on the White Paper that we worked very closely with Defra, and I have recently been visiting several European capitals where Ian Pearson from Defra has come with me and John Healey from the Treasury and we have been actually taking the message that in the UK our policy is actually very joined up in this area and we have been suggesting to maybe some of our European partners that they could look at the way that we are tackling this issue. For us, on the one hand, energy security and, on the other, tackling climate change, these are interchangeable now and I think that is one of the lessons. I think anyone who is now involved in tackling climate change or anyone who is involved with energy policy realises that the two are inseparable and I am sure that the Climate Change Committee will take that on board as well. The idea that there can be a separation between tackling energy security, on the one hand, and dealing with climate change, on the other, in a way is a false premise because I think we have already gone beyond that point.

Dr Turner: I am glad to hear it.

Q306 Lord Vinson: A number of people have suggested that aircraft emissions should come into this and a possible solution, rather more positive, has been put to us because cheap travel is one of the great delights of the 21st Century. If we were to take a leaf out of the French book and start encouraging everyone to go down the normal electric route, we have got all the technologies for electric light, electric heat, electric trains and electric cars are around the corner, if we could get our baseload of electricity presumably through nuclear and then fusion, as quickly as possible we would save so much CO₂ that it would not matter if the aircraft footprint of carbon consumption went up from 2.5 per cent to 5 per cent because we would have saved another 30 or 40 per cent of carbon anyway, so we could keep flying by going nuclear. I think this is a positive way out, looking into the future. It may take 30 or 40 years to get there, but the world is not going to go backwards, necessity is the mother of invention, and I would think there is every chance that the standard of living will continue to rise and personal mobility will continue to happen if we take the positive view rather than the negative view about the future.

Lord Truscott: I think on aviation itself we have already said that we will all support the Commission's line that aviation should be included in the EU Emissions Trading Scheme. I can see the

point that you are making, but, on the other hand, we have the Stern Report which actually told us that we have not got the luxury of time and, when you think of the lead time for some of these technologies, fusion I think they were saying 30 years ago would be the answer and now they are saying that perhaps in 30 years' time fusion will be the answer, so I do not think necessarily we can have the luxury of waiting for a technology to come along in 20 or 30 years to solve our problems because we have not really got the time. Even with nuclear, as you know, the Government has already made a preliminary view that we think that nuclear should form part of our low-carbon energy mix along with renewables and our existing fossil fuels. EDF, who are very, I think, gung-ho in a way in terms of their role that they have been playing in developing nuclear in this country, are saying that the earliest that they could build a new nuclear plant, even if we decided this year to go ahead, would be 2017. Well, the fact is we cannot wait until 2017 and we need to take action now, and this is why the EU took the decision at the spring Council that they would have a target of 20 per cent reduction of greenhouse gas emissions by 2020 unilaterally and 30 per cent if we again have multinational agreements and similar decisions in boosting the role of biofuels, providing they are sustainable. Yes, we have to look at new technology and we should put resources into R&D, and I had a meeting recently with a group of companies who are working in the hydrogen fuel cell area, so we need to support those technologies, but I think we also need to take action now and the Government understands the urgency, and I think internationally increasingly we understand the urgency as well.

Q307 Mr Stuart: If I may Chairman, stick on the objectives very quickly, the Tyndall Centre and others have told us that there seems to be no scientific basis for the 60 per cent target and it should be substantially greater than that. Would you have any objection to putting the European long-term target of increasing the temperature by no more than two degrees on the face of the Bill and asking the Climate Change Committee to advise the Government then on the best way of reaching that rather than what increasingly looks like an arbitrary figure of 60 per cent?

Lord Truscott: First of all, the figure of 60 per cent is 60 per cent at least, so we realise that we may have to come back to that figure and look at it in terms of the science that is developing and also international conditions and circumstances, but also of course, when it comes to agreeing the post-Kyoto Stabilisation Agreement, we recognise that there will be differential levels of CO₂ reductions and particularly I think developed countries recognise that they will have to carry more of the burden than developing or emerging economies. That figure of 60 per cent is not set in stone and we recognise that it is 60 per cent at least. In terms of the two degree figure, of course that is what the 60 per cent at least was based on and we have signed up to the two degree figure in our discussions with our EU partners, so we do not see that there is any conflict between the two.

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In the recent G8 discussions, we would have been happy if they had agreed a two degree target or, similarly, a cap on emissions. There will be further discussions. As you know, the United States, the G8 and the EU have committed to looking at specific targets in Bali and the intention is to get agreement on a post-Kyoto settlement stabilisation target by 2009 at the latest.

Q308 Mr Stuart: Moving on to modelling and targeting, the Committee has to recommend targets for three budgets ahead, including sectoral targets and the proportion to be allocated to homes. Do you accept that in order for them to do that they will have to model future energy demand and carbon emissions down to a sectoral level?

Lord Truscott: Well, no, I do not think that they will necessarily. First of all, on the modelling, they will be able to use the government modelling which already exists, like the DTI modelling, for example, and they can look at the projections that the government takes. They can also bring in other groups to advise them on the modelling. They will have a view on the emissions that each sector will be responsible for, the level of emissions in each sector, but they will not break down the target in each sector, the target will be a global target and then it will be up to the government to implement that target. Obviously they will be influenced by the likely emissions in each sector. I think that will be the approach that will be taken by the Climate Change Committee.

Q309 Mr Stuart: If the committee does rely on DTI for its modelling, and there might be an issue around the independence of the committee there, which you might want to comment on, I wonder if you could tell us a little more about the way that the DTI does its own energy model, how many staff are involved in this model and in producing the projections, what are the total costs of that activity and do you have any plans to make that more sophisticated in the future because obviously it has had some criticism that it is not adequate to the task that the Climate Change Committee will meet?

Malcolm Wicks: Can we ask our colleague to deal with this important technical matter?

Mr Brunt: I am sure we can provide a written response in more detail. At the moment I am told the number of staff who work on the energy projections within DTI is four, four dedicated staff on energy projections, and the annual cost, which is taking account of those staff costs, is £194,000. The modelling team have put in place a number of mechanisms, which include an advisory group and regular consultations, particularly in line with the ETS cap setting processes to get feedback and consultation on that rolling process. Yes, I think the assumption is that modelling will improve, will develop and get more accurate over time.

Lord Truscott: My Lord Chairman, if I may, on your question of independence, the committee will be independent. They can take on board the DTI modelling but it will also be open to them to bring in groups like Cambridge Econometrics and, of course,

we have also got the Office of Climate Change, which is independent as well, which can give them advice, and they have got approximately 35 full-time staff although, of course, that may vary depending on which aspect they are working on at any given time.

Q310 Chairman: I have a question on this business of modelling. In about 1965 MIT developed the first comprehensive model of this type. Do successive models work off the basis of what exists or is there a sense of they are not invented have and start all over again? I would have thought in the past 40 years we must have developed some extremely sophisticated, and ever more sophisticated, modelling systems, but I sometimes worry that may not be the case.

Mr Brunt: I think there is a realisation that obviously the modelling that we have is necessarily difficult to get completely accurate; it is difficult to get it completely right. I think there is a process of learning development and that is why the modelling team have set up these advisory groups to improve it over time and get feedback on it over time. There is recognition that it is not perfect and the Climate Change Committee will help to feed in to improve that range of processes as time goes on.

Q311 Chairman: My question was really prompted by the almost absurdly low figure that you quoted. I cannot imagine that the type of sophisticated modelling that we are going to require can be accomplished for anything under—I am making a number up—£5 million a year. It would seem to me to try and undershoot that sort of figure means you are looking for a substandard and Heath Robinson form of model. I may be wrong on that; I would be happy to be wrong.

Lord Truscott: My Lord Chairman, we have noticed that there have been one or two glitches in the past but our modelling at the DTI has been pretty successful and pretty accurate since about 2004. We have been quite happy with the level of success we have had with our modelling. Maybe it just shows the quality of people who work for us in the DTI.

Q312 Chairman: God bless you!

Malcolm Wicks: My Lord Chairman, you come from an extravagant industry, as I recall. We pride ourselves on being a lean and, to some extent, financially mean machine. I think one of the important things about the five year periods, of course, is you can have the most sophisticated modelling building up experience over 40 years, building on MIT, but when I became Energy Minister two years ago I do not think anyone would have ever predicted exactly what would happen to the price of a barrel of oil in the coming months: the impact of a whole range of factors, some about Russia, some about other continents, and the global demand for energy, suddenly doubling, or whatever it was, the price of a barrel of oil. Nor could one then have predicted that in that winter, the winter before last, we would see quite a rush towards burning coal because it was relatively cheap compared with oil and gas, and as a consequence emissions started to move in the wrong direction. I am not sure that even

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trillion dollar modelling would have predicted those things because no other analyst was predicting those things. Over a five year period I think you can hope to be moving in the right direction.

Chairman: Again, it is not a completely daft question because the very first evidence session we took was from the Tyndall Centre, for example, and they were clear that modelling was not as good as it might be and it was an imperfect art but one that needed investment. They were very clear to us that they felt there was insufficient investment in this area. We will discuss that at some other point.

Q313 Baroness Miller of Chilthorne Domer: I think we have fairly covered that particular topic but what I would like to ask you about on that is, given the comments we have had about the inaccuracy of modelling, and you said that you would expect it to improve because there would be more inputs, it could be said that actually you are just shifting the political responsibility by creating an independent committee away from ministers. Do you think that is how the public would perceive it if the model continued to be inaccurate, that ministers were no longer responsible?

Malcolm Wicks: I do not see that. Indeed, on an earlier question from your colleague about nuclear issues, they are principally matters for government and Parliament, the balances we strike talking about a market situation and the incentives we can bring in for renewables as opposed to energy efficiency in one's home, or possibly nuclear. Essentially these have got to be matters for government and people elect governments to govern and we are accountable to our publics. It would be wrong to think that somehow this new committee is going to be an alternative Ministry of Energy, that is not the objective. It is very important to be clear what it is about and what it is not about. What this is about is helping us to monitor—whether it should be 60 per cent or 80 per cent it is a pretty tough target—whether we are moving in the right direction and to give us expert advice on how we move there, it is not to second-guess Parliament on the energy strategy or overall.

Q314 Baroness Miller of Chilthorne Domer: This is one of the issues that this Committee has been tussling with really, that as the Bill is drafted the proposed committee would have absolutely no input into policy and, therefore, it would have no mechanisms. Are you still of the opinion that is the strongest way for it to be?

Malcolm Wicks: Lord Truscott will come in on this but my view is, and let us hope that this will not happen, suppose in X years' time they say, "Look, we are way off on this, we need to take radical action to get back on target", given that this is going to be an Act of Parliament, that is legal weight, that would be a pretty clear signal to the government of the day, would it not, and would be a matter for grave concern in Parliament if we gave out that signal. I think that is where it has political influence.

Lord Truscott: I agree with that. It has an important role in that the government will have to give annual reports on how it is achieving the targets and at the end of a budget period the committee will be drawing up a report and looking at how successful the government was in meeting those targets. There is a real level of accountability there both in terms of the government reacting to the independent advice they get from the committee and then a link to Parliament in terms of the accountability of government and how successful it is in reaching those targets. I think the committee will have a pretty influential role and that will impact on policy formulation.

Q315 Lord Woolmer of Leeds: Could I explore the question of the remit of the committee. As I understand it, the Climate Change Committee will be required to assess how to achieve carbon reductions as cost-effectively as possible. Does that not mean that the Climate Change Committee is bound to take a view and give advice on which sectors are most cost-effective and likely to achieve the target? Minister Wicks, you said, for example, that it would not deal with such things as whether the saving should come from nuclear or renewables and so on and so forth, but are they not at the heart of the kind of issues that the Climate Change Committee would need to consider? How can it consider how most cost-effectively to achieve reductions and advise the government if it does not consider those issues?

Malcolm Wicks: I will let Lord Truscott have a go at that.

Lord Truscott: It is certainly the case, as I mentioned before, my Lord Chairman, that the committee will have to look at the individual sectors and the emissions from those sectors and it will have to look at the potential for cost-effective emission savings. That will be certainly a role of the committee. In terms of trading schemes, it will also have a role in advising the government on the level of caps for those trading schemes. It will have a say but, beyond that, it will not be involved in policy formulation, I think that is the difference. It will advise on cost-effective actions that the government should take and the role of various sectors but it will not be involved in policy formulation itself, that is the difference.

Q316 Lord Woolmer of Leeds: Because there are a number of schemes and a number of different ways of achieving emission reductions from trading schemes to various regulatory schemes and fiscal measures and so on, does that not mean that the committee is bound to look at and give its advice on which of those different approaches is the most cost-effective way of achieving the objective? I well understand at the end of the day political decisions have to be taken but I rather felt from your view, Minister Wicks, that the committee would really be, I thought you said, a monitoring body. Surely it is much more than that if it is to have an authority and

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the confidence of the business community, at least, who will be guided by the kind of advice and the decisions that they are reaching.

Malcolm Wicks: I was just trying to suggest that it seems to me it would not be helpful if it became, to use my phrase again, an alternative Ministry of Energy with great streams of work on the virtues and cost-effectiveness of smart metering as opposed to loft insulation or something like that, it seems to me that would be absurd. Of course it will have a broad view about how we go in the right direction on carbon emissions from dwellings, for example, and from other sectors. I am not sure we are disagreeing here, it is a question of getting this balance right and this committee's deliberations will help us get this balance right.

Q317 Lord Whitty: This is on the same tack really. I am grateful for the replies you have given to the last two questions where you have made it clear that the advice and recommendations of the committee do need to be authoritative, and I was going to pursue that particularly in relation to trading schemes because one of the drawbacks of what has happened in the first stage of the European Trading Scheme is that many countries have set a cap far too loosely for it to be effective. The reason for that is that industrial pressures have won and, to some extent, put crudely, the industrial pressures have beaten the environmental pressures. I am also gratified we have joined-up government here but, nevertheless, it must be the case that it would greatly strengthen the government's hand in seeing off those pressures were the committee to make a recommendation on the cap for any trading scheme and, therefore, the committee does have to be seen as authoritative, based on the best advice and ultimately, yes, ministers will take the decisions, but it has a bigger place in the firmament than I thought your opening remarks suggested which suggested a rather more minimal role for the committee than some of our other witnesses have suggested.

Lord Truscott: My Lord Chairman, I broadly agree with that. In terms of the efficacy of the EU ETS, largely that is a question of how it is implemented by the Commission and the Member States. There was certainly a period where in the first phase the EU ETS was quite weak and the price of carbon in the first phase is under half a euro currently. As you say, that was partly because the allocations in the first phase were seen as over-generous and some Member States were over-allocating to the industrial sector. That was tightened up quite considerably in the second phase with the national allocations that were made and some of the initial allocations that were submitted by Member States were actually rejected by the Commission. We are seeing the results of that because now under the second phase the price of carbon has risen quite considerably. We do recognise that for this to function effectively the EU ETS needs to be further strengthened in the run-up to the third phase and we do need to ensure that there is a robust price for carbon. When we have that, that will underpin what the government is trying to do in encouraging low carbon in this

country and it will make the work of the committee much easier. The committee will be able to take into account what has happened with the EU ETS but, of course, it does not have a direct role.

Q318 Lord Whitty: I am suggesting a strong authoritative committee makes the government's job much easier in imposing relatively tight caps in that respect. Had the German Government, for example, had an authoritative committee of this nature in place it would have been far more difficult for them to fix a loose cap the first time round.

Lord Truscott: I would agree with that.

Q319 Lord Crickhowell: I must say that the Minister's initial answer set the alarm bells ringing with me, as I think it did with my colleagues, Lord Woolmer and Lord Whitty. It seems to me that most of our witnesses at any rate envisage the Climate Change Committee's role as being a good deal tougher and more authoritative than I thought that answer implied. Yes, of course the government has got to decide on an exact route but it has been suggested I think, and I think thought by most witnesses, that if the committee came up with a strongly critical report about the way that government was implementing their policy and the probability, or lack of it, of it achieving targets then there would be a very tough discipline on government to do something about it. That has taken us to a real anxiety about what is supposed to be a Bill imposing statutory limits when there is no statutory power in the UK to enforce the government's duty at all, it just does not exist. That came out clearly in the evidence until the Environment Agency came along with some extremely interesting proposals about how real discipline could be put on government if they failed to follow the line recommended by the committee to achieve effective targets and would find themselves in the kind of penalty situation which is what makes the European Trading Scheme work where there are really tough sanctions on those who do not achieve the results.

Malcolm Wicks: I have said that I think it is a question of trying to get this balance right, yes, and the committee will help us with that, I am sure. I also said some while ago that if in the future, purely hypothetically, the government of the day was clearly not on course to meet the targets and that was made clear by a report from this committee, that would be a very, very serious consequence for government and would become a very, very big issue and controversial, politically important issue for the Parliament.

Q320 Mr Stuart: I am not sure that the Committee is entirely convinced by that idea, after all manifesto promises on reducing CO₂ can be missed and cause some political grief but not sufficient to force a change in government policy. The Environment Agency did not like the claim but effectively came up with the idea of a fine. My own proposal is the only

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way of guaranteeing the government would do this would be a 40 seat penalty at the next General Election.

Malcolm Wicks: That may not be enough for you!

Q321 Mr Stuart: The other thing that the Environment Agency came up with—

Malcolm Wicks: What, fine the taxpayer? That does not entirely sound sensible.

Q322 Mr Stuart: I recognise the difficulties but the Minister will recognise that the premise of the Bill is somehow to bind future governments to this process. One further point the Environment Agency came up with was that the Bill suggests the Secretary of State for the Environment should be the responsible minister but, given the cross-cutting nature, and the fact that you are here today only further emphasises that, in fact it would be better if the Prime Minister were named on the face of the Bill and it was the Prime Minister who had to present that responsibility as only the Prime Minister, if he or she were to take that political hit that we have just talked about, would be the one that without fines or anything else would be most likely to deliver change.

Malcolm Wicks: One should never use the word “unique” because one probably gets it wrong, but I think it is fairly unusual for government on the face of the Bill to set itself such a clear target. Governments have targets but they are not usually on the face of the Bill. Given that this truly is the most important matter facing the planet for the next 100 years or more ahead, for us to set that down is really very important.

Q323 Lord Vinson: The next government has got to meet it though.

Malcolm Wicks: And we will! We are setting ourselves something which would be very calamitous if we were not able to meet it in terms of the target or were not on course to meet it.

Lord Truscott: My Lord Chairman, could I just add that the fact is with the Climate Change Bill we will be the first sovereign nation in the world to set ourselves legally binding targets in terms of—

Q324 Lord Crickhowell: It is not legally binding.

Lord Truscott: They will be legally binding targets. The reduction of CO₂ will be legally binding, that is the whole point. The role of the committee will then be to advise us how we can meet those legally binding emission reduction targets. We are the first sovereign nation in the world to make that commitment and this Bill will enshrine that in law, so there will be an obligation in law for the government to meet the emission reduction targets that we will set out in the Bill and we have set out in the draft Bill.

Chairman: Just to disentangle that, at the moment we are getting conflicting evidence as to whether or not these targets do have legal enforcement in law but it is too early at the moment for me to make any judgment.

Q325 Earl of Selborne: I want to come back to this rather vexed subject of what will give the steering committee the authority and the independence in the eyes of the public to command respect and, indeed, to be able to do the very considerable job that is set out in the draft Bill. We are assured that the secretariat will have a strong analytical skills base, and we have heard what resources the DTI, Defra and the Office of Climate Change and others will bring to bear. Could you put all this together and give us some sense as to what size resource you would expect to be available to the committee. Could you tell us also whether you feel if the committee is to be seen to be independent it should have ownership of data which is separate from government departments if necessary. After all, there is sometimes some cynicism about the use of data supplied by government bodies. Would that be seen to be sufficiently independent for their purposes?

Malcolm Wicks: Obviously, we have taken steps, and no doubt greater steps will be taken in the future, to try to protect the integrity and independence of government data and the Office of National Statistics now has an independence which probably its predecessors did not have. It would also be up to the committee, of course, to take evidence from a variety of sources, although there not many in the modelling business at the moment, no doubt the number will grow and they can get advice from independent bodies. I do not know whether my colleague, Peter Brunt, can say more about the precise resources and staffing of the committee, I would have thought it is a bit early to do so and we are in a slightly difficult position because it is Defra rather than us that is the lead department on this. Peter, can you give us any further advice?

Mr Brunt: I think it is too early to say. At the moment the Office of Climate Change, as I understand it, is looking at the question of what level of resource the Climate Change Committee will need in terms of analytical support. That is something that they are explicitly looking at now and taking into account all the things you have heard from DTI, Defra, OCC and the other sources of analysis and modelling they will have access to.

Q326 Nia Griffith: You will all be very well aware of the plethora of different trading mechanisms that we seem to have at the moment: the Renewables Obligation Certificate, the Levy Exemption Certificate, the UK Emissions Trading Certificate and then there will be the proposed Carbon Reduction Commitment. Would you see it as appropriate to use the provisions of the draft Bill in any way to draw these together to make one unified UK domestic trading system and, if so, would you see any interplay then with the EU scheme?

Malcolm Wicks: No, I do not think it would be appropriate to use the Bill to try and reformulate policy. If you think about this historically, we are still at chapter one really in terms of how our planet copes with climate change. We have now got some experience of different trading schemes but they are still in their infancy in many respects with parts of

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the world only just beginning to think about them, such as certain states in the USA and Canadian provinces. We have got some experience of the EU ETS and we have certainly got some experience of the Renewables Obligation, indeed we have proposals for reform on this, but I do not think we would be in a position—my colleagues can give their views—at the moment to suddenly say in the next draft of the Bill we will somehow bring these together because they are trying to do different things to some extent. Certainly the Renewables Obligation, by definition, is trying to bring forward renewable technologies for the future and we feel that certain more fragile technologies, marine technology, should have a greater weighting than, say, onshore wind, so that has that objective to help us develop mechanisms to help us with climate change through renewables. It is in the same family but it is rather different in terms of its mission than the European ETS, for example.

Lord Truscott: I would agree with that, Malcolm is exactly right. You are trying to do two different things with the Renewables Obligation and the EU Emissions Trading Scheme. On the one hand, with the Renewables Obligation we are trying to bring on new technologies, and we are just taking a consultation on the banding of Renewable Obligations so we put more resources into the more difficult, less economically viable renewable technologies, like offshore wind, for example, and, on the other hand, with the Emissions Trading Scheme we are trying to do something else, we are trying to actively reduce emissions. They have different roles so it would be wrong to just lump them together in one general scheme. As members will know, certainly we are putting a lot of resources into Renewables Obligation and the Climate Change Levy will be worth something like £1 billion a year to the renewables sector by 2010. Clearly they have different roles, as Malcolm said.

Q327 Mr Kidney: Minister, the enabling powers in the Bill are entirely about creating trading schemes. Does the Department not think that there is a need for other enabling powers, for example to make new regulation in areas not covered by existing legislation?

Malcolm Wicks: I am sure that following the Energy White Paper, and of course we have consultation on nuclear going on, there will be a need for new energy legislation, there will be a need for an Energy Bill, and no doubt that will bring forward a range of proposals to Parliament. We are not putting all of our climate eggs into just the one basket of this Bill, although it is very, very important. I think it was judged appropriate that this should enable us to help develop schemes such as ETC schemes if we needed to do that.

Q328 Mr Kidney: But most witnesses think it is odd that there are no eggs at all about regulation in this Bill. Has your Department not bid for any enabling powers in this Bill?

Lord Truscott: Shall I come back on enabling powers? I think the purpose of the enabling powers in the Bill are to leave the government with options to introduce further measures, if they need to, to tackle CO₂ emissions. For example, the Carbon Reduction Commitment which we outlined in the White Paper, which is the idea of extending the Emissions Trading Scheme to the commercial sector, hotel chains, supermarkets and local government offices, might have to be introduced using the enabling clause in the Climate Change Bill. Similarly with a possible successor to the Energy Efficiency Commitment—now the Carbon Emissions Reduction Target—we might have to use the enabling clauses in this Bill to introduce that. If we were to go down the option of further measures then the enabling clauses in the Climate Change Bill would enable us to introduce those. That is really the purpose of the enabling clause in this Bill.

Q329 Mr Kidney: Again, you have just described some trading systems and the only enabling powers in this Bill are about trading systems. Do you not think there is a need for some regulatory powers to be enabled by this Bill?

Malcolm Wicks: I was told once at a committee that I am meant to answer questions, not answer them, but I am wondering what sort of regulatory powers we are discussing here.

Q330 Mr Kidney: We have had evidence about the need in the future to look at areas other than electricity, so heat, combined heat and power, micro generation, district heating systems, micro generation of heat for individuals, all those issues that are—

Malcolm Wicks: Many of those things are subject to current policies, of course. I repeat the point that following the White Paper there will be legislation but the precise nature of that legislation is yet to be determined. This Climate Change Bill will not be the sole piece of legislation affecting energy security and climate change over the next couple of years.

Q331 Mr Kidney: It is very decent of the Minister to forego the opportunity to seek powers in the Bill.

Malcolm Wicks: I am in that kind of mood.

Lord Truscott: As Malcolm said, there will be further legislation and there will be an Energy Bill as well. Of course, a lot of the measures that Mr Kidney mentioned are also referred to in the Planning White Paper as well. For example, easing planning requirements for micro generation are part of the proposals in the Planning White Paper. If you look at the picture as a whole a lot of those issues will be addressed by the forthcoming legislation.

Q332 Ms Barlow: Following the publication of the 2003 Energy Review, the government set up the Sustainable Energy Policy Network as well as the steering committee and an ad hoc ministerial committee to oversee it and it had two functions: one was to co-ordinate action and the other was to

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report back. Do you foresee this Network carrying on and, if so, how will its reporting back abilities mesh in with the Climate Change Committee?

Lord Truscott: In effect, no, it will not continue in its current form. What we are really doing is looking at other arrangements which will supplant and supersede the Sustainable Energy Policy Network. This is really following the review by the Office of Climate Change. It is things like the senior strategy board to manage the whole of the Government's climate change strategy. We have got the Environment and Energy Cabinet Committee chaired by the Prime Minister. We have got two cross-departmental programme boards to look at these issues. We have to bear in mind our PSA targets as well. The structure that we have got in government has really built on the Network idea and now we feel we have got a fully integrated approach to this issue and that will be the way forward to build on the structures that we have now.

Q333 Chairman: I have got a lot of sympathy with David Kidney's point. This Bill can only work if it begins to command a huge amount of public and corporate confidence and the public becomes attached to it and, indeed, the recommendations of the Climate Change Committee. I think that is the thrust of a lot of the questions here: how do you build confidence in a Bill against a history of poor targets, missed targets, failed targets? In a sense, Minister, and I am taking advantage of your recent hat as Science Minister, is it desirable to attach to this Bill the type of enabling powers that, for example, allow a public understanding of climate change to take place where there would be imperatives placed on the Department for Education, for example, and where there would be budgets supplied by the Treasury to ensure that people were properly educated in the ramifications of the Bill, where there would be obligations placed

on local authorities to play a greater role in making all of this possible. I think this is what David Kidney was driving at. Is this a Bill that is going to look holistically at this area and drive forward on every front that will make it work or is it, which is what I think I have picked up, simply a Climate (Carbon Trading) Bill to be accompanied by a plethora of other Bills which will cover all of these other areas that are absolutely essential to making the objectives of the Bill possible?

Malcolm Wicks: I would say that this Bill has—I used the word “narrow” before—a narrow but hugely important focus to establish a committee that will gain huge credibility by the power and the force and the authority of its work that will be shining a torch at government to make sure that we are absolutely on the case day-by-day to hit this hugely demanding target by 2050. Essentially that is what this Bill is doing. It is doing enabling as well on ETS but essentially that is what this is doing. I do not think we are predicting a plethora of Bills but we are predicting a major Energy Bill alongside a range of other measures and, like you, I am very committed to the idea that we have got to enable citizens in general to be fully signed up to what we are about because while much of the science and the technologies are on our side in enabling us to see how we can hit this target, whether it is carbon capture and storage or photovoltaics or nuclear, which we are now consulting on, et cetera, if we do not get an informed public with us urging the politicians on ready to adopt new technologies, ready to question whether their own home is energy efficient, what sort of motorcar and transport systems they want, unless that happens we will fail in our objectives. It is not just technology, it is not just technocratic, it is about engaging our democracy in this.

Chairman: Thank you very much indeed. We have kept you ten minutes longer than I had promised, I apologise for that. Thank you.

Wednesday 13 June 2007

Members present:

| | |
|-------------------------------|-------------------|
| Billingham, B | Helen Goodman |
| Crickhowell, L | Nia Griffith |
| May of Oxford, L | David Howarth |
| Miller of Chilthorne Domer, B | Mr David Kidney |
| Puttnam, L (Chairman) | Mark Lazarowic |
| Vinson, L | Mr Graham Stuart |
| Whitty, L | Dr Desmond Turner |
| Woolmer of Leeds, L | Dr Alan Whitehead |
| Ms Celia Barlow | |

Witnesses: **Mr Graham Smith**, Senior Vice-President, Toyota Motor Europe, **Mr Andrew Barker**, Planning Director, easyJet, and **Mr Robert Ashdown**, Environmental Manager, British Chamber of Shipping, examined.

Chairman: Thank you for taking the time to come. We would like to get straight into questions, and the first question will be about targets.

Q334 Dr Turner: To start with, do you think the 60 per cent by 2050 is a realistic target?

Mr Barker: For aviation, we think that the UK Government stance is entirely the right stance to take and we support it. A 60 per cent target for aviation in terms of reductions from today's levels in absolute terms is tough but, we believe, technologically feasible. Whether aviation is included in the short term in the UK budget or not, we want to use the 60 per cent as an example of something we need to think about implementing—so, yes.

Q335 Dr Turner: So you are saying that aviation can deliver 60 per cent. If we gave aviation as a sector a 60 per cent target, could you deliver it?

Mr Barker: It is technologically difficult but feasible. The Greener By Design Group, which is an independent group under the auspices of the Royal Aeronautical Society, has published a paper recently, suggesting that a reduction factor of between four and eight times, in terms of emissions from today's level for aircraft, is possible and feasible over that time period. Growth of the industry may intervene, but growth offset by that four to eight times reduction—certainly at the eight times level—would make 60 per cent feasible.

Q336 Dr Turner: That implies some fairly profound leaps in technology.

Mr Barker: Yes, and profound investment as well.

Q337 Dr Turner: It almost implies that you have succeeded in fuelling aircraft with hydrogen.

Mr Barker: Not with hydrogen, but certainly the design of the aircraft, the airframe, the engines and how we use the aircraft, how full we fill them, what height we fly, what speed we fly, do have to change from today's levels.

Q338 Dr Turner: How quickly could your industries start to deliver cuts, moving towards that scale? Obviously there is a discussion about not only the

2050 target, but the trajectory towards it. There is quite a school of thought which says that the more we can front-load that, the better from the environmental point of view. The question is, do we accept technological limits in determining our trajectory, or do we try to set a stiff trajectory to drive technologies?

Mr Barker: Could I finish off on aviation, and then let my colleagues answer for their industries? It has to be a mixture of both. We think that the incentives in all policy areas could be toughened on our industry to promote investment in the new technologies necessary. In terms of feasibility over the next ten years, we will be announcing a call tomorrow for the aerospace industry globally to invest in the next generation of aircraft in our short-distance flying field, which we think would deliver a 50 per cent reduction in CO₂ by 2015 to 2017. That is the kind of feasibility that we think is possible, and we would like the government policymakers to pull the policy levers and incentivise that investment.

Q339 Dr Turner: You want to see the targets drive that technology?

Mr Barker: Yes, we do.

Q340 Dr Turner: How does that apply to the motor industry and to shipping?

Mr Smith: First, I would like to point out that I accepted this invitation on behalf of my company, the Toyota Motor Corporation. I represent Toyota Motor Europe. I am not therefore in a position to speak for the wider industry. I would also like to make it clear that, at least currently, Toyota is not a member of the European industry structure, ACEA, though we have been accepted into membership from January of next year. I am therefore not in a position to talk on behalf of the industry in a representative capacity. That is the first thing that I want to make clear. However, speaking for Toyota, first of all the direction that is strongly laid out by the Bill is one that we support. We consider the target to be ambitious; but, for members of the automotive industry, as I am sure many of you are aware, we have had a succession of industry-specific targets in relation to air quality, CO₂, initially and currently on a voluntary basis but moving into a regulatory

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structure. In order to meet those targets, technology has already been significantly deployed. There is more to come. The lead times within our industry tend to be extended, not least because technology comes in with the renewal of models, which tends to happen every five, six, seven years—that kind of timescale. From that point of view, therefore, whilst I cannot speak for the industry, certainly if it was a question aimed at whether Toyota could further reduce its fleet average emissions by 60 per cent, that would be an extremely challenging target to reach from where we are now—given that things like hybrid technology have already been deployed, can be further improved, can be more widely deployed—but it would be a significant challenge.

Q341 Dr Turner: But a combination of hydrogen and biofuels?

Mr Smith: Obviously hydrogen and biofuels can contribute. Hydrogen tends to imply, though not necessarily, fuel cell-based electric vehicles. The issue with fuel cells currently is not a lack of willingness to invest in R&D—that is going on both within companies and my own company, and of course there are a number of independents and the academic community—but particularly the amount of precious metal that is currently required to enable a fuel cell to work means that costs are prohibitive in relation to commercialisation. I spoke at a conference this morning where, not me, but a delegate from outside of our industry speculated that it would probably be more towards 2030 or beyond before commercialised, fuel cell-based, hydrogen vehicles would be available. I do not think those kinds of timescales are necessarily inappropriate.

Q342 Dr Turner: Shipping?

Mr Ashdown: Like the two previous speakers, with regard to the general direction of the Bill the shipping industry also welcomes these efforts to reduce carbon emissions. We too think that 60 per cent is an extremely challenging target. Over the last 30 years or so, shipping has voluntarily reduced its carbon emissions or its fuel consumption by a factor of four. We have done that using existing technologies, and those technologies are very nearly at the limit of their optimum efficiency. To go that further mile and to get down to 60 per cent, therefore, what we are looking at are new technologies, and of course there will be some debate as to how quickly they can come on line. With regard to the trajectory of reaching 60 per cent, we are where we are. We start from here. The lifetime of a ship will be in the region of 25 to 30 years, so we would certainly see shipping's performance increasing quite rapidly from 2020, but the increase in performance up to 2020 may be slower.

Q343 Dr Turner: What would your three industrial sectors do if the provisions in the Bill for ratcheting up the target above 60 per cent, in the light of climate science, were to be invoked, so that you were finally faced with an 80 or even a 90 per cent reduction target?

Mr Barker: Given the technology of flight, it would be very difficult. The aerospace experts cannot predict, with any degree of probability, going beyond 60 per cent for our industry.

Q344 Lord Crickhowell: I would like to concentrate on the motorcar industry at this point. We are dealing with a Bill that, yes, sets targets, but then concentrates in the Bill mostly on emissions trading; though it clearly indicates that the Government will choose other policies where necessary—fiscal and regulatory. Mr Smith, you have already referred to the voluntary agreement in Europe, and I think that a quick summary would be that it has not yet produced very good results.

Mr Smith: We would dispute that, but today is not the time or the place.

Q345 Lord Crickhowell: We will not argue about it. I think that we need to have considerably better results than it has produced so far—shall I put it like that? We had an interesting question and answer session with one of the representatives of the authority in California last night and we asked him a question about the actions taken there and the actions that they might take in the future. It seems clear that if the motorcar industry is going to accelerate its process, it will probably need to be done, not by emissions trading but by regulatory spurs or fiscal spurs. Would you agree with that?

Mr Smith: We already operate within a fairly tightly constrained regulatory framework. Leaving aside for one second CO₂, air quality impacts within our industry have been regulated for many years, with increasing stringency. We have had Euro 1, 2, 3, 4; we are moving into Euro 5; Euro 6 has already been defined, and that stretches out to 2014. So a structure that constrains the industry or encourages the industry to reduce environmental impacts, reduce emissions, through regulation is one in which we already operate. It is one that is envisaged, in relation to CO₂, moving from the voluntary commitment into a regulatory framework. Again, speaking for my company, we have no issue with a regulatory-based approach. As I say, we already operate within one. We have no issue with setting targets and challenging targets, including landmarks into the future. For our industry, the currency is grammes per kilometre; so the voluntary equivalent is at 140 g/km. The discussion that is taking place now is in relation to 120; the proposed date is 2012, and that is where the debate is taking place. We have no issue with that direction in terms of establishing those landmarks. The question is how quickly can technology be deployed and at what cost. Many of you in this room will be very aware—because I am sure many of you will have read Stern or be aware of the conclusions—that the abatement costs in road transport are the highest of any sector that was considered by Stern. That gives an indication of the technology cost that will be necessary to stretch forward to future targets. In terms of the direction, in terms of a regulatory approach—whilst I am not here formally to speak on behalf of the industry—the widely held view is that this is the right direction.

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We accept the need to continue to make our contribution towards significant reductions in road transport emissions.

Q346 Lord Crickhowell: Given the nature of the industry, would you prefer that the regulatory pressure should come on a Europe-wide basis rather than something specifically UK?

Mr Smith: We absolutely would. My company is a global player. Most of the companies operating in automotive operate on at least European regional level. Many are global companies. We therefore welcome a global approach to regulations of any description, because it is the lowest cost basis for us in terms of meeting regulations, keeping our products affordable and contributing to a sustainable future for motorised transport.

Q347 Lord Crickhowell: Keeping on this cost issue, which you have emphasised, I happened to go to a presentation in this building last week by General Motors, covering much the same area—being, I thought, rather more optimistic about the process and development of cell technology, but very much emphasising that each of the major companies seemed to be going down their own roads and inventing the wheel in a competitive market. Competition may be the way to do it, and it may be the best way to do it. Would it be unfair, though, to say that the primary driver at the moment is to get a competitive advantage in the market rather than to have the core of getting the emissions down?

Mr Smith: Obviously we do operate in a competitive marketplace. Our view of regulation, particularly in relation to emissions—broadly based emissions not just CO₂ but NO_x particulates, et cetera—is that the regulations should establish the ambition and individual players in the marketplace. Individual companies should find the most appropriate, cost-effective, long-term solutions to meet those requirements. Once regulation starts becoming in any way prescriptive in terms of particular technologies, even aside single market issues, I think that regulators are probably getting into a difficult area. Establishing the ambition, where we need to stretch towards—absolutely fine; but leave the marketplace and individual companies to deploy technology in the most cost-effective way.

Q348 Lord Crickhowell: Finally, are you satisfied with the nature of the Bill as it affects the industry? Is it going to give you that freedom and that incentive to act?

Mr Smith: The Bill, for any one of the sectors, and certainly for our sectors, establishes almost a global ambition: what the UK wants to achieve; stringent targets, very ambitious targets. In that respect, we support the direction that the Bill is taking. However, we—and I think my colleagues giving evidence today—operate within defined sectors, in our case automotive, and what will matter as much, if not more, is how the targets and the ambition in the Climate Change Bill are translated into the specific requirements for our industry. That, I think, is the issue. The other point, when I have the

opportunity to offer views in this area, is that technology has a very important role to play. However, we do operate in a free market where consumers have choice. Obviously, regulatory supply side measures bear down on us, but unless the demand for the lower-carbon vehicles, smaller vehicles, is encouraged by fiscal, incentive, market-based approaches, the overall effects will be reduced, and the dislocation that could be generated as a consequence could be significant. We therefore have no issue with the Bill in terms of setting the ambition. We are already moving in the direction under regulations for our specific industry. It will be how that is carried through, hopefully on a global or at least a European level, which will determine our specific response.

Q349 Helen Goodman: I had thought, before I heard Mr Barker and Mr Ashdown, that this was just a question for Toyota. However, I would like to ask this of all three of you. One of the things the Government says is that they are setting long-term targets because it makes it easier for you to make long-term investment programmes in your major capital projects, in your machinery, and so forth. Is that an argument that all three of you would accept?

Mr Barker: Yes, it is.

Q350 Helen Goodman: That is fine.

Mr Smith: I think that I have already made the point that the model cycles in our industry can stretch out to five, six, even more years, and a new power train or new piece of technology tends to be incorporated as part of a new model programme. So, yes, extended time horizons are immensely important.

Lord Vinson: If one is trying to save the globe, one wants to look at the principal carbon footprints. Shipping is 1½ per cent—fairly small—so even if you made sensible reductions, or do everything you can, it might only drop it down to one per cent. Meanwhile, if the world goes on growing, it might go back up to 1½ per cent. Aviation has currently a 2½ per cent footprint. There is a huge demand for aviation. I think that we should all think twice about switching off the great mobility and freedom that it has given us but, to use your own words, you might be able to cut it back to 1½ per cent but demand will possibly push it back to two or three per cent. However, there is a solution that has been given to us, and that is to look at where the major carbon footprint comes from. That is, both the car industry and base-load energy. If we were to get on in the world—and there are 432 nuclear power stations going in the world already, and even India is building six—over the next 30 or 40 years with a major programme of cheap base-load nuclear, so that we go for an all-electric world, we would save so much carbon on the footprint of heating houses. Coming to cars, if we had electric cars—which is perfectly feasible, but I know that you do not like electric cars, and it means the end of oil—but electric cars, other than for the oil industry, are probably the right answer. If we got on with electric cars, get on with base-load really cheap electricity, the saving in

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carbon footprint would be so great that aviation and shipping would not really matter. Aviation could double—

Chairman: Is that a question?

Q351 Lord Vinson: Is that not so and is that not a more optimistic scenario than trying to cut back on everything?

Mr Barker: The Stern Review number that we use for aviation was 1.6 per cent, rising up in certain circumstances, and, yes, we feel there are a lot of things that can be done for abatement in other industries which are certainly technologically easier and available now.

Q352 Lord Vinson: And more effective overall?

Mr Barker: Politically more acceptable and, yes, more effective. But that does not preclude us.

Q353 Lord Vinson: No, no. What about the electric car, can we move towards that?

Mr Smith: Electric cars have been again developed by my company. There was a trial two or three years ago of a significant number of them on Jersey where they were used on the rental fleets. The issue of electric cars is not motor technology, it is battery technology, and that also is an issue in relation to our hybrid technology. Again, we are at the absolute limit of current knowledge on moving battery technology forward but breakthroughs will undoubtedly be achieved and we can move in that area. We do not have a view on power generation and we do not have a view one way or the other on nuclear, but what we do believe is that no single solution in any respect, certainly not within our sector, is likely to achieve the result, and so we have a multi-path approach. We are developing electric vehicles (the constraint is battery technology), we are developing hybrid, we are improving gasoline and diesels all the time and every one of these will be necessary—all of them—if we are going to achieve the ambitious targets laid out in the Bill.

Q354 Chairman: This is a fascinating stuff but it is a long, long way away from the concerns of this Committee; this is about the Bill. International aviation and shipping are excluded from the present carbon budgets. Do you support that position or do you think it is a temporary position that is not sustainable?

Mr Barker: I think we need an international position on aviation because of its nature and because of the practicalities of measuring emissions. We need to avoid local solutions which encourage perverse incentives to go and load up fuel elsewhere and actually increase emissions overall, so a global solution is what we need.

Q355 Chairman: When you say there is a problem, what is the percentage? We know exactly how many people leave this country in terms of passengers and we know how many people arrive in this country in terms of passengers. Why would it be that difficult to work out a unilateral system in Britain based on our passenger numbers?

Mr Barker: The IPCC is working on a global database of where the emissions are actually produced from aviation. I think it would be a much more effective policy to follow that rather than in the very short term impose a unilateral solution which could encourage airlines just to fuel up elsewhere and that will actually increase the emissions from aviation.

Q356 Baroness Miller of Chilthorne Domer: It is a matter of detail really but I just wanted to clear it up. Mr Smith was talking about looking to the effective long-term targets and worrying less about the mechanisms—

Mr Smith: Worry less about the technology, I was saying a technologically neutral approach.

Q357 Baroness Miller of Chilthorne Domer: Okay, if we took as an example the Renewable Fuel Obligation, how do you feel about that as a mechanism for meeting targets?

Mr Smith: Vehicle technology is one part of it. Vehicles require fuelling and one of those fuels, and an important contributor to reducing carbon effects, will be biofuels in the future. Again, we support that to the extent that those biofuels are sustainable, that there is adequate monitoring and reporting in relation to that sustainability, that they do not compete with food, and therefore that we move to what are so-called second generation biofuels as quickly as the technology will make that possible. The Renewable Transport Fuel Obligation again sets out a framework, and provided we can deploy those fuels, not just in new cars coming onto the market but in terms of the entire vehicle fleet, they have the opportunity to make a significant impact. That would then require those fuels to be blended with existing fuels—low blend—and that is a direction which I believe increasingly at the EU level regulators understand and are now taking.

Q358 Baroness Miller of Chilthorne Domer: Can I just check, how far away do you think the second generation is from requiring such a big audit trail?

Mr Smith: I am not a fuels expert but not that far. In other words, I would not want to speculate but it is not in the same kind of range as commercialising fuel cells; it is much closer than that.

Q359 Lord Vinson: What is the energy input to the energy output of developing oilseed rape as a fuel, for example? It is meant to be nearly 100 per cent so, in other words, there is no energy gain?

Mr Smith: Certainly my company measures things on a well-to-wheel basis, in other words the entire end-to-end carbon impact, and depending on how the biofuel is produced that can be an issue. Some biofuels emit significant CO₂ in their production, but in the second generation biofuels, the technology is capable of delivering not just biofuels that do not impact on food supply but also biofuels that have a positive well-to-wheel contribution.

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Q360 Mark Lazarowicz: A question for Mr Barker: given the current growth in air traffic and the speed at which major technological changes would make an impact on the industry, the picture I get from your evidence is that we would see a situation where aviation emissions would continue to increase substantially for quite a period of time and it would only be towards the end of the period up to 2050 that you might see substantial reductions in emissions if technological change were to occur. Is that a correct description of the position?

Mr Barker: Speaking for our end of aviation, short-haul aviation, the growth rate in UK traffic in the last five years has been about three and a half per cent, so marginally ahead of average economic growth, and we can use broader economic growth as a benchmark for volume growth in our field of transport. We would like to buy aircraft from 2015 onwards that reduce our emissions per passenger journey by 50 per cent. Obviously the diffusion of those aircraft between 2015 and 2020 will turn in the actual abatement of CO₂ emissions, but if you assume a three and half growth up to 2015 that means the industry will be perhaps 40 per cent larger than it is now in volume, and by then we will have, hopefully, technology that will allow us to reduce emissions by 50 per cent on new aircraft, so that offers a potential, although the CO₂ emissions will increase between now and then, of least a ten-year time frame to start to think about reducing in those terms.

Q361 Mark Lazarowicz: You are not certain of the technology required to produce a 50 per cent cut in eight years' time, are you?

Mr Barker: I am responsible for negotiating with Boeing, Airbus, Rolls-Royce, General Electric and Pratt & Whitney on these new technologies, we are the biggest buyers of them, we have a lot of capital that we want to spend on them. We hope that that money will talk and that it will persuade them to invest. We see it as entirely feasible and we hope that also the policy makers will help us in incentivising the process, so it is entirely feasible that it will happen.

Q362 Mark Lazarowicz: But presumably entire fleets are not going to be changed in 2015 overnight? There is going to be a period when the existing fleet is going to operate and be kept in service. Does not all this suggest that rather than leave this up to the hopeful expectation of technological changes in seven, eight or ten years' time, it would be better to start controlling the rate of growth at this stage so we are not putting so much trust in technological change in eight or nine years' time, and you do not have such a big increase in emissions to work your way down from in eight or nine years' time?

Mr Barker: In the very short term the rate of growth is not a problem. As I said, the rate of growth is simply in line with the economy. It is the difference between the efficient and inefficient operators, so the most efficient airline is perhaps 30 or 40 per cent more efficient in emissions per passenger than the least efficient airline, so UK growth in short-haul

aviation over the last five years has been of the order of 15 per cent in absolute terms. All of that growth, and more has been added by the much more efficient airlines and so I contend—it needs to be tested—that the absolute level of emissions in short-haul aviation has fallen over the last five years. You are right, we do not want to just trust in technological change; we need the Government's help to promote other policy levers in the shorter term such as fiscal levers which the Government is already pulling with Air Passenger Duty. In our view, they need to be much more closely aligned with emissions to encourage the less efficient airlines out of the market and we also think that regulation has a part to play in banning, effectively, dirtier aircraft. The industry has been very good at doing that with noise—the chief environmental concern with aviation over the last 30 years—and now we see an opportunity for government to impact on emissions in the same way.

Q363 Nia Griffith: I think you have touched on the area I was going to ask you about. As easyJet obviously you have a reputation for looking at cost effectiveness and so you are actually saying that there is a vast amount of waste in the industry and the quick hit, if you like, would be to get rid of that waste, and you are actually saying then, if I understand it rightly, that carbon trading emissions schemes would not on their own be sufficient and you would like to see a lot more stringent regulation to get rid of, for example, empty aircraft flying about with nobody in them or half full and therefore presumably you would be looking at things like the actual speed that aircraft travel at, and you think there could be savings there, if you like, very quick savings with no technological change but just reorganisation?

Mr Barker: Very much so. Certainly Government policy hitherto has promoted competition and that in itself has been good, but using existing fiscal levers much more closely to penalise less efficient airlines and also consider regulation to ban the dirtier aircraft; we think there is a role for both of those things.

Q364 Ms Barlow: Just two quick questions, one a general one: Mr Barker spoke in terms of the problems of introducing aviation and shipping, does the fact that it is within Bill and that it could be included but with no timescale, no deadline, actually stop you all from doing long-scale planning? Would it be better to know it was going to go in and when it was going to go in? The second question is specifically to Mr Ashdown: in view of the nature of shipping and the registration of many of the shipping vessels, if we went ahead with a British target, how practically would you see your industry dealing with working out the British level of emissions?

Mr Barker: In terms of the Bill, as I said in my introduction, regardless of whether aviation is included or not, it does impact. The fact that the UK is setting a standard impacts on our planning right now; that is my job at easyJet. What I have been saying in my previous answers is that even outside

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the Bill there are policy measures open to government now to impact on things and we urge you to look at all of those, so the question is more immediate than the Bill itself.

Q365 Ms Barlow: So if those measures were to be brought in you would appreciate knowing what they were sooner rather than later?

Mr Barker: Yes, we would rather fiscal and regulatory levers are pulled and it not necessarily be held up by or debated in the context of Bill but just put in the Bill now anyway.

Q366 Ms Barlow: And the second question on shipping?

Mr Ashdown: I believe the answer is roughly similar so I can wait or I can answer it now.

Mr Kidney: It is the same question.

Chairman: I have got one for you as well.

Q367 Mr Kidney: Mr Ashdown, did you write the Chamber of Shipping's memorandum to the Committee, it is CCB81?

Mr Ashdown: Yes.

Q368 Mr Kidney: And at the end you do set out the legislative options: two emissions trading scheme alternatives, the European ETS or a global one, and then three more options outside of that, and that includes maritime transport emissions allocated between states and imposing their share; a mandatory differentiation of harbour dues depending on how efficient they were; or insisting on more research and development. The question I want to ask you is do the laws already exist to pull the regulatory levers, as Mr Barker describes them, if you were minded to go ahead with one of those recommendations or do we need a law that permits that to happen?

Mr Ashdown: In terms of whether or not the rules already exist, obviously as a sovereign state the UK can compel flag ships to perform certain measures. However, this is an intensely globalised industry and the ships are free to reflag to whichever state they choose. This is why we very much favour international regulation through the International Maritime Organisation as we believe that is the only mechanism through which ship owners can operate on a remotely level playing field. So for reasons of competitiveness we think that this has to come from the international body if it is to be effective. Of course that would be the purist solution. It may be possible that some ships operating in some trades could work on a European level. Quite how a purely UK trading system would work would be very difficult to envisage and its environmental impact would probably be negligible.

Q369 Mr Kidney: I understand that you do not want to go unilateral on this but if Britain did want to go unilateral, are you saying that the laws exist to impose whichever system you chose?

Mr Ashdown: I believe so, for UK flag ships only.

Q370 Mr Kidney: Mr Barker, when you said [odq]pull the regulatory levers[cdq], do the laws exist or do we need to give ourselves the legal powers in order to pull those levers?

Mr Barker: Currently the UK Government is pulling a fiscal lever in terms of Air Passenger Duty.

Q371 Mr Kidney: I am talking about the regulatory ones, the dirty planes that you mentioned.

Mr Barker: The history of noise regulation in aviation has been through ICAO, the International Civil Aviation Organisation, and that would be the most effective way of exercising or pulling that lever, so the immediate lever does not exist but the UK Government would need to—

Q372 Mark Lazarowicz: Is there any prospect of that happening?

Mr Barker: I think the example is noise. That has happened and it has been extremely effective. One could even use the current noise chapters/noise regulations as a base for emissions as well.

Q373 Lord Vinson: It would have to be a ten-year time span at least though, would it not?

Mr Barker: I was not involved 30 years ago in the discussions on noise but, yes, there is an international consensus required—

Q374 Lord Vinson: The amortisation of the aircraft, its economic life and all the rest of it.

Mr Barker: One would have to set stringent targets in the regulations to bring forward the retirement of those aircraft. That is entirely up to the policy makers.

Q375 Mr Kidney: I do not understand your answer about banning dirty planes, which is an answer you gave to somebody else earlier on, does that power exist in our law already and could we ban them tomorrow if we felt like it?

Mr Barker: I am not sure. I believe that the Department for Transport is already looking at areas like sustainability and the environmental footprint at Heathrow and looking at whether it is possible for the airport to ban aircraft.

Mr Kidney: I will ask the Minister.

Q376 Chairman: There is a provision in the Bill to add both your sectors at any one moment. Does that create uncertainty for you? Would you not in fact prefer to have a deadline on which you knew you would have to comply?

Mr Ashdown: We would very much like to see any new legislation coming forward through the International Maritime Organisation and we would envisage that that body would set sufficient timescales for its implementation to allow us to prepare adequately. The absence of it in a UK Bill does not cause us undue concern.

Mr Barker: The specific inclusion of aviation does not alter our determination as a company to try and match the UK's national budget anyway.

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Q377 Chairman: You have made reference a couple of times to the Air Passenger Duty. Could you drop us a note setting out what it is that you do not like and what form of Air Passenger Duty would be more equitable and more valuable?

Mr Barker: We can certainly do that, yes.

Chairman: Thank you. I am moving on, if I may, to carbon budgets. Dr Whitehead?

Q378 Dr Whitehead: You mentioned earlier about your own development of budgetary periods. How do you think that those fit in with what is in the Bill about the budgetary periods of five years and do you think a five-year budgetary period is either too short or perhaps too long to respond to changes. Is the idea that an initial three terms of carbon budget should be set by the end of 2008 something that you would welcome or would have concerns about?

Mr Smith: Maybe I will lead off on this. Obviously you will all be aware that Toyota Corporation is a Japanese company and there are regulations in relation to environmental impact in Japan, and the issue of planning horizons is one that has been explicitly addressed. All the regulations that impact on our sector in Japan are clear and known and, if you like, are on the statute book already through to 2015 and in terms of the planning horizon, that is the kind of horizon that we really would appreciate as the framework within which we operate, because it is not just a question of bringing from the shelf a piece of technology and applying it. We have talked a little bit about batteries and with a lot of the developments it is not currently possible to say with absolute certainty when that breakthrough might take place, so the directions that you take with your entire R&D are affected by these things. The longer the horizon and the more certainty that we have for our own planning, and particularly our technology planning and our engineering R&D, the better.

Mr Barker: As a company we plan on a three to five-year financial timescale, so we deem that there are commercial and structural levers open to us to change the course of our company over that timescale and, as I said in an earlier answer, we are already engaging aircraft manufacturers on the period 2015 to 2020 so, yes, as my colleague was saying about the timescale, the more certainty the better. The Committee for Climate Change, or however you assess our industry, will obviously have to have expert input into the feasibility of any targets that are set.

Q379 Dr Whitehead: Mr Ashdown, the metaphor that is always used is the time it takes to turn an oil tanker around; in your case this is real.

Mr Ashdown: Absolutely, yes. On the carbon budget the principle is the longer the better. One of the problems that shipping has is that we are finding it very difficult to normalise our carbon emissions. Two sister ships on the same voyage can have a 45 per cent discrepancy in their carbon output. We feel the idea of being able to borrow from one budget to the next will be very helpful and again we also see the five-year period as perhaps being a little too short. Ships routinely work on a five-year dry docking

programme and that would be the time they would go in for major renovations which may help to meet the next level or the next drop in the budget allocations, so for some owners if they were coming into very close to the end of the budgetary period that might not give them quite sufficient flexibility to move them forward.

Q380 Dr Whitehead: Could I just unpack that a little and perhaps reflect in terms of the other sectors. You mentioned the question of borrowing between budgets. There is also the issue of the extent to which foreign credits can count towards meeting carbon budgets within any particular budgetary periods. I would imagine on the one hand for everybody in terms of your own planning you would welcome the notion that there would be a rather small amount of foreign credits so, as it were, you do not fail to meet the planning target, you simply go and buy some else's benefits. On the other hand, you mentioned the question of how to balance your own development programmes into a five-year budget. Therefore would you ideally prefer a combination of borrowing and overseas credits to go within the budgetary period?

Mr Ashdown: I hesitate to answer that because it all depends which other international countries are involved in the borrowing scheme. As I said, it will be very, very difficult for ship owners to operate competitively unless it is a global initiative, and it may be that if budgetary allocations simply were not there or could not be purchased then some owners may look to reflag to a scheme where there were more generous allowances and look to meet their obligations that way.

Q381 Dr Whitehead: Simply visit UK ports.

Mr Ashdown: Yes.

Q382 Lord Crickhowell: On the question of flagging in answer to an earlier question you emphasised that regulation would only apply to UK-flagged vessels. Am I not right in saying the percentage of UK shipping that is actually UK-flagged is already tiny and therefore the global impact would be very small?

Mr Ashdown: Yes, absolutely.

Chairman: Staying with budgeting but the role of the Climate Change Committee,

Q383 Lord Woolmer of Leeds: It is a tiny detail of the Bill but it may be an important detail. The Climate Change Committee has certain duties and one of them is to advise the Secretary of State and Government on the respective contributions towards meeting the carbon budget for the relevant periods and how much that should be made by sectors—sectors covered by the trading scheme and other sectors. If you are brought into the Bill when it becomes an Act do you expect the Climate Change Committee to make recommendations to Government on the amount of carbon budget which should be allocated to aviation and shipping (if they are brought in and that is a big [odq]if[cdq]) in other words, do you expect the Climate Change Committee to make regulations specifically about

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your sectors along with other sectors? Is that how you interpret section 20(1)(c)(i) and (ii)? This could be a critical section of the Bill in terms of how the Carbon Change Committee operates.

Mr Barker: We think it will be very helpful for the Climate Change Committee to act as an independent standard-setter for the whole economy where we can as an industry look at our impacts and our progress relative to other sectors. We think that would be a useful function. For us in aviation we are very heavily regulated in terms of safety as regards fuel use. The data is there, it is being collected anyway in terms of the emissions to the EU ETS, and so as regards the performance of aviation in that respect, it should technically be something that the Committee—

Q384 Lord Woolmer of Leeds: Sorry to interrupt but my question was do you expect this Committee to give the Government advice on the amount of emissions budget that should be allocated to aviation for each of the next three five-year periods? Do you expect that kind of detail to come from the Committee?

Mr Barker: I was going to round off my answer by suggesting that on the technological assertions I have made I would hope that the Committee does have a role in making an independent assessment of the feasibility and then what aviation is capable of, so yes.

Mr Smith: I would just make two quick points. The first one is that the carbon consequence of a motor vehicle is not just determined by the vehicle itself; it is how far it is driven and in what context, congestion, infrastructure and traffic light management, all those things, so to even begin to arrive at an appropriate number would be a fairly challenging process. Our only view in relation to all of this is that the Committee should be, firstly, expert, secondly, independent, thirdly, should have economic information, should have the necessary data, should not be politicised in any way, and on that basis any advice or any involvement that they might have would be at least transparent, but whether they should attempt to get into allocating specific budgets to sectors, particularly where, as I say, the consequences in terms of carbon emissions for our sector go way beyond just the vehicle itself, so you really then get into what is that then saying about freedom to use the vehicle, road pricing, modal shift, all of these issues which again as politicians you collectively have to wrestle with also, so it would be an heroic task.

Q385 Baroness Miller of Chilthorne Domer: The Bill would allow in the trading scheme for personal carbon budgeting, which might address some of the issues you are talking about, about how cars are driven, what choices individuals make, and might drive those choices in the right direction. Could I ask, particularly aviation and cars, if you support personal carbon budgets being introduced?

Mr Barker: I think—and it is your judgment as politicians on this—it is politically much more expedient to look at the efficiency of the operator of

the equipment first. In the car analogy we are the drivers of the vehicle and our customers are just the passengers, so before one thinks about imposing limits on people's freedoms, it is much easier to look at the operation of the aircraft themselves.

Q386 Baroness Miller of Chilthorne Domer: Under some of the systems described they would be free to buy above their budget. They would start with an allowance and then if they wanted to fly more they would have to buy extra budget off people who were not flying, for example.

Mr Barker: We just see from our perspective that it would be so much easier to look at the operators of the plane rather than the consumers, and that needs to be done first.

Q387 Baroness Miller of Chilthorne Domer: So you have never explored this system?

Mr Barker: I think it would be extremely difficult to set up and much easier to look at how we use the equipment.

Q388 Baroness Billingham: Going back to Lord Woolmer's question, which is how the Committee is going to function, you mentioned the word [odq]politics[cdq] within your answer, but do you not think it is part of that Committee's function to form a political consensus, because otherwise when we are talking about long-term planning—and you have all indicated how important long-term planning is—if you are going to have any certainty in the future about the way in which climate change is to be managed, you surely would need to know that you have certain guarantees of long-term performance and activities within that Committee?

Mr Smith: The comment I made was really trying to draw the line between a committee of experts and those that carry the political responsibility, and unless this Committee is going to be made up of elected members of society, then I am not sure it is properly constituted to contribute to a political consensus. Political issues are political issues and they should be determined by the politicians. This is almost a personal view rather than a company view. We just feel that providing the advice that is being provided to the relevant minister is objective, is transparent, is from experts, is supported by the data, et cetera, then at least there can be credibility in relation to all of that; it is then for others to make the political judgment.

Mr Barker: I would echo exactly that and I would say that the political judgments and trade-offs will be much clearer once the Committee has had a chance to become expert and review the data because there really is not a consensus around that data right now.

Q389 Chairman: You made a point and others have made it very well about the type of qualities you will be looking for in the Committee and membership of the Committee. Out of interest, what form of scrutiny would you like to see applied to the way in which that Committee was put together, the way in which those appointments were made?

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Mr Smith: Again, this is not something on which we have strong views. I think I have expressed myself in terms of the nature of the individuals—

Q390 Chairman: I am asking you a really important question and I think you are very well-qualified to answer it. You make a very good point and the kind of qualities you were describing are exactly the type of qualities that everyone on this Committee would applaud and hope to find. What does interest me from someone with your experience and covering quite a lot of turf—is it your job to make sure the Committee was competent, what type of scrutiny would you like to see applied to that Committee?

Mr Smith: In terms of its composition?

Q391 Chairman: In terms of putting it together and announcing it to you as a group of people on whom it is going to have an enormous impact.

Mr Smith: I am sure that any process that at least allowed major sectors that will be affected by the advice of that particular Committee offered to relevant ministers, any input that we were able to provide would be welcome, so to the extent that there can be a process where views are sought from relevant sectors, my sector I am sure here in the UK—and I will say this as President of the Society of Motor Manufacturers and Traders—would be more than happy to offer a view of the nature of the individuals and the kind of scrutiny that that Committee might provide. Beyond that, it is difficult to comment. I think there would need to be a strong science and engineering bias towards it. A lot of the data is complex and the issues are fairly complex, and that is probably a broad direction that would be appropriate, but also those that understand the commercial consequences and the business impacts, anybody representing organisations in the commercial world would want to feel that

individuals on that Committee had a good understanding of the world that was being impacted by the Bill and the budgets that are envisaged.

Q392 Chairman: Mr Barker, you are a young man; is there anything more radical you would like to add to that?

Mr Barker: My grey hair obviously is not showing through! I would offer a simple parallel of the Civil Aviation Authority, which in our case regulates every single aspect of our operation every day and we are very happy with the scrutiny, the governance, and I think it provides really a beacon for the rest of the world, and I think the opportunity this Committee has is to set up something like that.

Mr Ashdown: I have a couple of points. We have actually just gone through a very similar exercise with Defra who are looking to set up a Marine Management Organisation and we have made many of the points that my colleague here has made about openness and transparency and about the involvement of stakeholders and the necessary expertise. I think also it is important that the Committee has genuine independence, that the Chairman is not perhaps nominated by politicians of a political party, and that it also has a certain amount of budgetary independence and the way we see this—and I understand the Government likes to allocate NDPBs to departments for budgetary purposes—if it could be a cross-departmental body, we feel that would also give it an added measure of independence.

Q393 Chairman: Unfortunately we have run out of time, but we have got some questions on emissions trading that we would very much like to ask you and I wonder if we put them to you whether you would be willing to respond in writing?

Mr Smith: Yes.

Chairman: Thank you very much.

Witnesses: **Gillian Merron MP**, Parliamentary Under-Secretary, **Mr Adrian Gault**, Divisional Manager Transport Analysis and Review, and **Mr Martin Capstick**, Head of Aviation Environmental Division, Department of Transport, examined.

Q394 Chairman: Minister, I am really sorry for the delay. I am not saying whose fault it is but you are probably looking at him! Aviation is the particular area that we would like to pursue with you, starting with a question from Mark Lazarowicz.

Gillian Merron: Chairman, before we start would it be possible to say a few words of introduction?

Q395 Chairman: We would positively welcome it.

Gillian Merron: Thank you. First of all, could I introduce Martin Capstick, who is Head of Aviation Environmental Division, and Adrian Gault, who is Head of our Transport Analysis and Review Division, and they are both here to—as I am—to assist the Committee. I do believe it is an important Bill. It is a very important issue for the Department and, as the Committee is aware, the Climate Change Bill has been developed in co-operation with all the relevant departments and the Office of Climate

Change. I do know that my colleagues from the Department of the Environment are giving evidence to you and perhaps I might suggest that I limit my responses to those relating to transport, as they are far better equipped to deal with all the non-transport matters. In relation to transport, the Climate Change Bill does set out measures which I believe provide the industry with greater clarity and certainty in order that they can make the right investment decisions. It also provides the Government with flexibility to introduce further cost-effective measures to price carbon into the cost of transport, should they be required, and it also, importantly, provides a framework for action and scope for responding to future developments, which I think particularly in regard to this area is very important. We are committed to moving towards a low-carbon economy over time and this Bill certainly ensures, I believe, that we work

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appropriately to achieve reductions in emissions whilst maintaining what I also believe is important which is a strong and growing economy. I am very happy to be of assistance to you today and of course provide any written evidence to assist the Committee should you wish that.

Chairman: Pleasure, thank you very much indeed. Mark?

Q396 Mark Lazarowicz: As you know, Minister, domestic aviation emissions will be included (hopefully) in the EU ETS in 2011 and all aviation emissions from 2012. Given the imminence of these timescales why is international aviation excluded from the scope of the draft Bill?

Gillian Merron: Well, I think what I would say is that emissions from international aviation and shipping are not currently included in the Bill's targets because, if one might put it this way, there is no agreement about how we would even allocate those emissions. However, and I think this is the strength of the Bill, it does allow that to happen in the future as and when there is international agreement about how we could actually work out how to allocate emissions. As we know, by its very nature, aviation is international and I do think there would be a difficulty in taking a UK-only approach to inclusion of emissions before we have an international agreement. Of course it is worth just reminding the Committee that domestic aviation and transport is included, but I was in discussion in preparation for today and perhaps I could give an example in terms of shipping which drove the whole matter home to me, which is of course in shipping you could have a Liberian tanker, with French sailors, going from South Africa to the UK, carrying Kenyan coffee, working for a German company, so when I talk about the international nature of aviation and shipping, I think that gives some explanation of the realities. Having said all those things Chairman, I think I would want to reassure this Committee that we are far from doing nothing on this very matter. The UN Framework Convention on Climate Change Sub Group, of which we are an active member, agreed following recommendations from international scientists through the Intergovernmental Panel on how it should be done, in other words how it should be done that we make a report on what our estimate of the emissions is, and we agreed to do that. We now report to the UN FCCC on our estimate, and you may wish to know a bit more about how we actually do that. For me, the Bill allows what is suggested might happen in the future as and when there is international agreement as to how we could include something of the international nature of aviation and shipping. I hope my explanation gives some ideas about why we cannot be doing that at present.

Q397 Chairman: Perhaps your officials could write to us on the detail of the precise arrangements.

Gillian Merron: Of course.

Q398 Mark Lazarowicz: Presumably therefore when the EU ETS is up and running we will have at least got somewhere on allocating emissions at a European level. Is it the Government's intention that when the EU scheme is up and running, at least those emissions covered by the EU ETS scheme would be brought into the area covered by this Bill? Would that not make sense?

Gillian Merron: What the EU ETS scheme illustrates for me is where you can get agreement. We are very clear that inclusion of aviation in the EU ETS scheme is perhaps one of the best ways of allowing a contribution to tackling climate change by the aviation sector. There we will have agreement about what is to be accounted for and how, for example, for administrative purposes the country where an airline is registered will be the one who will be responsible, so if you take an airline like Ryanair, which is registered of course in Ireland but does most of its work out of the UK, you start seeing the need to have clarity and agreement, so I think that would only be a partial response and I do not actually feel that that partial response would be taking us somewhere in terms of an international agreement. I think more important is the work that we are doing outside of the EU. We know that within the EU we have got that agreement for inclusion of aviation in the trading scheme, that is very important, and our job is to make that happen as fully and as quickly as possible, but as I would want to emphasise, it is not that we are doing nothing, it is just that the provisions in the Bill do not allow us to do it because we do not have the ability to measure, but as and when we do of course the Bill does allow that.

Q399 Mark Lazarowicz: One other point if I may, presumably at whatever point, either European or international aviation, and indeed shipping, can be brought into the Bill, it will be much easier if the starting point from which we wish to see emissions reduced is at a lower level rather than a higher level. That being the case, what kind of measures does the Department intend to put in place to try and reduce emissions in the interim period? We had earlier on the witness from easyJet almost begging us to introduce fiscal and regulatory measures as soon as possible to achieve that objective. What are you doing as a Department to ensure that the starting point for going into this scheme will be at a lower point rather than a higher point?

Gillian Merron: Of course, I would make reference to the Stern Report, which of course we have taken very good account of, but I would also say that we are very keen to improve and support technological improvements, at least in terms of aviation. We are funding research and development. Manufacturers are keen to see the kind of target they could work to. I would also emphasise to the Committee that some of this is actually quite market-driven. I know from my own discussions with manufacturers as well as with airlines the airlines are requiring of the manufacturers more environmentally friendly aircraft and the industry is responding. I also think

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the EU ETS will have a great benefit because it actually encourages of course, by setting the cap, greater technological advancement because that actually means greater gain for those who are part of it. So I would certainly accept the point without a doubt that aviation will be in better shape for having worked to reduce its environmental impact. What I would want to ensure that the Committee is aware of is the fact that that work continues and that we are very aware of that in the way that I have described.

Q400 Mark Lazarowicz: A last question on a factual point which you might be able to help us with. Can you give us your Department's estimate of the increase in emissions due to air travel, both domestic and international, by 2020 and 5050, the two target dates, and how much of a reduction in emissions in the rest of the economy would be needed to reach the targets within the Bill?

Gillian Merron: Can I ask Martin to start on that one.

Mr Capstick: Certainly, I think I would refer the Committee to the report that we provided for the House of Commons' Environmental Audit Committee on Aviation Sustainability in the 2003-04 session, where we estimated that aviation emissions in 2030 will be 17.7 million tonnes of carbon and 17.4 million tonnes of carbon in 2050, and that would compare with a UK domestic total of 100.4 million tonnes of carbon in 2030 and 65.8 million tonnes of carbon in 2050. We could provide those numbers in writing. Your question about what that would mean for other sectors of the economy really brings us on to a different question about what the consequence would be of including aviation within the target, and I do not think I am in a position to make an assumption about what the UK Government target would be if aviation were included.

Q401 Mr Stuart: The Bill has been part of a cross-departmental series of working and you have just given us figures from three to four years ago. This Bill is a major and unique piece of legislation; are you telling us that you have not done any new figures based on aviation given its importance for 2020 when the actual targets are set? Can you also comment on what your estimate now is the appropriate increase in radiative forcing that we should apply to any of these emissions from aviation and, again, perhaps put that in context for us?

Mr Capstick: I might answer that in a couple of ways. In the Air Transport White Paper, *The Future of Air Transport: Progress Report*, which was published in December 2006, we maintained the emissions forecast which was set out in the White Paper but pointed out that we would be updating our emissions forecasts and publishing those in 2007. The work on that is underway at the moment and we will publish it and so clearly that will be available for the time when the Bill is introduced. As far as radiative forcing goes, I think probably the latest understanding of that would be from the EU trade-off report produced in 2005 which suggested that, compared with previous assumptions, the

impact of contrails from aviation was slightly lower than they expected so it is suggested that the overall effect of radiative forcing from aviation was probably about double that of carbon dioxide. The report was described by the Manchester Metropolitan University Centre for Air Transport and the Environment as a [odq]landmark[cdq] paper, so it is clearly something which has a good degree of academic support behind it.

Q402 David Howarth: Speaking as an academic, it could be a landmark in different ways of course.

Gillian Merron: This is with all due respect to academics everywhere.

Q403 David Howarth: Absolutely. Can we just come back to the question of international aviation and the non-inclusion of it in the targets. I think, Minister, it is very complicated, and you gave an example to do with shipping, but the Tyndall Centre provided this Committee with figures based on a very simple calculation. All they do is they look at where a flight from this country is going to and look at where a flight to this country is coming from and they divide those two journeys in half, so it is a very simple 50/50 rule. It seems to me a perfectly sensible starting point. It also fits in with a basic premise which is what counts is where the emission happens. Your example about shipping seemed to bring in a completely different principle which is who causes the emission. Now that cannot be the principle for the following reason: if that were the principle then we would have to attribute to ourselves emissions caused by our consumption of goods made elsewhere. That might be a very good thing to do but it is not what is in the Bill. The Bill is about UK-sourced emissions and the Tyndall Centre method is a very simple way of allocating international aviation emissions in that context.

Gillian Merron: It is an interesting proposition and I think perhaps I would make two points. I feel international agreement on measurement is important and, as and when we have that, the Bill does permit us to bring that into the equation and that will be the right time to do it. As I say, if you look at the EU ETS scheme it is because we are in agreement to move to that point that we can include aviation. Without wishing to say too much about the other proposal, and of course we are always happy to look at proposals, I think some might also argue that it is not as simple as where you take off and where you arrive but also where you fly over. I also wonder, as I say, about the registration of the airline and so on. I think perhaps the best point I could say to the Committee is international agreement on measurement is the key thing here. As the UK, the Climate Change Bill makes quite clear our commitment and I hope will be a lead across the world, but the nature of aviation is that it is an international business and I think for us to stand alone probably will not produce the results that we would all want to see.

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Q404 David Howarth: But this whole Bill is standing alone. This whole Bill is trying to give a lead and this is a small technical issue; why do we not give a lead on this?

Gillian Merron: I do not think it is a small technical issue actually.

Q405 David Howarth: Is it a greater technical issue than the issue of the target itself for 2050?

Gillian Merron: I do not think it is a small technical issue. I think it is an important issue which over time I would hope would be resolved and that is why, Chairman, I told the Committee about our efforts internationally and our willingness to go down this road.

Q406 Chairman: Can I help you as there seems to be an element of confusion. The stance you are taking indicates that the Department for Transport is far more averse to unilateral movement in this area than any other department.

Gillian Merron: I do not think it is the place of the Department for Transport to be unilaterally opposed on a Government Bill. Perhaps I could make that point.

Q407 Chairman: I would agree with you.

Gillian Merron: Good. I want to give the view in terms of our knowledge and understanding of the international aviation sector.

Q408 Chairman: I was just trying to explain where there was a certain amount of confusion.

Gillian Merron: I understand, thank you.

Q409 Mr Kidney: Minister, if this Committee—this powerful Committee—were to conclude that international aviation should be included in the UK target from the outset, let us say the emissions were split 50/50 between country of origin and the country of destination, would your Department's advice to the Committee be that the target of 60 per cent is then more challenging but achievable or would you recommend that we reduce the target?

Gillian Merron: I do not think it would necessarily follow that the target would need to be reduced. I think that is probably the first point that I would make. I am not saying to the Committee I have a particular new target in mind, but I know because I heard outside the door that you have had very encouraging noises from the industry about wanting to reduce and I very much welcome that, that is certainly part of our discussions, but if the inclusion of international aviation were to happen then in the same way as if we included anything else, for example the non-CO₂ emissions, then I think it would be appropriate to review, but I do not think I would say to the Committee you should read anything more into that than exactly what I am saying. Clearly the whole point about the Bill is that it allows for that kind of change, that new inclusion, and then for the Committee on Climate Change to look at the whole thing, to make recommendations to Government and Government to make a

decision. Also in the Bill of course in legislative terms it would require the agreement of both Houses so it is also something very much open to Parliament.

Q410 Lord Vinson: Aviation is a growth industry. I was the Director of the British Airports Authority for many years and it was compounding at seven per cent then and it still is, so it is very unlikely to be able to reduce its carbon footprint however many efforts are made to get better aircraft, better loading and all the rest of it. If we want to meet current public demand to keep flying, which is one of the great mobilities of the 21st century, to meet its increased carbon footprint I think it will have to consider buying carbon offsets from other people to pull its weight, you might say, and in terms of carbon reduction it will have to get somebody else. The natural position where it will buy those offsets is where the major amount of carbon is made, which is base-load electricity and oil for heating our homes and houses, and that is the whole area where the major savings are going to come from to allow aviation to continue to grow, I would have thought (one can offset the other) and you can either be draconian and stop aviation or we can say let it grow but we have got to take better steps elsewhere where it is easier to achieve carbon reduction, such as home heating and electrical generation and not least cars. I would imagine that your Department is going to take a very close interest in the ability of other departments to create carbon savings that would enable you to say, [odq]Don't let's be Luddite about aviation, let's keep it growing, but we have got to make internationally carbon savings that offset any major increase in demand that is likely to happen with aviation.[cdq] Would you think that is so?

Gillian Merron: I think I would say, Chairman, that makes a lot of assumptions and I would not accept that that is exactly a description of the Government's aviation policy. I would want to put on record here, as I have put on record many times, that our policy is not [odq]predict and provide[cdq] and obviously the Committee will be very well aware of the Air Transport White Paper and the Progress Report that made it quite clear. I mentioned the Stern Report earlier and Stern talked about the need of course to also have the interests of the economy at heart. Of course aviation does play a huge role in the life of this country and international life. There are thousands of jobs reliant on it. Half the people in this country fly a least once a year and a third of our goods are moved around by air, so none of us is exempt in that way. However, the whole thrust of the Air Transport White Paper is actually about balance, and it is about the balance of the need for supporting our economy but also about the impact, not just on the wider environment but on the local environment as well. I do think that is important. The premise I would not accept in the question, which is an important one, is that aviation will simply grow and will increasingly be more damaging. As I said earlier, there are a number of points on which aviation can make a contribution operationally and in terms of its technology at least, and those are the kinds of things we are working on,

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and then the inclusion of aviation in the EU Emissions Trading Scheme which we do believe is the most effective way of tackling aviation's contribution.

Q411 Lord Whitty: I have two questions. You have continually referred to the need for an international agreement. To my knowledge this has been shoved to ICAO for at least nine years and the prospects of agreement were pretty remote, largely because of the opposition of the American airlines and we managed to prise away some of the European airlines from that but, being realistic, we are still quite a long way from agreement. Do the Department have a view that this international issue could be resolved within two or three years, or any number of years, in which case there is an end point where you could put the aviation emissions into the total sum of the total target? In default of that, and given that you have some figures which Martin Capstick referred to, is it not sensible, whether or not you include it in the target, that the committee monitors the aviation contribution, if necessarily separately, until we reach a point where we can reasonably include it within the target?

Gillian Merron: Perhaps I could start on that and Martin will want to add a few points. First of all, as I mentioned, it is the UN Framework Convention on Climate Change subgroup that we are doing our work through. I do understand Lord Whitty's point about the, how might I put it, longevity of discussions and, if I may be honest, I do not have a time by which I believe it will be resolved. It is a difficult issue. Of course, we know ourselves from discussions at the G8 last week that there are changes in our political world which I hope we can continue to work very positively with. I would also add that Defra are the ones that lead on this and it might be something that the Committee may wish also to be talking to the Secretary of State about, who I believe will be coming before you in the not too distant future. If I could just ask Martin to add to that.

Mr Capstick: The points Lord Whitty made about discussions in ICAO relate generally to the speed with which some measures to improve the environmental performance of aviation may be proceeding. The technical question about how you allocate emissions is one, as the Minister said, that is handled through the United Nations' Framework Convention on Climate Change. As regards your point about the committee being aware of the information, it is certainly the case at the moment that the UK reports as a memorandum item under its National Emissions Inventory what are called the bunker fuels used in international aviation and international shipping. That is how we report quite openly that aviation represents 6.4 per cent, for example, of the UK's carbon dioxide emissions at the moment. That information is there and we do report it. Exactly as you say, at the moment it is a memorandum item.

Q412 Lord Whitty: Just following up my first question, given that there is uncertainty, even given President Bush's recently encouraging move, whether we will be able to reach international agreement on this, the EU are still nevertheless at the moment envisaging not only intra-EU but international aviation will come in from 2012. Are you saying because of the uncertainty, local ability, that this is an unlikely situation or are we on track for getting it into the trading scheme by 2012?

Gillian Merron: In fact, our position is early introduction. Certainly that is where we are working to and there are a number of other countries very much keen to see it as well. It is a matter of agreement. My advice is certainly that we are on course in terms of the EU ETS. I wonder, perhaps, if I could just raise another point, my Lord Chairman, relating to an earlier question to perhaps assure the Committee about the kind of work the Department for Transport is doing. Obviously the Government very much follows the line about the polluter paying, which is obviously of concern to this Committee, and in terms of aviation we will be consulting in the near future about the emissions cost assessment in order that we can work out properly the cost that aviation causes. I would also like to mention to the Committee that one of the recommendations of Stern was that we should ensure that we remove barriers to sensible ways of making reductions. For example, we have a campaign, the Act on CO₂ Campaign, which talks about smarter driving, we have sustainable travel plans which are about encouraging people to consider their behaviour, and that is something we may come on to as we move away from discussions on aviation. There is a whole range of things but I just mention those as some of the activities of the Department.

Q413 Helen Goodman: You have described the energetic way in which your Department has been pursuing these international negotiations, but a lot of people feel that the Department has been somewhat inconsistent in approving at the same time the building of a large number of new runways. I wonder if you could explain to us first whether or not the expansion in airport capacity is consistent with the emissions forecasts from aviation which you have given us, and also what account is taken of carbon dioxide emissions in taking decisions about airport capacity?

Gillian Merron: I will ask Martin to give the specifics but the simple answer is, yes, our projections do take account of that. An interesting figure was put to me that might be of interest to the Committee: 15 possible runways were put forward in 2003 by the industry but the Air Transport White Paper actually recommended only four as it came down to it, two of which will be after 2020 and they are in Birmingham and Edinburgh. For me it is important to convey to the Committee that sense of perspective on the Air Transport White Paper. I would also say in all of our work my view is that the Air Transport White Paper is an unusual document in that it is very much a working document that the industry and ourselves work to, and work to very effectively, and

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I believe that does set out very clearly what our approach is to expansion, which is, as I referred to earlier, about the issue of satisfying various measures, including the impact on localities. Perhaps Martin could mention some of the more technical points that you have requested.

Mr Capstick: I would be happy to provide a note. Broadly speaking, an airport expansion which is going through a planning inquiry will be subject to the same requirements as to disclosure and explanation as any other major development which is taking place.

Q414 Helen Goodman: But they are not required to give their impact on carbon dioxide, are they?

Mr Capstick: I do not deal with the planning system which is why it might be better to send a note in which we could explain that. Certainly it would be no more and no less than any other development.

Q415 Helen Goodman: If you are going to do a note perhaps you could give us an assessment of your estimate of what the impact of the four new runways would be, perhaps you could wrap that up in it?

Mr Capstick: We certainly can. In broad terms I would say that in the Future of Air Transport White Paper we did include an emissions forecast and we are certainly updating that this year and that will be consistent with the expansion, so perhaps that would be the way in which we could wrap that up.

Q416 Lord Crickhowell: Minister, when easyJet gave evidence I was struck by the enthusiasm with which they said we should not have aviation included in the budgets until there is international agreement and how they concentrated on the regulatory and fiscal measures with which they were familiar. Of course, the aviation industry does not want to do it until there is worldwide agreement. Having listened very carefully to what has been said, what I am still totally at a loss to understand is why, if international aviation emissions are included in the ETS in 2012, as you say you are hopeful they will be, they cannot then be included in the UK budget. If they can work in the one, a carefully policed and enforced scheme in which penalties are paid, and we know how it works, why on earth can we not keep figures that can work for that scheme within our own budget? After all, a very large part of international aviation has to pass through Europe.

Gillian Merron: I think perhaps it might be helpful to set out about the EU ETS because what that is about, and I am sure the Committee is aware of it but I think we are talking about something distinct in this respect, is about a cap on carbon emissions from aviation where operators do buy permits for emissions above their allocations and that means obviously innovators benefit and those who are not innovating are funding the reductions. Its benefit is that it has got a very specific environmental outcome and it does deal with the fact that whilst aviation does have the ability to have some abatement measures then it allows the trading to get the environmental outcome that we are actually looking for. I wonder if the Committee is thinking about

whether there should be a trading scheme in terms of transport, which of course there is provision in the Bill to set up. The issue for me is one of calculation and it is not transferable from the basis on which I have described the EU ETS to international aviation across the globe. Perhaps, Martin, you could add some of the technical details.

Q417 Lord Crickhowell: Just before he does, we are not asking that it should be applied to international aviation across the globe, we are asking that it should be applied to our own UK budgets.

Mr Capstick: Perhaps I might answer in response to two particular flights under the EU Emissions Trading Scheme. Under the EU Emissions Trading Scheme as the Commission currently propose, the UK would be responsible for regulating air operators who operate mainly in the UK. That would mean, for example, that an easyJet flight from Berlin to Athens or an EasyJet flight from Paris to Madrid or an EasyJet flight from Milan to Lisbon would be regulated by the UK for the purposes of emissions trading. On the other hand, an Air France flight from London to Paris or a Lufthansa flight from London to Cologne would not be regulated by the UK for the purposes of emissions trading. That is a very different basis from the basis which was outlined earlier of taking 50 per cent, and I think partly explains why you end up with difficult systems and it is difficult to read across from them. We are contributing to the EU emissions trading methodology and we think that is very useful in terms of ensuring that we can operate a Europe-wide scheme with a good regulatory system but the way in which it impacts on international regulation may not be what we think would be appropriate for the purposes of a broader international agreement about aviation emissions.

Lord Crickhowell: We could clearly continue but this would take all afternoon and I do not find that answer convincing because the information is going to be available on a Europe-wide basis and the Commission will have all the information that we need for the international flights. I think it would be helpful if perhaps we could have a detailed paper from your Department putting rather more convincingly than I think has been done so far this afternoon the case that you are advancing.

Q418 Lord May of Oxford: I think one of the advantages of modelling things is that it can provide you with insights of a [odq]what if[cdq] character, and it is in that spirit that I would ask you whether you have carried out any modelling work on the implications of including aviation within the UK net carbon account? When I ask that I mean implications for forecast growth in aviation and also implications for the impact on other sectors of the economy. If you have not done this, why have you not?

Gillian Merron: Perhaps I could start with Adrian.
Mr Gault: We have not looked in detail at the potential implications of including aviation in the UK net carbon account. We run into those same issues about what would count towards a UK

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inventory or a UK target. Where we are doing some work currently is what will be the implications of inclusion of aviation in the EU emissions trading scheme in terms of the potential demand on carbon that would produce and the implications that would have on the price of EU trading allowances. The Commission itself has done some work in that area suggesting the impact on the price of allowances in the EU would not be very great assuming there was some access to the availability of project credits through things like the CDM. It is that kind of area where we are taking forward work currently.

Q419 Chairman: I am sorry, I missed that very last sentence.

Mr Gault: That is the area, and how that will impact on carbon prices, where we are currently doing some work.

Q420 Lord May of Oxford: Are you saying the EU work comes to the conclusion that including aviation emissions would have relatively little effect on the growth of the aviation industry? Did I understand you to say that?

Mr Gault: No. What I said was that they conclude that it would have relatively little effect on the price of allowances within the EU scheme. It would have some effect on aviation growth through reducing demand but that is a relatively small effect.

Q421 David Howarth: Can I ask why that is? Is that because of the assumptions about how many allowances would be allocated in the first place? That would be the obvious reason why the price would not be affected.

Mr Capstick: No, that is not it. We are envisaging there would be a significant gap between aviation activity and the number of permits allocated to it under the Commission proposals. I think the key point, and again rather than rattle through it I might mention that at the end of *The Future of Air Transport: Progress Report* we provided a series of different forecasts, is in one of those we looked at including the full cost of the Government's social cost of carbon within the fares that passengers pay and when we looked at a sensitivity test involving a doubling of that, so aviation was not just paying the full cost of carbon but was paying double the social cost of carbon with a radiative forcing factor included. That resulted in a reduction in demand in aviation from 465 million passengers a year to 455 million passengers a year in 2030. There is a very strong GDP driver which significantly influences the aviation sector and therefore price changes have so far not had much impact and we do not forecast that they would have much impact in reducing aviation. That is the background.

Q422 David Howarth: You said earlier you had not yet done the full work on the carbon costs of aviation, so will you have to do that work again?

Mr Capstick: We had built in the assumption that there would be the full carbon cost. The emissions cost assessment which the Minister mentioned will report on how far we have got towards achieving that.

Chairman: We are moving into the area now of the role of the Climate Change Committee. Lord Woolmer?

Q423 Lord Woolmer of Leeds: Minister, could I refer you to section 20 of the draft Bill where it deals with one of the duties of the Climate Change Committee. One of the duties is to advise the Government on the carbon budgets to be allocated for each five-year period. In subsection (1)(c) it says that [odq]... the Committee has responsibility also to advise on the respective contributions towards meeting the carbon budget which should be made by sectors of the economy covered by trading schemes and other sectors.[cdq] Do you understand that to mean that the Climate Change Committee for example will recommend on what the budget should be for the next 15 years (three five-year periods) for, say, road transport, how much for rail transport? In other words, do you expect in the transport area that transport would have a budget recommended and that would be broken down into, for example, rail? At the moment I will leave aside aviation and shipping so we do not get into that issue. I well understand actually, or I think I do, the arguments you are putting. I am interested in how detailed you expect the Climate Change Committee to be in making recommendations.

Gillian Merron: I would have to say it would not be my understanding of the Bill. My understanding is about the traded sector and the non-traded sector and of course transport and domestic heating are significant areas which fall into the non-traded sector. So as drafted I would not expect a sectoral target for transport. I am interested in the fact of course that the Bill does allow for the setting up of a trading scheme and all that follows, and that could be in respect of transport.

Q424 Lord Woolmer of Leeds: So you read that to mean that the Committee will simply recommend a contribution by all trading sectors, one figure, and for non-traded sectors? As broad as that? How on earth is the Government going to interpret that for policy purposes?

Gillian Merron: The Bill for me is a framework bill and it is about allowing the work to be done and Government working through and also taking account of technology change as we move through the years ahead. For me the Bill's strength in fact is in its framework, in the fact that it has the Climate Change Committee to advise it in that it allows for trading schemes to be set up, in that it does not just jump into regulation but allows the most appropriate way forward and to allow that to change over the years. That is certainly my reading.

Chairman: There have been quite a lot of concerns raised about the ability of the Climate Change Committee to advise adequately. Lord May knows a lot more about these things than I do.

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Q425 Lord May of Oxford: I am curious whether the Climate Change Committee is going to develop its own expertise or whether it is going to rely on your Department's modelling in the various and sundry things it is going to have to pronounce upon.

Gillian Merron: I am sorry, I was distracted by my pager at that point. Would you remind repeating that? I am terribly sorry.

Q426 Lord May of Oxford: Not at all, do not waste time apologising. How do you envisage the Climate Change Committee doing the necessary modelling work? Do you envisage it having its own capacity, or do you envisage it depending on you for the modelling of the kinds of things we have been talking about? You can answer that from the point of view of the intellectual coherence of it and also the cost implications.

Gillian Merron: Obviously the Committee will make its own decisions and I expect it to do that. What I would say is that the modelling which takes place in the Department, and I presume we are going on to the issue of how independent it is, et cetera, et cetera, I believe the modelling we do—and I am sure Adrian would be happy to give more information about any technical matters on modelling—to be comprehensive and robust. It is something which has grown up in terms of expertise over many years and, importantly for me, it has been scrutinised, I would suggest, for example by the Eddington Academic Friends' Group, a group of academics—we were being polite about academics earlier and certainly I would be extremely polite here because they have been very helpful in their assessment of the work. So in terms of our modelling in the Department we have substantial investment, substantial expertise and lot to offer the Committee. I hope it will be a relationship of dialogue with the Committee and I would say to this Committee that I very much welcome any challenge that the Climate Change Committee wishes to make, that will help us to improve our modelling, our forecasts and the work that we do. I would be very happy if the Climate Change Committee were to make use of the work we do.

Q427 Lord May of Oxford: May I paraphrase your answer to make sure I have understood? Maybe they will develop their own capacity and maybe they will depend on you, which is fairly good but you have not really thought about it too much? It is an unkind way of saying it.

Gillian Merron: Perhaps I have not said it properly. It is not a matter for me what the Climate Change Committee decides to do. I can offer to them, and I hope they will take it up, the amount of investment and expertise that we have in modelling. It is available to them and I am also saying that I welcome any challenges they make to that. No, it is certainly not a question of not having thought about it, it is about only answering for what I can answer, which is not the Climate Change Committee.

Q428 Chairman: If they have a budget of approximately, it has been suggested, £1½ million a year, to what extent could your modelling budget be accomplished for that sort of sum?

Gillian Merron: I should definitely ask Adrian to answer that one.

Mr Gault: The National Transport Model itself, which is really looking at the UK network excluding international aviation, has cost something like £1 million to develop over ten years, and that modelling team has a budget of something like half a million a year for other work. It is a substantial resource, it costs a lot of money and a lot of time to develop it. There are some other independent models available, but relatively few which are economy-wide, and the Committee would have the ability to contract other work. Given the scale of the investment which has gone into the Department's model we think there would be a lot to learn from that.

Gillian Merron: It is probably also worth adding of course that transport modelling is very widespread. It takes place in cities, in transport authorities, all around the country and as a Department we very much support that as well and I am sure that would be available to the Committee.

Q429 Lord Vinson: Predict and do not provide!

Gillian Merron: I note the comment.

Chairman: Dr Whitehead has some questions on changing behaviour and the use of trading schemes.

Q430 Dr Whitehead: You have mentioned that there are indeed extensive delegated powers in the draft Bill to introduce carbon trading schemes. Do you have any thoughts on what potential that might provide for particular schemes in aviation, shipping or road transport? For example, could one introduce, say, carbon slots for aircraft coming to the UK rather than landing slots, so that the dirtier aircraft simply used up their slots rather quicker than they might otherwise do and would have to trade with cleaner aircraft coming to the UK in order to land? Is that the sort of thing you might have in mind?

Gillian Merron: That is certainly an interesting proposal which I am sure we can note at least. I think the issue of changing behaviour is an important one. I think it is important that we understand in terms of changing behaviour, and if we look at individuals, our great successes have been actually where we have provided the incentive, the information and the support to do it. I would refer back again for example to sustainable travel towns which include Worcester and Peterborough where very considerable modal shifts have taken place because of individual transport planning, and that has been on the basis that individuals have had presented to them how else they could make their journeys. I think a lot of journeying is done in the absence of that information. The other thing I would emphasise is of course our Department is very committed, and I would refer this Committee of course to the Local Transport Bill, to the improvement of public transport and an overall approach to how we shift people in a way that they will find attractive and they

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will want to do. It is not for me to tell people how they are to journey and whether or not, for example, they may fly. I think it would be a very unwise politician who does that but certainly it is for me to be taking a lead, one, to improve the alternatives which are more sustainable (whether that be the bus or the train and I am sure the Committee is aware of our financial commitment, £88 million every week on rail, £2½ billion every year it will be on buses including extending the concessionary fares scheme and I hope this Committee will know our record on the improvement of public transport which will continue) but, two, alongside that has to be, yes, a change of behaviour but there has to be something in it for people. There has to be a reason to do it and, for me, the tackling of congestion and improvement of the environment and saving money are all ones which are very attractive. We are on the way to doing that. I know this was not being suggested but some people do think we should tell people what to do on the issue of travelling, I am not of that mind and nor is it Government policy.

Q431 Dr Whitehead: There is a matrix, is there not, between how behaviour might be modified by for example the effect of trading schemes, the extent to which voluntary agreements may well work into that in the way you have described and the extent to which regulation may underpin both of those? We know, for example, the EU Voluntary Group with the carmakers is not working in terms of reducing average car emissions, certainly for the target of 120g/km by 2012, and the EU is thinking of introducing regulation. What role do you think regulation might play in that matrix and do you think there is sufficient emphasis on it within the draft Bill?

Gillian Merron: In terms of approach we have regulation, we have taxation, we have trading schemes. I would say our general Government approach, and again I know this is not being suggested, is not to move to regulation unless that is the way. We do not want to over-regulate, we want to encourage, we want to find ways where industry or groups will regulate their own behaviour and to move accordingly. On the issue of the carmakers, I understand the point which is being made but if I could refer back to Stern, whatever means we are going for, whether it is regulation, taxation or a trading scheme, we have to look at what the impact is on the economy as well as the environment, and in all of our cases we have to have consideration of that. One of my colleagues might want to make particular reference to the issue of cars.

Mr Gault: Just to add on the Voluntary Agreement, yes, the Commission is proposing to go forward to a mandatory target and we support that approach now. You would then have an issue about whether you could allow trading around that agreement to go forward to increase the cost effectiveness of the approach, so you would still have that target but allow trading to make that easier to achieve and achieve at less cost. That would be the kind of provision, as an example, which could be covered through the provisions in the Bill.

Q432 Dr Whitehead: Notwithstanding that you may wish to, as it were, err on the voluntary end in terms of that matrix of different ways of changing behaviour, even if you went through all those processes first and you said regulation was therefore the backstop after all other things, do you think either there are sufficient powers to do that outside the terms of the Climate Change Bill? If not, do you think there maybe should be further backstop arrangements within the Bill to do that?

Gillian Merron: I think there are sufficient powers if we consider the range of Bills and White Papers, et cetera, which are available to us.

Q433 Dr Whitehead: Could I briefly give one example which we have mentioned earlier today, a suggestion that actually it would be possible to make considerable progress as far as aircraft emissions are concerned by phasing out dirty aircraft landing at UK airports. You might either do that by carbon slot trading or alternatively by regulating dirty aircraft. The suggestion was that there are no Government powers able to regulate that at the moment. Would that be the sort of regulation which one might have as a backstop in the powers in the Bill?

Mr Capstick: I think there is a two-part answer to that really. First of all, through measures like emission trading you actually increase the costs to airlines with higher emissions and that provides the first part. The second part would be that the Chicago Convention makes clear that [odq]no fees, dues or other charges shall be imposed by any contracting state in respect solely of the right of transit over or entry into or exit from its territory of any aircraft of a contracting state or persons or property thereon.[cdq] We can provide a note on that. That would significantly limit the ability of the UK to take unilateral action as regards restricting aircraft which are certified appropriately under global civil aviation arrangements from operating.

Q434 Mr Stuart: Minister, you put your finger on one of the central issues of this Bill that we are wrestling with, and that is how we can be confident, and how the industry which has to invest can be confident, that the Government will actually deliver on the pledges, on the targets, in the Bill; how enforceable it is. The Secretary of State for the Environment is the minister who is responsible for it and yet we have just heard from a minister in Transport that you personally—your personal view as a minister and I am sure there will be plenty of ministers now and in the future with strong personal views—do not believe in telling people how they should travel and which way they should travel, and yet this Bill says that the Government overall must deliver cuts in emissions. There seems to be a central conflict there between an overall Government responsibility held by one Secretary of State and Ministers in other departments who may feel unprepared for economic or personal freedom or other issues to actually deliver on this. I wonder if you could comment on the enforceability, whether you think this Bill will be legally enforceable, how

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you think that would be legally enforceable, what the sanction would be on Government if it does not deliver and whether you agree with the Environment Agency that the only way of getting the political buy-in across departments would be to stop the Secretary of State for Environment being the responsible minister and make it the Prime Minister?

Gillian Merron: They are all very interesting points, as I would expect, and there is no contradiction at all between what I said and Government policy, which includes the view on the Climate Change Bill. It has never been the policy of this Government to tell individuals how they will travel, for example whether they will get in their cars or whether they have to get on the bus; of course not. I was making it quite clear, and I think it is important to be quite clear, that it is important to say that the whole thrust of Government policy is about acting in the interests of the country and giving people the ability to be part of that. Why are we investing £2½ billion in buses, why have we got the Local Transport Bill, why have we got the concessionary fares extension? Because they are all about an invitation to behave which is a benefit not only to individuals but also to the environment. Clearly—

Q435 Mr Stuart: But, Minister, CO₂ emissions have increased under this Government, despite the efforts of the Prime Minister and the Government. They have gone up.

Gillian Merron: If I may continue on that line. That would suggest to me that all of our thrust, if we just take bus policy which has been by introducing the biggest shake[en rule]up of buses in 20 years, is actually to encourage people to choose to use the bus, not just because they have, which is important, but because they choose to because it is the most sensible way of getting around. If you go to York, as I am sure you will be aware, it would be ridiculous to take your car into York because the way in which locally, working with Government, they have constructed a whole approach to transport. Perhaps the thing which I should emphasise in reply is of course none of this is just Government's responsibility, of course it is not, that is why, whatever the local difficulties and challenges, we as a Government particularly through transport are enabling local solutions to be found. I would suggest if this Government did not meet its obligations under its own Bill—of course it is a piece of legislation which we in this Government are committed to introducing—in the unlikely event we were to breach it, of course we would be liable for judicial review, but I would suggest there is a far higher power than that, and that is the people who have put us into power and their view on our performance in terms of our own Bill.

Q436 Chairman: There is a problem with that argument, which is the people most directly affected by the decisions we are looking at today are not alive yet; we are making decisions for generations yet to come. While I have no particular problem with the concept of voluntarism for the next five, ten, maybe even 15 years, do you feel as a Department that you

have plans, processes in place which can begin to press down in terms of imposition? Because, Minister, you may well have to start telling people how to move from A to B, or some Minister will, and the longer you wait before doing it the more likely it is that a future Minister will have to do it.

Gillian Merron: I note the comment but I think there is perhaps the other point, and I am sure you will find the Secretary of State making this point, we are rather hoping that there will also be a political consensus to move this forward.

Q437 Chairman: I do not think you should interpret Mr Stuart's point as breaking down any form of political consensus, what I think he is doing, and I think he is right, is to put a hard word on the Department which is at present listening to you, and I do not disagree with anything you are saying, you are adopting a whole series of extremely easy options, and I get the sense that the notion of compulsion has not really bit down yet on any of the Department's thinking. I may be absolutely wrong.

Gillian Merron: I do not think they are easy options and certainly our expectations, for example, through local transport planning and all of our other means is about actually building in the kind of work that the Climate Change Bill is actually talking about, and that is about sustainable development, it is about sustainable forms of transport. I appreciate that is the view you hold but I do not myself find the kinds of targets we do have to meet ones which I regard as easy options. I take the point which is being made to me.

Q438 Chairman: I think the reason you are being pressed is simply, is it not true that transport is the one sector where emissions have risen since 1990 and continue to rise, and is that a serious concern to the Department for Transport, or are you looking for other departments to come up with solutions for what are essentially transport problems?

Gillian Merron: Before I bring Adrian in, one of the points which is perhaps important for the Committee to consider is that people are travelling more. As we see a growing economy, as we see people with more disposable income, as we see more people in work, people are travelling more. So I would also put to the Committee that one does have to unpick the reasons for transport's contribution. Perhaps I could bring in Adrian.

Mr Gault: Firstly, in the recent Energy White Paper there are a number of measures in the transport sector which the Government is introducing which are going to produce additional savings in the range of 2 to 5½ million tonnes of carbon by 2020. With those savings coming in, we should expect to see a reduction in emissions from the transport sector going forward. In the longer term we also know from work by Stern and other modelling work which has been done for the Energy White Paper for example, that transport is a relatively expensive sector to reduce emissions from and this is a sector where we are seeing, for reasons linked to rising incomes, rising demand. So we do not have to see exactly the same percentage reduction from every sector. That

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does not mean there is not scope for big reductions in transport and the Energy White Paper is taking that forward. There is also a need to progress on the innovation front and invest now in developing the options and the technology options which will again provide that ability for transport in the long-run to produce bigger savings. Through the MARKAL work, for example, for the Energy White Paper, you do see very big reductions in emissions in the transport sector by 2050. They are weighted compared to some other sectors more towards the end of that period but what we have to do to get there in a relatively low cost way is invest in opening up those options now. Again there is work going forward through the Low Carbon Technology and Innovation Strategy which was published with the White Paper to take that further and open those options up.

Q439 David Howarth: Is not the problem with that way of looking at it the following, that incomes rising means people will spend more and whatever they spend more on will have carbon consequences? So the question for the Government is how to persuade people to spend their extra income on less carbon intensive activities rather than more carbon intensive activities, and transport is inherently a very high carbon intensive way of spending your extra income, so we should be putting in place policies to try and persuade people to use their extra income on different sorts of activities.

Gillian Merron: That was the point I was making about the development of public transport because people do want to get around more, for all the reasons we all know and actually encourage. However, it is how they get around. If people are getting around one person in a car, that is going to cause us difficulty. If they are using trains or buses, that is a whole different arrangement and that is why our commitment, and I think it is right, is about public transport and to make that a real alternative for people and not just something they have to use because it is the right thing but because it is something they want to do because it is the right price, convenient and it is the way to get through the traffic.

Q440 David Howarth: I accept that but it will have costs for Government in deciding where to spend its money. Can I ask you one slightly more detailed question, you have mentioned quite a lot the possibility of establishing trading systems specifically for transport, and Alan Whitehead produced an idea, and you also suggested another idea, both of which were basically commercial sector trading systems, they were not the personal allowances idea they were trading schemes where businesses are the traders. Given that is the case, why does the Bill say that if a trading scheme is set up under the Bill the allowances must be given away for free, that they cannot be auctioned? Virtually every economist will tell you that auctioning is the better way of dealing with that sort of trading system. Of course every business will tell you the opposite because of the distribution effect against them. Why

does the Bill do that? I think the Minister described it as a framework bill, so if it did not have that restriction it would be more a framework, it would give policymakers more options?

Gillian Merron: I am afraid I cannot comment in detail on that point.

Mr Gault: Can we give you a note on that point?

Q441 Chairman: It is a fair question, will you write to us?

Gillian Merron: Yes, I am happy to.

Q442 Baroness Billingham: Mine is a more general question. Previous submissions we have had were really very surprisingly optimistic and positive and I think all of them responded in that way and it seemed to me the focus of their message to us was, [odq]Ask us and we can do it.[cdq] So I am asking you if you are asking them to do enough both over the short and the long term? The other thing which I think is important is in order to be fair to those industries surely we should be giving them certain guarantees of continuity? We are talking about five, ten, 15 years, surely part of your role ought to be also building up a consensus across departments and across future governments in order to enable those industries to feel that their competencies and abilities to innovate are not in some way going to be distorted and thrown back at them?

Gillian Merron: I think that is a fair point and I would accept the points which have been made.

Q443 Chairman: There is a lack of confidence that individual departmental targets are entirely either compatible or entirely coherent. Time and time again it is your Department which is to some extent accused of being the one which is [odq]out of step[cdq] with others. I hope it is not true but I think it would be terrific for the Committee to have any reassurance you can give us. I am afraid my ten years in this place has convinced me that joined-up government is an oxymoron. I would love to be wrong and it would help me a lot if you could convince me I am wrong.

Mr Capstick: Perhaps I might take a couple of examples in relation to aviation which is, as we have noted today, a subject of quite a lot of interest. On the emissions trading scheme work we are doing in the EU we are working extraordinarily closely with Defra. It was led originally by the Department for Transport and outlined in the Air Transport White Paper. It has been taken through the Environment Council and I would say that the way in which Defra and DfT were joined up was extremely good for the UK and means we are pursuing common goals in a clear way. I would also say the point about whether we are asking the industry hard enough questions was a very good one. To pick up a point Lord Whitty made, I think overall the message from our discussions in the International Civil Aviation Organisation is we are asking questions which we are having difficulty making very rapid progress on but that is another area where we work extraordinarily closely with Defra, that Defra participate with us in the Environment meetings in ICAO to ensure we

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have a clear joined-up view. So certainly from a personal perspective, I think that is a very strong point. I do not doubt I have other colleagues who would be able to say similar things. Certainly as regards the Bill, as the Minister said in the introduction, it has been worked up inter-departmentally in a very co-operative way.

Gillian Merron: Perhaps to develop that last point before I turn to Adrian, I am sure this Committee knows the Bill was drafted by officials from DfT, Defra, HMT, DTI amongst others, but also of course that decisions have been made through the Cabinet Committee on Energy and Environment which has brought ministers together on this issue. For me also the Office of Climate Change is also important and certainly DfT plays a very strong role being a part of that. I am aware of our reputation as you have set it out. It is not one I wish to see continue

and certainly is not my experience within the Department. I appreciate we have to work to convince you and I am happy that we do that.

Mr Gault: The only other example I would add is the Energy White Paper where there are a range of measures being adopted by different government departments to produce carbon savings going forward to 2020 of which a significant component is coming from measures in the transport sector, and the work on that was again led by DTI but was across a group of interested departments.

Q444 Chairman: I was not being abrasive in asking the question, I was actually giving you an opportunity to articulate something which is not frequently enough articulated, which is that you are trying. Thank you very much for coming and sorry it has taken so long.

Gillian Merron: Thank you very much.

Witnesses: **Professor Keith Shine**, Department of Meteorology, University of Reading and **Dr Terry Barker**, Director, Cambridge Centre for Climate Change Mitigation Research, University of Cambridge, Royal Society, and **Dr Sue Ion**, Vice-President, Chairman of Standing Committee on Engineering Policy, Royal Academy of Engineering, examined.

Chairman: First, may I apologise for keeping you waiting but I am sure you will appreciate we have a lot to get through and we do not have many opportunities to get at them. I hope you found it interesting and maybe illuminating. I will start with Lord May.

Lord May of Oxford: I should declare an interest of a past and continuing involvement with the Royal Society.

Chairman: Nia Griffith?

Q445 Nia Griffith: Perhaps I can jump straight in with carbon budgeting and the role of the Climate Change Committee. Obviously you mention the difficulties of the five-year budgets and the need to keep to 15, 30 and 50 year targets. What do you see as the main difficulties facing the Government in setting carbon budgets for up to 50 years in advance?

Dr Ion: If I can start on that one. I am Sue Ion representing the Royal Academy of Engineering of which I am Vice-President. There is clearly a certain amount of uncertainty and technology involved and for Government to take account of that 15 years out is tricky. But the important thing as far as we are concerned is for there to be a coherent plan which takes us out to 2050 and that these five-year budgeting periods are not seen as definitive blocks, that there is a seamless transition between now and 2050. Our concern is with respect to the early targets when some of the delivery in fact might be in the window 2020-2030. We do not want early failure to turn people off the important journey to 2050.

Q446 Nia Griffith: Do you see any difficulty in the fact perhaps we will not have full reporting until 2014 of the 2008-2012 phase?

Dr Ion: Yes. One of the key issues is we are almost at 2008 now. We have a proposal for a Committee enshrined within the Bill with that Committee yet to

be appointed and for the right expertise to be identified. One of the points we made was that we felt it was important that the Committee should have engineering expertise particularly as well as scientific, economic and the other expertise identified in the Bill. We have a real concern that there has been no real engineering assessment within any of the modelling which has been done either in the Climate Change Bill, the Energy White Paper or the Planning White Paper about the practicality of delivery of the engineered assets which will be required to achieve these climate change objectives.

Q447 Lord Woolmer of Leeds: The Climate Change Committee, amongst other things, is expected to advise the Government on what the carbon budget should be for these periods but also in one particular clause what contribution should be made towards the overall target by different sectors. The Bill in section 20 refers to sectors covering trading schemes and other sectors. The Transport Minister we have just had before us interpreted that to mean the Climate Change Committee would say, [odq]Here is an overall target and here is how much from trading sectors and how much from non-trading sectors[cdq], which implies it seems that they do not expect the Committee to give an indication of how much they feel should be allocated to transport as a target, how much to energy and so on. Do you think the Climate Change Committee simply could not make any kind of assessment as to the broad expectation of how much should be saved by each broad sector? If they do not, how can they make an estimate of the overall figures anyway? Is it not bound to be bottom-up rather than top-down?

Dr Barker: May I introduce myself and try to answer this question? I advise the Royal Society and have been a member of its Working Group on Economic Instruments which provided a view of a good way

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forward for reducing emissions. My exact position at the moment, and it gives me my credibility for being here, is that I am Co-ordinating Lead Author for Working Group 3 of the IPCC (which has just reported), and Director of the Climate Change Mitigation Centre in Cambridge University. I am also Chairman of Cambridge Econometrics. What I actually do for a living, what I do from day-to-day, is basically applied economics, I am an economist, so I come to look at the Draft Climate Change Bill from the point of view of economics and whether it will fit into an overall strategy of achieving substantial mitigation for the UK and the global economy at the lowest cost. That is the viewpoint. Your question is relevant about the Climate Change Committee and the series of carbon budgets which are being proposed. While I welcome very much the proposed Climate Change Bill I do see that there are some weaknesses, particularly associated with this issue of tackling the long-term nature of the problem and yet having a 15-year series of budgets. The reason is that the low-cost efficient mitigation options for the different sectors require a rising credible real carbon price, (a carbon price signal) so those doing the investment in the different sectors can take into account what it will cost them if they invest in the wrong things or the right things over a period of years. Of course this investment decision depends on them making projections over the lifetime of this equipment. In the case of carbon capture and storage, we are talking about pipelines which may last, I do not know, 50 years, so they have to look at a decision which involves building a lot of new kit, building pipelines to put the CO₂ underground somewhere. So that means there has to be a real rising carbon price over a long-term period, way beyond this 15 years, for the low cost decisions to be taken. What I am concerned about in the Bill is that this signal is not necessarily coming through in any part of the legislation and I would like to see it coming through in some way. There are two examples I can give. One would be that the Climate Change Committee would have a role in giving advice on the long-term carbon price and I did not see that very clearly expressed—I think that would be very important and would help to fit in with the Climate Change Committee having a view on the appropriate allocation of sectors. I think that is very important in terms of keeping the costs low to business and allowing us to move forward to look for economic opportunities for very stringent mitigation. That is all I would like to say at this stage but I do have an awful lot more to say.

Dr Ion: Can I try a slightly different angle on the same question which as I understood it you asked. We have a carbon problem painted where the electricity sector, the transport sector, the industrial sector and the domestic sector in very crude terms contribute to the issue with transport being probably the dominant factor, therefore is it reasonable for the Climate Change Committee to set targets for those sectors? Whilst we do not consider that in the written submission we gave, it is not unreasonable for it to at least consider doing that, but in order to do so it also needs to understand the practicality of

delivery in engineering space, as I pointed out earlier, the options which might be available within each of those sectors, so it can trade off whether a push in the transport sector might be a better push to make than one in the electricity generation sector or one in the domestic sector. The engineering practicality has to be looked at sectorally and against each technology in terms of its delivery.

Q448 Chairman: Professor Shine, is there anything you would like to add?

Professor Shine: No thank you.

Q449 Mr Stuart: In the Royal Society submission you mention the 60 per cent target mentioned on the face of the Bill, which is something with some public recognition now and the Secretary of State for the Environment I think has said that is one reason for sticking with it. Do you agree because the 60 per cent is no longer scientifically well-founded that it would be even better to have a different target on the face of the Bill? Would you agree that the European temperature increase target of 2°C as the guiding light of the Committee might prove both in a sense scientifically more useful and better founded and also provide another aspect, which we are obviously concerned about, of public understanding and buy-in, giving a clear number which does not need to change over time and might prove more successful in terms of getting public understanding and thus support of some of the advice this Committee might have to give?

Professor Shine: If I introduce myself, my name is Keith Shine, I am a Professor of Meteorology at the University of Reading, I am on the Royal Society's Climate Change Advisory Network and have been a lead author of the IPCC science assessments in the past. We see a distinction between targets and goals. There are two possible goals—well many possible targets—one would be the new EU target of a 2°C change since pre-industrial times and there is the UN Framework Convention on Climate Change which actually proposes things in terms of levels of greenhouse gas concentrations. So it could be 2° or 450-550 ppm. At the moment it seems that the 60 per cent is not saying what it is aiming for, so it is going to give the Climate Change Committee for example difficulty in transparency in, if it makes changes, saying why it is making those changes, whereas if there is a goal that these targets are aiming at it will be much more flexible and transparent.

Q450 Mr Stuart: Do you have a preference as to what the target should be that is put on the face of the Bill?

Professor Shine: I do not think the Royal Society has a strong preference. One of the things we have noted is that there seems very little connection between what is written in the Bill and EU policy which seems a strange disconnect.

Q451 Lord Whitty: I suppose of all the witnesses we have had you are best placed to advise us on the technological dimension of this. As I understood Sue Ion's point, she was saying effectively you have

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to build into your estimates some understanding of how long it takes the technology to be introduced. As I see it, there are at least three phases of this and, as with Stern, we are assuming a relatively fast improvement in the situation but not that fast because up to 2020 we are really dealing with technologies we already know about; they may not be fully functional but we know about them. The carbon price and other market and regulatory functions could speed them up a bit. Did I understand it correctly when you said that the period 2020-2030 will be the period where we might be able to see the deployment of substantial technological fixes for this and that is in a sense the period we should be focusing on for the outcome of policies being adopted now? Was I over-interpreting what you said?

Dr Ion: I think what we were trying to get across was caution in making sure we have proper understanding before we set the early target for 2020 and recognition that some of the projects we are talking about, if I take the electricity generation sector first, are all major infrastructure projects which require significant deployment of assets—whether it be say offshore wind large-scale from Scotland, together with the grid reinforcements, the change in grid architecture—and are big technological challenges which will take sometime to play through before we actually see their delivery. When looking at some of the models which are enshrined in the Climate Change Bill and the Energy White Paper, the assumption is that wind and some of the other technologies will be available according to the model as opposed to the actual practical reality of seeing them engineered on the ground and delivering power to the grid. That is the electricity generation sector and it applies particularly too to carbon capture and sequestration where we are looking at only one demonstrator sometime in the next decade before you can even know whether or not you are going to be able to successfully deploy this on coal particularly going out into the future. So a lot of work still to do before we even have assurance that we can implement it effectively. On the demand side, on the domestic sector particularly, 60 per cent of household demand comprises about 20 per cent of the problem and is associated with the use of gas in the home to heat it and provide hot water and fuel for cooking. Most of that infrastructure was put in place at the time of the big up-take of North Sea gas back in the 1970s so we are looking at massive retrofit of the existing housing stock of things like fuel cells, electricity as the primary mechanism rather than gas, so a massive engineering investment still to take place. With the new housing stock of course we will need targets to get us to a zero carbon footprint on any new building which is constructed. So huge engineering challenges is what we are trying to get to and the importance of understanding what they are before we rely on an idealistic model to tell us when we might deploy things.

Q452 Lord Whitty: Even with smaller engineering situations, like the turnover of the aeroplane fleet or the car fleet, are relatively slow. Is your conclusion

from that that the shape of the curve to which we are asking this Committee to work is actually wrong and that the real impact cannot come as early as the figures for 2020 would suggest?

Dr Ion: An ‘S’ curve might be more sensible in terms of predictions than something which is linear or with high expectations of early gains.

Dr Barker: The main thing is that there are a substantial number of no-regrets options, which have been identified in the literature, largely associated with buildings. We are basically talking about insulation options, not major retrofitting, often rather minor-cost improvements to the building stock. I think these can be done much more quickly and do not require a complete change. It is just a matter of accelerating and yielding a benefit for the greenhouse gas mitigation in terms of improvements in people’s living standards.

Q453 David Howarth: I am glad Terry Barker has mentioned those options. They are often options which would pay now but people are not doing them now. Has any thought gone into what would help people to make those decisions now so that would justify having these options as part of an early reduction in carbon emissions?

Dr Barker: There is a lot of literature on the so-called barriers in taking up these no-regrets options and the help is basically providing information. There are energy surveys, there are many ways via information on the carbon footprint of products. The important thing from an economic point of view is that this information comes at the point of the investment purchase, that is the key. So when a new car or a new house is being bought, or house ownership is being changed, that is the point when people buy the new furniture and think of how to do things differently, and that is the point where the information needs to go in and that is when the really low-cost options and the no-regrets options come into play.

Dr Ion: Just to reinforce what Terry has said, there also ought to be consideration given to incentives when you have a large amount of rented housing stock, where the incentive on the owner is not necessarily there to make the changes which are required because they do not benefit by seeing a reduction in their energy bills. So there has to be some consideration with respect to further regulation in order to bring about the changes which are necessary.

Q454 David Howarth: The follow-up is about policy levers because the Bill provides for one policy lever, which is the trading scheme, it does not change the position on any other policy levers in particular on regulation and in particular on taxation. I suppose this question is to Terry: how far could we get just using trading schemes given the nature of the type of change that you have just been talking about?

Dr Barker: The IPCC Report is quite clear on this. The Report—and I am talking about the Summary for Policymakers which we have just completed and which has been agreed by world governments—gives estimates which go regionally as well as globally as to what the mitigation potential is at different

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carbon prices. It also gives an estimate of what increase in emissions we can expect on the basis of current policies and current actions, if you like a [odq]business as usual[cdq] projection, even taking into account the small carbon taxes some countries have introduced. It is quite clear that the mitigation potential at, for example, \$100 per tonne of CO₂ is sufficient to offset all the expected increases between now and 2030 under many projections; not the very highest but under most projections.

Q455 David Howarth: The question would be whether the policy levers we now have would lead us to a carbon price of anything like that?

Dr Barker: Yes, indeed. In other words, the IPCC is giving the message that this is do-able within the very top carbon price, I should add. My personal view is that the range of carbon price to achieve that would be far lower, maybe \$20 to \$30 dollars per tonne of CO₂; far lower than that. So in other words it is something within the prices we are already seeing for phase two of the Emissions Trading Scheme, but those have to be rolled out to other sectors of the economy, not just those covered by the trading scheme.

Q456 Mr Stuart: China, India and the United States are all dependent for their energy on burning coal, and therefore carbon capture and storage, and Yale I think have done the latest assessment and suggested it could settle down optimistically at \$30 a tonne cost for that sequestration, but you have just given us a figure of between \$20 and \$30, which would mean CCS could not be implemented so the main energy and power needs of the three biggest emitters could not be taken out by CCS.

Dr Barker: For CCS to become economic on a large scale, the literature suggests the price has to be somewhere between \$20 and \$50/tCO₂. These things are very uncertain. A number of studies have looked at this very issue and they come to the conclusion that CCS becomes economic within those ranges. We are talking about not just up to 2030 but up to 2050 in terms of decarbonising the power sector, which is what this is about basically; the power sector can be decarbonised at those kind of prices, \$20 to \$50/tCO₂ by 2050. To me those are very reasonable costs for the power sector. Of course when you look at the whole economy, you have to make the big distinction between the cost to the energy system and the cost to the whole economy, but the carbon price is a measure of the cost for the energy system.

Q457 Lord May of Oxford: I would like to begin with a quick comment which leads to two questions. Firstly, going back to the question of whether we are seeking to regulate temperature or CO₂ and other gases, my own view would be that what we are doing is putting the gases in and what we are worried about is that the blanket is making it higher. On the other hand, we can identify and more easily regulate the various greenhouse gases going up, whereas to try and measure fragments of a degree temperature rise to different things is both more uncertain and more

difficult. It is against that background that there are two questions I would like to ask. Some people occasionally find the Stern Report a little bit confusing because it talks not just about CO₂ but CO₂ equivalents. It puts in the other greenhouse gases and that leads to the question, given the draft Bill focuses very exclusively on CO₂ as such, do you not think there is a case for setting targets on other greenhouse gases of significance or CO₂ equivalents? **Professor Shine:** The view of the Royal Society is that the other greenhouse gases should be included. They are already done so under the Kyoto Protocol, so the targets are already there. Whether there should be one single target covering CO₂ equivalents or individual targets for each gas is a slightly different question. The studies and the literature certainly indicate, although it may not be specific for the UK, that it is cheaper to have a multi-gas approach than it is to just regulate on one gas.

Q458 Lord May of Oxford: With the other non-CO₂ greenhouse gases, is there a similar focus on the engineering technology of things to do about it or have they been relatively neglected?

Dr Ion: No, I think quite the contrary. In some instances significant steps have been taken to reduce emissions from other greenhouse gases—CFCs, HCFCs, SO₂, et cetera—and they are covered by other emissions regulations and sit within the European and international treaties such as, as Keith has indicated, Kyoto. Our view is that we should be looking at greenhouse gases overall to avoid perverse incentives, but it is right to focus on CO₂ as the principal protagonist for the purposes of this particular Bill, as long as the Government recognises it needs to take account of the other greenhouse gases in the overall scheme of things.

Q459 Lord May of Oxford: Have you any thoughts on what either scientific or political developments might trigger the wider consideration?

Dr Ion: I think political imperatives will respond to scientific reality. It is important that we continue to make the facts available and to push hard because the decisions will be political at the end of the day and practice to date does not always bode well. If you look at Kyoto, if you look at G8, it is a long and slow journey to try and get to even where we are today. We still have no real international agreement although hopefully some progress.

Q460 Lord May of Oxford: That answer brings me to the second question, and perhaps Dr Barker can piggy-back in on this one. The non-linear nature of many of the processes involved arguably makes relatively small things now more important than much larger things later and that prompts two questions. One is how important is it to suggest even more radical cuts in emissions earlier rather than later because, secondly, what we are really worried about is the cumulative level of emissions by 2050 rather than individual year by year targets as such?

Dr Barker: First, there have been major scientific developments in the analysis of non-CO₂ greenhouse gases. I am referring to the substantial work done by

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the Energy Modelling Forum, Project 21, EMF 21, which reported at the end of last year, and which concluded by showing that there were for many models very substantial reductions in costs if a multi-gas approach was taken. So I think from that point of view it would be advisable to have non-CO₂ greenhouse gas targets in the Bill. On this extremely important non-linear point, small things now could be very important much later, that is absolutely correct and that is what the economics tell us. Simple things such as carbon-footprint signalling information given to consumers and given to business may have a huge effect later on, and this is very important. I would have seen this as one of the roles of the Climate Change Committee in getting research to identify what these were because it is not always obvious and they may affect different sectors differently.

Dr Ion: We would probably agree, Chairman, that the sooner you start the better. Early signals given, either in regulation or information, could make a lot of difference. Similarly, the attitude of Government with respect to procurement as well as regulation could make a difference. If you look at the Government stock in terms of what it buys, what it owns, if you look at the way energy is used in a room like this, some examples could be set early by what Government itself does.

Q461 Mr Stuart: The whole focus is on mitigating emissions and there is some focus on carbon sinks. Does the Royal Society think there should be investment in methods of carbon extraction from the atmosphere? Is there any engineering belief in the viability of methods to do that? Is anyone going to win the Branson prize?

Professor Shine: I am not aware that has been discussed.

Dr Ion: At one level extraction is partly covered by carbon capture and sequestration in the fossil sector.

Q462 Mr Stuart: That is pre-emission extraction!

Dr Ion: I think probably more work would need to be done on that to give you a sensible answer.

Lord Woolmer of Leeds: To change tack a little—Dr Barker in particular but the others may have a view on this—do you expect the Climate Change Committee to rely on existing Government modelling to back up and produce its own forecasts? If so, would you regard that as a sign of robust independence?

Q463 Baroness Billingham: I can answer that!

Dr Barker: If the Committee took its decisions wisely, I think it would want to develop its own capability of understanding the problem and the issue, and develop its own modelling expertise. I would have thought that was extremely important in order to just look at the differentiated responsibilities for different sectors in relation to the overall target. How is the Committee going to do that without having its own capability? Or if it has to rely on different Government departments?

Q464 Lord Woolmer of Leeds: Of course if it did that, effectively the kind of work which would be expected of it would subsume a large part of the modelling work being done by DTI, by Defra and the entire role of the Inter-Departmental Analysts Group, so it would have a lot to do. Do you think, oddly, possibly too much is being expected of the Committee? The Minister almost expected too little, possibly, but when you look at what is being asked on paper, is it too much? Do you think we will be disappointed?

Dr Barker: I do not think the Committee's budget is nearly large enough for what it needs to have in order to do the job properly. If you were to ask me to give you a reasonable budget for it, it would be several times what is being proposed. I am a bit concerned that the Committee would be set up and then it would find it is basically having to rely on other work when it should be doing its own work if it is going to give a proper, independent view.

Chairman: I cannot tell you how happy I am to hear you say that!

Lord May of Oxford: It would have the advantage that it cannot spend any money on travel!

Q465 Lord Woolmer of Leeds: Can I ask one last question of Dr Barker, indeed all three witnesses? I asked earlier whether the Climate Change Committee really does need to have a view about sectoral targets in order to reach a view about the practicality of the overall target. If my view is right, that the Climate Change Committee would have to have a view about what it thinks is achievable in each sector over the coming periods, does that not mean that the Committee would have to have some kind of policy evaluation function also? In other words, it would have to have a view about the kind of policies which might achieve things, otherwise there is a complete break between saying, [odq]This should be capable of being done[cdq] and [odq]How on earth do you do it[cdq]. At the moment the Bill has a clear distinction, the Government's job is to decide what to do about it and the Committee simply plucks some figures from the air apparently with little resources to do it.

Dr Barker: I would have thought the Committee should be able to evaluate policies. If the Committee cannot do that, how can it look at low carbon mitigation options and look at the potential for the different sectors to achieve the target? The Committee could not do its work properly in my view without it being able to evaluate policies and measures and put those in the context of sectoral targets and the overall target.

Dr Ion: I would probably agree with that but just to reinforce that from my perspective it would be important that the Committee is seen as independent and there to provide expert advice on the consequence of policies and on the optioneering that may be associated with different policies, rather than to have a policymaking remit.

Q466 Lord Woolmer of Leeds: That is a tricky balance to get right.

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Dr Ion: Yes.

Lord Woolmer of Leeds: It would be very difficult to get right.

Q467 Dr Whitehead: I wanted to ask some questions on the relationship between mitigation and adaptation and particularly the role carbon budgeting might play in that and how the Bill might reflect those issues. Dr Barker, you mentioned that a known carbon price, according to IPCC—and I would be very interested in looking at those references—would drive substantially most of the mitigation effort, if I understood you correctly. Would that suggest to you that within the carbon budget cycle, within the five year cycles various, a role would then be there, indeed an economically positive role would then be there, for actually a carbon intervention price of some description in order to drive those budgetary periods to ensure that effect took place, so there is a feedback mechanism to actually obtain the value from that carbon intervention as that carbon budgeting proceeded?

Dr Barker: Yes. The economics of this is that if there is a given target for abatement (a given reduction), because of the uncertainties there is a range of carbon prices. When I use the term [odq]carbon price[cdq] this is a very important conceptual issue covered in the IPCC Report. It refers to not just a particular price like that in the Emissions Trading Scheme or the social cost of carbon, which is in Government thinking, but to [odq]pressures[cdq] on mitigation including regulation and the modelling [odq]shadow[cdq] price of carbon. So it is the price of carbon which drives mitigation overall.

Q468 Dr Whitehead: So that would be a composite carbon price including the actual traded price and other factors?

Dr Barker: The trading price is a market price which is governed by the market and that is the best guide we have as to what abatement would cost about from a particular cap within a particular market. It is best to take that as a signal for all the other markets, all the other mitigation potentials. It is important that this price is seen to be credible. I think it would be a duty of the Committee to comment on whether the prices which were emerging from the market and which were being used in Government decision-making—as the social cost of carbon is, as we heard in the previous evidence—were in some sense logical and coherent across different policies and measures.

Q469 Dr Whitehead: Bearing that point in mind, it also appears to be true that as the carbon budgeting process proceeds then the extent to which that composite carbon price is a real factor in that carbon budgeting then drives the extent to which there is successful mitigation, or unsuccessful mitigation, over a period, and therefore drives the extent to which one should also consider the question of adaptation. Do you think sufficient weight has been given to that process in the Bill as it stands? Or should perhaps alongside the mechanisms which may, one hopes, ensure mitigation there be

mechanisms which actually interact with that mitigation process and actually look at how adaptation might therefore run alongside that, hopefully at a lower level as mitigation proceeds on a better basis? Does that make sense?

Professor Shine: I think this is outside all of our expertise but certainly the Royal Society's note to Defra says they are concerned that very little attention is given to adaptation within the Bill and that given that climate change is inevitable whatever we do, more attention needs to be given to it.

Q470 Dr Whitehead: Could I give you perhaps a thought on that? A consequence of poor mitigation as the carbon budgets progress—and admittedly this is on a global basis rather than a national basis—would be a greater or lower rise in sea level, therefore a consequential higher rate of flooding and therefore a consequential higher rate of necessity to build bunds or barriers or whatever to mitigate the consequences of that but adaptation to the fact that was going to happen. Your suggestion is that those sort of mechanisms are not reflected in the Bill, is that true?

Professor Shine: That is absolutely it.

Q471 Dr Whitehead: How do you think those mechanisms might be better reflected in the Bill?

Professor Shine: I think we might want to defer that to the experts.

Q472 Chairman: Would you like to write to us on that?

Dr Barker: I can have a go at that. The problem is that to do this you have to have an integrated modelling system, you cannot just do a part, it has to be done overall. One of the outcomes of an integrated model, looking at the requirements for adaptation as well as mitigation, as is quite clear from the studies which have been done, is that even with a 2° target there is still an awful lot of adaptation which is necessary, a lot of decisions to be taken. So I would have thought it would have been sensible for the Climate Change Committee to be looking at adaptation issues as well as those associated with the targets. Of course it is not the concentration target that matters for the adaptation, it is the 2° target. It is the climate change effects we are concerned with not the amount of concentration in the atmosphere, which is neither here nor there, except it is driving the climate changes.

Q473 Dr Whitehead: So do you think the same Committee which is looking at mitigation could deal with that aspect?

Dr Barker: I strongly think it ought to, yes. The problem is a system problem and both sides need to be looked at together.

Q474 Lord Woolmer of Leeds: Is there not a slight problem in that, in that the UK could hit all of its targets but it would have no effect whatsoever on the need for mitigation in this country if the rest of the world does not hit theirs? The population is left with the very puzzling situation of the Government

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meeting all its targets and still the problem is getting worse. This is a point I made to an earlier witness, in truth there is no connection between the Climate Change Committee's job in relation to reducing emissions and what is or is not required for mitigation in the next 50 years in the United Kingdom. I am challenging your view really. I can see globally they are an integrated model but at the UK level is that not misleading the public, so the answer is that the Committee does not actually influence much?

Dr Barker: We have looked at the synergies between adaptation and mitigation and in certain areas there are important synergies. I am not sure they are covered properly in these proposals because the main synergies are in agriculture, because there are mitigation options in agriculture and forestry which are also quite important adaptation options because of run-off of water and this kind of thing. So these are important options which should be in the purview of the Committee, ie. the agriculture and forestry options.

Dr Ion: Whilst I understand what Terry Barker is saying and therefore it is important that the Committee possibly has an understanding of the system and the relationship between adaptation and mitigation, for many of the adaptation steps which will be required it is a completely different problem you are trying to address and it is probably a very different engineering solution, a different portfolio, you would have to be looking at. So I am not sure it is this Committee that should be looking at the totality of adaptation. Certainly awareness and where there is sensible linkage, that should be made, but in terms of major adaptation in terms of engineering solutions to prevent flood and take account of stronger winds, all that sort of thing, then we are looking at a different body to do that, and not the five to eight proposed.

Q475 Baroness Billingham: A slight change of topic but in a way following on from what Lord Woolmer has just been talking about, I want you with your international expertise to look at the Bill with critical eyes and I wonder how you feel the Bill measures up to input from events and experiences and expertise, all the things which are happening internationally? You talk in global terms in your submission and I am just wondering if in fact you think the Bill is strong enough in this or whether we are too insular and we are not drawing enough on international experience?

Dr Barker: I am very keen to answer that!

Q476 Baroness Billingham: It is an open goal!

Dr Barker: Science has moved on, and the economics has moved on much, since this Bill was prepared, that I feel it needs to be taken into account in the redrafting. The most important area I have identified, besides the carbon price issue which I talked about, is the fact that I do not think the Bill takes into account sufficiently the uncertainty in the economics of the ranges of the policy options and particularly the uncertainty associated with the costs of mitigation. The Summary for Policymakers for

Working Group 3 identifies that there are potential benefits to the economy—the energy economy and the macro-economy—from mitigation actions, including extremely stringent mitigation actions. We are talking about complete de-carbonisation of the world economy and how it is possible that this will work out at a national level. What I see here is that the way the Bill is framed is in terms of costs of mitigation rather than potential benefits and opportunities. We are seeing already major opportunities being taken by business even at low carbon prices, so there is an awful lot of potential there. The reason I am being particularly critical is: what if it costs turn out to be much lower than expected? should we not then be tightening the target? The reason is intellectual. As far as I can see any warming is damaging, we really want to go down as far as possible. If 2° costs next to nothing, we would want to go to 1°, or even back to pre-industrial, as far as I can see. Therefore this implies that if the Committee finds in its carbon budgets that the targets are met, it does not then say, [odq]We can relax[cdq]. It is quite the opposite, it says, [odq]Well, we tighten the target[cdq], and I think this should be built in and not be left to legislation. That is my understanding of the science and the economics of the situation.

Q477 Mark Lazarowicz: On that last point, it would be helpful if you could let us have some ideas on how the Bill could be amended to take on board the point you make. Because of the time, we will not ask you to do that verbally now, but perhaps you could come back to us and give us some suggestions about that? That would be very helpful indeed.

Dr Ion: If I might just add something. This Bill is linked with the Energy White Paper and with the Planning White Paper because those two White Papers contain some of the measures that will actually enable what is required in this Bill. It is important that those are taken fully into account into any redrafting that may occur. It is also within those other White Papers, particularly the Energy White Paper, where international experience may well be brought better to bear in terms of the steps taken by other nations in terms of what they are doing to mitigate the issues posed by their housing stock, their industrial economies, et cetera. There are some strong lessons that can be learned.

Q478 Chairman: I am not trying to lead you but I want to ask you a question that is prompted for me entirely by what you have said. It is to do with the committee, the powers of the committee, the reputation of the committee and the credibility of the committee. This had not occurred to me before at all. You could find yourself in an extremely odd situation where a government did exactly what it was required to do to force down carbon, did all the right things, but in doing so created such a furore, as it were, in the private sector, or such apparent distress to the economy, that it was voted out of office. Is that not an argument for a rather more powerful Climate Change Committee which is able to stand there and say to the electorate, [odq]This is not the

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Government that you should be coming after because it got things right, the Government responded to the best advice it could get from the best resourced and most able committee it could find[cdq]. I know I have been trying to move towards this in my own thinking. The question I want to ask you is this, because it is an issue of credibility: thinking outside the box, what form of scrutiny, what form of process would throw up the committee that you think would command serious respect from your own community and which in turn could possibly begin to command serious respect from the electorate in such a way as to protect the government from doing the right thing, but the right unpopular thing? I hope that makes sense.

Dr Barker: We have, of course, the example of the Monetary Policy Committee of the Bank of England. This has achieved exactly the reputational credibility that you have just outlined which is all we would want. For this to work, the reputation would have to be similar to that of the Monetary Policy Committee, and the independence similar and, therefore, the funding and the resources. This comes back to my point of resourcing of the committee. If the committee is not properly resourced, perhaps on the same scale of the Monetary Policy Committee, and we are talking about issues which are of a similar scale, then you could see that there would be a problem. Of course, the Bank has very substantial resources, not just in terms of money but in terms of expertise. I think there is a risk that if the committee does not have sufficient independent expertise and independent reputation that it will fail because of these kinds of considerations.

Q479 Mark Lazarowicz: But the Monetary Policy Committee has also got power, that is the important thing. What is the kind of power that could be given to the Climate Change Committee to allow it to have that same impact?

Dr Barker: I think it has to be to assert the price of carbon, that is the equivalent one, as well as commenting on whether the target is being achieved.

Maybe there have to be similar letters and the same sort of pressure. If it is not achieved then we could envisage the same kind of scheme, the carbon budget being exceeded by so much, but then how would you do it except through the price of carbon? I can see the problems immediately.

Q480 Dr Whitehead: It seems to me that the equivalent is effectively carbon as a currency and having the equivalent of a Monetary Policy Committee regulating that. However, it is still more than theoretically possible that a government could come to power which throws out the Monetary Policy Committee and government takes responsibility for interest rates and there is nothing anyone could do to stop it, other than make sure it does not happen. This seems to parallel with anything one might do as far as carbon currency is concerned. Within that constraint, would you see the notion of carbon as a currency and running that as a parallel might be the best way to define these matters?

Dr Barker: That is really what we are moving towards with the Emissions Trading Scheme and then suggestions about domestic tradable quotas. This is a similar kind of scheme and there is a carbon price. My understanding is you are talking about a carbon price which influences all decisions involving emissions of greenhouse gases. In order to get these low cost opportunities, to get all this working well in the market system we have, that price has got to be credible and long-term, as I have emphasised. It is the setting of that price which is important. That has very important economic implications, as we have seen from the price of carbon in the Emissions Trading Scheme and the large amounts of profits that have been made out of it.

Q481 Chairman: Sue, Keith, anything you would like to add?

Dr Ion: No, thank you.

Dr Barker: No.

Chairman: You have been fantastic, and I say that entirely neutrally! Thank you very much indeed.

Tuesday 19 June 2007

Members present:

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|--------------------------------|----------------------|
| Billingham, B. | Woolmer of Leeds, L. |
| Caithness, E. | Ms Celia Barlow |
| Crickhowell, L. | Mr David Chaytor |
| Miller of Chilthorne Domer, B. | Nia Griffith |
| Puttnam, L. (Chairman) | David Howarth |
| Selborne, E. | Mr David Kidney |
| Teverson, L. | Mark Lazarowicz |
| Vinson, L. | Dr Desmond Turner |
| Whitty, L. | Mr Tim Yeo |

Witnesses: **Mr Mark Watts**, Policy Adviser to the Mayor, Greater London Authority, and **Mr Graham Tubbs MBE**, Chief Sustainability Adviser, South East England Development Agency (SEEDA), examined.

Chairman: Welcome. Thank you very much indeed for coming to talk to us. Let us start off with a question from Des Turner.

Q482 Dr Turner: I am not quite sure which of you is representing RDAs and which of you is representing the GLA.

Mr Tubb: I am representing RDAs.

Q483 Dr Turner: It is very clear from the Mayor's pronouncements how he sees the Mayor of London in the context of climate change, but RDAs are less clear. Graham, we go back a long time. RDAs in their various roles have not always been terribly clear, as I think you probably would admit, even in terms of the economic regeneration, which started out as the primary remit. It is less obvious what role RDAs can play in addressing climate change. Would you like to enlighten us?

Mr Tubb: Sure. I will have a go. While there is no role specifically prescribed for RDAs in the Bill, we do think we have a very important role to play. I think you would concede we do have leadership in terms of strategic economic development and we do have some leadership in terms of strategic sustainable development, as recognised in our remit. The Energy White Paper does overtly recognise the RDAs' role and does say that we have an important role to play in tackling climate change as well as contributing to the delivery of energy policy at a regional level and that is achieved particularly through our regional economic strategies. I think there are a number of direct areas in terms of providing regional leadership and influence. This includes mitigation and adaptation, supporting the delivery of carbon reductions in businesses, particularly through our support for business resource sufficiency, through Business Link, through our work with the business resource sufficiency and waste approved programme and also in terms of improving the equality, sustainability and energy performance of buildings, through our construction programmes and setting higher standards and in terms of delivering regional exemplars as well and importantly, I think, in growing innovative businesses and markets through supporting R&D, through supporting

demonstration and deployment, through our sector support, our enterprise hubs and our knowledge transfer networks work. All that sort of thing drives forward innovative businesses. We are all wedded to the requirement to deliver a low carbon economy and we are all desperately trying to find innovative ways of achieving that. We have a particular focus on the environmental technology sector. Ironically, all regions aspire to be the UK's lead in regional environmental technology and I think that shows the importance we attach to it. I think through our participation in the Commission on Environmental Markets we are very much aware of the opportunities globally that could be afforded to our country's environmental technologies sector. So we are pushing that as well. I think throughout procurement we can have a direct influence on the development of low carbon technology, carbon reduction and contribute to the delivery of the overall climate programme.

Q484 Dr Turner: You mentioned procurement. RDAs also invest. Is it reasonable to assume that we can expect RDAs only either to procure or invest in proposals which are consistent with climate change policy?

Mr Tubb: That would be the overriding objective. There will inevitably be some conflicts at regional level which will need to be resolved. Stern was sweet music to our ears in terms of tackling climate change as the agenda for growth. We have been saying that for quite a long time. We recognise the tremendous opportunities that are afforded there and we will support them and push them as far as possible with our business sectors.

Q485 Dr Turner: It is a long time since we met at the East Sussex Planning Department, is it not?

Mr Tubb: Decades, unfortunately!

Q486 Chairman: Mr Watts, do you have anything to add?

Mr Watts: What we are trying to do with the London Development Agency is very much consistent with that. We see it very much as one of the delivery agencies for the Mayor's climate change plan in London. We have also given the London

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Development Agency a role in taking forward our green homes programme, which is trying to connect with individual Londoners about how they can 'green' their own lifestyles and to catalyse the market for energy services companies in London. We are pushing forward a decentralised energy agenda. We have set up a London Climate Change Agency with EDF Energy in London through our development agency and we see that as a role that development agencies could adopt around the country.

Q487 Lord Crickhowell: Mr Watts, we are dealing with a Bill and not so much general aspirations but whether any changes are needed to the Bill. By happy chance the House of Lords today is dealing with the Report Stage of the Greater London Authority Bill and some of us will be going off to vote during the course of our proceedings. The Mayor has said that the Bill needs to recognise regional initiatives. Do you think there are any changes needed to the Bill to enable you as a local authority to do what you think you need to do? A large section of the Greater London Authority Bill puts duties on the Mayor and the Authority. Incidentally, it includes quite wide powers of direction from the Secretary of State to amend your strategy. He does not think it is good enough. Is that because you think these special powers are needed in a special Bill or do you think the powers are there with existing regulatory and fiscal measures to enable the Secretary of State to do what he wants within the scope of this Bill?

Mr Watts: We would like to see the new duties being imposed on the Mayor of London, ie to have to have and implement a climate change strategy, being something that is imposed on all regional authorities. We are not asking for that power in London to enable us to do anything because we are already proceeding with a rather rapid programme of reducing carbon emissions, but we see it as something we want to set in stone for future administrations. As far as the Bill is concerned, the key thing that we would see from the point of view of a regional authority is the need for a greater recognition of the role of cities in tackling climate change. After all, three-quarters of global carbon emissions come from energy use in cities and this picture is very similar in the rest of the UK. Therefore, ensuring that the experience of cities is very much part of the Government's thinking as it implements its own climate strategy, perhaps through representation on the Climate Change Committee, we would see as being valuable.

Q488 Lord Crickhowell: The Bill really is not about recognition of a role; it is about making sure you achieve something if it needs to be achieved. Are you suggesting that we need to have the kind of powers that are contained separately in your own Bill in this Bill so that they apply more generally or do you think there are powers in existence already?

Mr Watts: We have not responded specifically on that point because, as far as London is concerned, we are already getting the powers that we think we

should, but we would welcome the same powers that London is getting separately through the GLA Bill being in this Bill for other authorities.

Q489 Baroness Miller of Chilthorne Domer: I expect you will know that I put some amendments down to widen the scope of the GLA Bill which happily the Government have agreed to. In particular, it was that other greenhouse gases should be included, for example, and also the interrelationship between regional government and the national interest. In specific areas like other greenhouse gases you have actually moved to where most other local authorities would be getting to once this Climate Change Bill was enacted after about two or three years because with your CCAP you are quite a long way down the line. What other specifics do you think are missing from this Bill?

Mr Watts: In terms of duties on local authorities? Our view is that the Bill as it stands is broadly right. We welcome it very much. Where we would wish to see change is really on the scale of the ambition. We do not think the targets are consistent with where the science is at at the moment. Whilst a 60 per cent reduction by 2050 is rather aggressive compared to what other national governments are doing, it is not actually consistent with where science has now got to. Also, it is not consistent with what is really achievable. With the Climate Change Action Plan that we have produced in London we are very confident that we could deliver a 60 per cent reduction by 2025 and that we could do it in a way that would be generally beneficial to the London economy and to Londoners.

Q490 Baroness Miller of Chilthorne Domer: With this Bill, looking at 2050, would you be going for the 80 per cent or would you go for the Tyndall Centre's suggestion, which is that we should be keeping our eye on the temperature? Although we obviously have to start with an ambitious target, it is the temperature containment which should be dictating the targets.

Mr Watts: The Tyndall approach is right. More importantly, people have some suspicion of targets that are so far into the future. That is why in London we decided to set a 2025 target but then with a proposal to report annually, because I think people should be seeing what we are doing on a 12-monthly basis. That is the kind of period over which they can judge us. I would like to see the Bill focusing on a nearer term target as well as recognising that in the longer term it is going to need something higher than 60 per cent.

Q491 Mr Yeo: Would it be helpful if there was more focus on the concentration of greenhouse gases in the atmosphere as a target, which are currently rising? There seems to me a slight danger. We focus on emissions. I applaud the ambition that you have referred to of a tighter than 60 per cent target. If the achievement of that is too backhand loaded it is kind of too late because there is too much stuff up there already.

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Mr Watts: Sure. The approach has to be about what is the total amount of emissions that we think is the maximum that we should emit between now and whatever given date. It is not about hitting the target by a certain year. If that is the scale of ambition then it will not have the impact that we intend.

Q492 Mr Yeo: There could be a critical pathway not just of emission cuts on a progressive basis with timetabling but also of what the concentration in the atmosphere is. I know that is affected by a lot of other things other than this country. Should we be getting people to focus on that all the time?

Mr Watts: Yes, checking your emissions reductions target against what is actually happening in terms of concentrations in the atmosphere.

Q493 Mr Yeo: Do you think this 80 per cent target you have referred to is achievable?

Mr Watts: We have not actually measured the achievability of the 80 per cent target by 2050. Whereas we thought we could make some relatively real assumptions about what will happen over the next 20 years, over a longer timescale that was much more difficult to do, particularly as one assumed that there would be great changes at a national and international level. Having done the detailed work in London around how one could achieve a 60 per cent reduction by 2025 and that is eminently achievable without massive leaps forward in technology or huge changes in the way that society functions although it does mean lots of small changes in behaviour, I do not see any barrier to going beyond that towards the 80 per cent target.

Q494 Mr Yeo: So it would be a matter of degree rather than substance?

Mr Watts: Broadly, yes, although towards the end of 2050 clearly you are going to get into some larger infrastructural changes and technological breakthroughs than you will have to do over the next 20 years.

Q495 Mr Yeo: Can you touch on some of the behavioural changes that you believe are necessary to get to by 2025?

Mr Watts: About 20 per cent of the emissions reductions that we think are possible in London are assuming that about two-thirds of Londoners do things that cost them nothing and in actual fact put more money back in their pocket by basically stopping wasting energy. It is the completely obvious things, ie not leaving the lights on in a room when you have walked out, not leaving things on standby, turning the thermostat down by one degree and turning the temperature down on your washing machine to 30 degrees rather than 40 degrees. All of those things seem so tiny and insignificant and they do not add up to a lot, but they really do when you spread them across 7.4 million people.

Q496 Mr Yeo: What are the incentives for people to do that? What is the Mayor going to do to make people more excited about this?

Mr Watts: That is the interesting thing. All of the opinion polls that we have done over the last three years show that climate change has been the thing, like no other issue, that has moved up people's consciousness in London and I am sure it is the same in the rest of the UK. There is a total disconnect with what people are concerned about and what they are doing in their own lives and often it is because of a complete lack of understanding. They say "We're doing all our recycling" not realising that it is the driving of the big car, leaving the lights on and taking the foreign holidays that is adding to the CO₂ footprint. Our approach—and we will see whether or not it works—is that one needs to break through the barrier of ignorance about what are the right things to do by doing large scale public information campaigns. We have one going on called DIY Planet Repairs at the moment. It is a £1 million campaign across the whole of London just to say if you only do five or six things, these are the ones to do. You have to address the economic factor. You have to help people to understand that tackling climate change does not mean reducing your quality of life. It does mean changing the way you live but that can be in a beneficial way and that has to mean bringing in more subsidies for people doing the right thing. When people do the right thing they expect to be awarded for it so that directly as well as in the longer term they are going to be better off. Our approach is about information and subsidy in the short term.

Q497 Chairman: Mr Tubb, do you want to add anything?

Mr Tubb: I would like to echo the concern about the 60 per cent target. I think in our response to the Bill we have asked for it to be very carefully reviewed before being enshrined in Statute because, like Mark, we recognise that perhaps the science has gone beyond that, but at the same time we recognise the merits of actually engaging people in any sort of target to get on the pathway as being a plus. I think we also recognise the concerns over international competitiveness if UK businesses are required to meet higher standards than their international competitors and it involves a significant cost, but at the same time there is also first mover advantage if the rest of the world catches up in terms of demand for low carbon product. There is a balancing act there. I referred to the Commission on Environmental Markets. This is something which the Commission is looking at at this very minute. We think there are a lot of considerations around that 60 per cent target and just because it is familiar, it has been around for a long time, a lot of inertia has built up around it, it should not be taken as unquestioned.

Q498 Baroness Billingham: We have been talking about targets to all the people with whom we have had exchanges of views over the past few weeks and I am sure you will have noted some of the surprising responses we have had. It is good for us to hear your response today, which is very positive. I am not as convinced as you are that people are going to be quite as easily persuaded. There will be a great deal of public rejection against some of the stringent

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measures which will need to be brought in in order for the targets that you have suggested to be met. The whole ethos of this Bill is that there has to be changing behaviour. You can appeal to individuals, but what about small and medium-sized enterprises? They are going to feel the pinch on some of the suggestions you are making and they make a big contribution to the life of London. What evidence have you got that they are going to be welcoming of the more stringent targets that you are suggesting here?

Mr Watts: I think you need a different pitch based on the size of the business. Effectively in London we are at the start of our programme of engagement with business on climate change. The large scale businesses in London see taking action on climate change as being part of their corporate social responsibility agenda. It is increasingly important from the point of view of how customers perceive them and quite important from the point of view of staff recruitment and retention. At the smaller end of the scale it is a totally different picture. Whereas the bigger firms are not bothered about energy bills because it is such a small percentage of their operating costs, for a smaller business it can be quite important to be able to find ways to cut your energy bills and that is the motivation for reducing emissions. Our approach has been to work with the London Chamber of Commerce and the other small and medium-sized enterprise business organisations who already have a good relationship with their members to try and provide advice and support to businesses in cutting their energy usage in order to cut emissions, rather than saying there is a big burden on you, you have got to slash your emissions even if it means an increase in cost. Basically it is about trying to find ways of helping them reduce costs and reduce emissions rather than imposing extra costs.

Q499 Baroness Billingham: I hope that you are right. Last year in London we had a hosepipe ban and we were not meant to water our plants at all. London streets at dark echoed with the sound of hoses being used and people actually not conforming. I am fearful that some of the suggestions that you have here mean that people are going to think, "Let somebody else do it. I'm going to ignore the suggestions that are coming from Ken".

Mr Watts: Clearly not everybody is going to want to play a part in this. We had a 7 per cent cut in water usage in London last summer as a result of the exhortations and the hosepipe bans. Overall it did work.

Baroness Billingham: Not in my road!

Q500 Lord Woolmer of Leeds: I want to ask you both two questions about personal carbon budgets. In your judgment you are both nearer to the consumer than we are in the House. Do you think personal carbon budgets could be introduced practically now or in the near future? Secondly, if there was the desire to introduce them, do you think that they should be introduced through the secondary

legislation in this Bill or do you think it would be so significant for people it should be introduced by primary legislation?

Mr Tubbs: I think there is definitely a case for personal carbon budgets in terms of engaging people with the need to change behaviour and reduce their carbon impact. I have not explored in detail the practicalities of actually delivering that. I can see a definite case for it. However, I think primary legislation is probably the best way in order to encourage broad debate and widen understanding about what it all means and what the implications of it are. It is a case of pitching it in the right way as to engage people in order to deliver the outcomes you want. I have to say, it is not something I have really delved into in any great depth.

Q501 Lord Woolmer of Leeds: Is this a part of the Mayor's plan for London?

Mr Watts: Yes, very much so. We see this as being a long-term thing. We are looking to the Government to put in place a framework that makes it possible. Nationally comprehensive carbon pricing has to be where we are going in the long term if we are going to seriously reduce emissions. You can sort of see how this might start to take off in certain sectors. In transport next year we will be introducing an element of a personal carbon budget but in the sense of carbon emissions charges for driving into the Congestion Charging Zone in London. So the price will be raised from £8 to £25 for the highest polluting vehicles. That is the charge element. What we do not have yet is the reward. One would really need to be able to do a direct transfer of some of that revenue from the people with higher emissions to people who are choosing to have a low carbon form of transport. The technology exists to do that kind of thing already through the Oyster platform. That is something we would want to look at in London. As to how that is introduced, you are in a much better position than me to know whether it is primary or secondary legislation.

Q502 Lord Vinson: There are two ways of meeting the challenge of climate change. One is by reducing carbon outputs and the other one is by producing energy that is carbon free. Planning holds up combined heat and power projects which not only consume waste but are extraordinarily efficient and useful and planning also holds up the one thing that would put London right with masses of cheap energy and that is its own nuclear power station. What do you think about creating massive sources of CO₂ free cheap electricity so that half the things that people think they have to cut back on they will not have to? If they had electric cars they could carry on driving.

Mr Watts: About one-third of all the emissions reductions that we have identified as possible through the Climate Change Action Plan in London come from change in the way energy is supplied in London. The primary role there is moving towards decentralised energy in London. The target is to put 25 per cent of London's energy supply on a decentralised energy basis generated within London by 2025. We are using our planning powers to try

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and engender that change in London. The revisions to the strategic framework which are being consulted on at the moment will effectively require every major new development in London to be primarily powered through combined heat and power as well as 20 per cent of energy coming from renewable energy. We are not at all convinced of the argument for nuclear power, certainly not in London. I do not think it makes sense to put a nuclear power station in the centre of such a densely populated area.

Q503 Lord Vinson: You could put one out anywhere in the United Kingdom.

Mr Watts: We are not persuaded of the argument nationally because we think it is going to be much more efficient to achieve the kind of emissions cuts that we need through more of the behavioural changes that we talked about and more efficient ways of supplying power through conventional energy sources and more emphasis on renewable energy.

Lord Vinson: It is a conventional source.

Q504 Lord Whitty: Let us go back to the targets that are in the Bill. The Bill prescribes a national target. You have set your own target in London. Do you think it would be sensible for the Bill either to require regional targets or city targets or to place a duty on regional authorities or RDAs to draw up their own targets?

Mr Watts: Our view would be that there should be a duty on cities and regions to set targets in line with Government policy but that you should leave the specific target to the local authority because circumstances will be different in every place.

Q505 Lord Whitty: In the London case it is fairly clear how the target would be set, but in the RDA case, given you have relatively few levers of power, how would the RDAs go about setting such a target?

Mr Tubb: The Energy White Paper has a list of things to which the RDAs, after dialogue with DTI, have committed to and one is to publish carbon targets in our corporate plans and another is to deliver carbon savings through our existing and planned programmes. Strictly speaking, of course, that is just the RDAs' own activity rather than the region-wide activity. Some of us have recognised the need to set regional targets and perhaps some are slightly over-ambitious because they do require the engagement of other regional partners in their delivery if not their determination. In the South East we have a target which says we will reduce CO₂ attributable to the region by 20 per cent by 2016. That actually sets us a driver to engage with regional partners in order to agree that and take steps to deliver it. All regions are in the process of reviewing the whole notion of regional carbon targets, notwithstanding the fact that we have a requirement under the Energy White Paper. Sir Ben Gill in his biomass taskforce advocated the regions should set regional targets. It is a big step to move from the RDAs' own activity to targets for the whole region

because that does require a different process of engagement, but it is something which needs to be dealt with very quickly and we are all in train.

Q506 Lord Whitty: Would you see any relationship between that regional process of engaging with all the partners or indeed in the London process going forward and the Climate Change Committee set up by this Bill?

Mr Tubb: In terms of perhaps setting the ground rules and protocols in terms of what counts as delivery to the targets so that you avoid double counting and that sort of thing, I think it is very important. In terms of setting targets, I think I am in agreement with Mark in terms of each region being different, having a different composition and a different capacity to deliver savings in terms of the relative potential of different sectors to deliver savings. We would want those targets to be set with regional partners in the regions, but we are quite happy with a protocol and ground rules to be set so that we have a degree of consistency. The RDAs are working together to make sure that the carbon trajectory we have put in place through our own activities, albeit it is partial at the minute, focusing on our construction activity rather than anything else, is a common methodology and has common metrics so we can report on a common basis and give some meaningful return in terms of our activity.

Q507 Chairman: Mr Tubb, I want to ask about the target of a 20 per cent reduction by 2016. I learnt a powerful, difficult lesson seven or eight years ago in dealing with literacy and numeracy targets. What I discovered was that the trajectory was quite a lot of low hanging fruit. The trajectory is quite encouraging this year. You have then gone into the area of very heavy selling. How much of that 20 per cent is low hanging fruit and how much of it does become difficult as you move towards 2016?

Mr Tubb: I should think a good proportion of it is low hanging fruit, although that would undermine some of the achievements we have made already in terms of engaging with businesses in the region in terms of resource efficiency initiatives. There is also an initiative under way at the moment through Business Link, which the RDAs have been responsible for over the past 18 months, to deliver a programme of resource efficiency and auditing advice to 10,000 businesses across the nine regions and that was put in the Budget statement. There will be a lot of activity going on. Having said that, I think the low hanging fruit will constitute a good proportion of it, but there will come a time when things start squeaking because of the need to find innovative ways to move on. If there is a sensible carbon price then the path towards achieving those better reductions will be assisted.

Q508 Earl of Selborne: I would like to seek your views on membership and composition. The consultation document says that the Committee members should be 'experts in their field rather than representing specific stakeholder groups'. The Mayor has criticised 'a lack of regional

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representation'. How would you like to see regional representation achieved? Do you want regional representation on the Committee itself or would a statutory Sub-Committee be desirable?

Mr Tubbs: If the regions have the responsibility for delivering targets then I think it is our view that they ought to have representation on the Committee. We also feel that there is a lack in the Bill in terms of adaptation and there is insufficient attention given to engendering a dynamic for adaptation by just requiring a five yearly report. The whole process of adaptation and planning for adaptation needs to achieve a higher profile. I would like to see some expertise in adaptation reflected in the membership of the Committee. In terms of a regional Sub-Committee, I do not think we have a strong view, but if there was regional representation on the Committee as such and a requirement for regular reporting of regional performance then I do not think we would necessarily need an additional supplement.

Mr Watts: I broadly agree with that. We have the same approach. Our view is that you need to have somebody on the Committee who is representing the delivery of the targets that the Government is setting and as cities are responsible for three-quarters of carbon emissions then we think a representation of cities of the region would be the right way forward, particularly if the Committee is going to have a role not merely in setting a framework but in commenting on whether the Government is being ambitious enough in its programme or whether it is getting behind in its programme et cetera. One of the better places where you will get that sort of information about what is happening on delivery will be from something like a city authority or a regional authority. As for the idea of a regional Sub-Committee, we think any way that involves cities and the regions more would be a good thing.

Q509 Mark Lazarowicz: I want to pursue this point about regional targets and also the other side of how you report and monitor your success in reaching those targets, which is obviously the whole point of those targets in the first place. How far can you adequately monitor emissions at a regional or city level? How far is that both technically possible and a meaningful concept?

Mr Watts: We have a fairly robust process in place in London in the London Atmospheric Emissions Inventory which gets pretty robust data from all of the electricity, gas use companies and from the transport system. We are pretty certain of the 44 million tonnes of carbon emissions that we quote in our Climate Change Action Plan at the moment. There is clearly an issue of consistency of figures across regions and across cities. One of the things that we have been working on through our C40 programme, which brings together 40 of the biggest cities in the world in a partnership with the Clinton Foundation, is to try and put together a common tool for measuring emissions that all of those cities

will use, which indeed Microsoft are now helping us develop. We are pretty much there on being able to have robust monitoring.

Mr Tubbs: I think in the regions we are less confident in terms of getting a regional figure for emissions. Obviously there is local authority monitoring, there is point source monitoring and one or two other things, but there is not a consistent system of monitoring at a regional level. In a sense we rely on Defra's appraisals and figures to do that for us.

Q510 Mark Lazarowicz: Mr Watts accepted earlier that, even though it would be targeting different regions and different authorities, the targets might differ from authority to authority because of different circumstances. One can see some areas have activities which are more difficult to tackle than others. Are we talking about situations where you might have a higher percentage target in certain regions or authorities depending upon its form of activity? If so, who is going to decide those differing targets?

Mr Watts: Going back to what we said before, undoubtedly you will have different targets in different places. In London it is relatively easy to see a way of delivering very high emissions targets because we have very little industry in London and it is mostly about consumer behaviour and energy use in buildings. It would be very different in some other areas. I think the role has to be for the individual city or regional authority to work out what it thinks is the right level of emissions, but that needs to be checked. I can see a role for the Climate Change Committee in commenting on the targets and whether it is really robust or miles away from where you should be. The role for setting the targets has to rest with the local authority.

Q511 Mark Lazarowicz: You do have transport and one of the difficulties facing the Government and this Committee is how you allocate things like aviation. Do you exclude Heathrow Airport from the targets? If you do not, how do you do meaningful allocations for London? What happens if you have a different target and different people setting them for the airports outside the GLA area? How do you cope with that problem?

Mr Watts: We have chosen our Climate Change Action Plan to report on the level of aviation emissions and include them in our totals but to separate it out from the actual programme of cutting emissions because we have no way of affecting the aviation industry. In London it makes a huge difference. London's total carbon emissions rise from 44 million tonnes to 67 million tonnes if you include just Heathrow and City Airports, which are within the boundaries, and that is on a fairly rough and ready calculation of attributing if someone flies from London to New York, the journey out, the emissions count, and then the journey back, the emissions count. Aviation completely changes the picture in somewhere like London but it completely skews it as well because Heathrow is not a London airport, it is not even a national airport, it is a European aviation hub.

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Q512 Mark Lazarowicz: This implies that national or UK-wide targets could not just be an aggregation of the regional and city ones, there would have to be something on top to allow for the emissions you could not allocate to a particular area on a meaningful basis. Is that right?

Mr Watts: That is right. Clearly that applies to aviation and to shipping. One might make an exemption if there are heavy industries that have to be concentrated in particular places. I do not think it is many things.

Q513 Nia Griffith: You mentioned the idea of the Climate Change Committee having some influence on targets. Obviously you are a willing authority and you are keen to do things in London, but not every authority may view things like this. What do you see as their role? Is it advisory/consultative or do you see it as a much stronger role than that?

Mr Watts: I think it should be advisory/consultative. The ability to comment is rather powerful in that no authority is going to want to be criticised for being unambitious in their targets in what has become a key national political issue. I do not think you can take away from the local authority—the best know what they are able to achieve in their area—the ability to set a target as long as it is consistent with the overall approach that the Government is trying to implement nationally.

Q514 Nia Griffith: You are saying that a public disgrace is enough to make a local authority work.

Mr Watts: It is certainly enough to concentrate minds and to apply pressure. The real answer here is that local authorities have a duty to have a climate change plan and they have a duty to be consistent with national government policy. The parameters for being out are not going to be very wide. I see a role for the Committee in commenting on the ambition within certain parameters.

Chairman: We have heard evidence on the importance of co-ordination.

Q515 Lord Crickhowell: Mr Watts, you put in a bid for representation on the Climate Change Committee. The job of the Climate Change Committee is to advise the Secretary of State in relation to each budgetary period on the level of the carbon budget. I suspect if everyone puts in a bid that Committee will grow rather big. Dan Skopec of the Californian Environmental Protection Agency, who gave evidence to us a short time ago, emphasised the importance of establishing a single body to co-ordinate all the bodies involved in actually taking action, not setting the budgets, which clearly your body is. A House of Commons Committee has reported on the proliferation of sustainable development strategies, plans and frameworks at all levels of Government as being a major problem that needs to be addressed. Should the Bill establish a single body to co-ordinate action across Government? There are numerous bodies involved in tackling climate change including your

own and the RDAs. Do we need something to bring it all together as they thought necessary in California?

Mr Watts: We do not have a tremendously strong view on this, although certainly we can see the benefits of greater co-ordination and definitely a huge benefit in the wider dissemination of best practice amongst authorities. We are benefiting hugely from being part of an organisation of 40 of the largest cities in the world. It is allowing all of us to accelerate our emissions reductions programmes because we are simply seeing what the best in the world are doing on any given area and then copying it and implementing it in our own cities. Within a UK environment one would want to have the same sort of thing so that those that are moving quickest can help those that are moving more slowly to accelerate what they are doing. I see that sort of co-ordination and that sort of co-ordination across Government as being very beneficial. I do not think we have a strong view on precisely how that is done.

Q516 Lord Crickhowell: If you do not have what Californians call a Climate Action Team can you be confident that you really have reliable information from this plethora of bodies? You are confident about your own information, but if you take the whole of this group, can you be confident that you really know whether you are all performing up to the required standard?

Mr Watts: I guess the only level I can answer that on is from our own experience within London. It has been absolutely vital that we co-ordinate all the bodies that are in the broad mayoral ambit so that we have a consistent programme. Before we started doing that one had total dissidence between different parts of the administration in terms of what they were doing on climate change. I do not really feel qualified to have a strong view.

Q517 Lord Crickhowell: I get the impression that at least you are not hostile to the idea. What about the regional bodies?

Mr Tubb: That is fine provided it is thee body rather than a body and does not contribute to the proliferation of these initiatives. I think it would serve a very useful purpose in terms of giving a distinct focus and endorsing the urgency for actually taking action and it would have those benefits in terms of sharing best practice and raising awareness that Mark has referred to. I have not had the benefit of discussing it with colleagues across the regions, but I think it would be valuable in terms of adding focus to efforts.

Q518 Lord Teverson: What economic or climate change strategy has been drawn up by the RDAs at the present moment? There are ten RDAs, is that right?

Mr Tubb: Nine.

Q519 Lord Teverson: How many of those would be able to put a climate change strategy on the table now or when might they be able to? On the GLA side, I read with particular interest in the

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memorandum about the C40 group. One of the things that we have been very interested in as a Committee is international comparisons and other international approaches. I would be interested to hear from those connections with those other major cities of ways in which perhaps they would see this Climate Change Bill should be changed or contributions that you could make to this from the dialogues that you have had with those other 39 partners.

Mr Tubbs: You may not find a climate change strategy in every region labelled like that, but every Regional Development Agency is required to prepare a regional economic strategy. I think I can safely say that each of those nine regional economic strategies will have a climate change strategy within it in terms of addressing climate change, recognising the imperatives of climate change and the need to actually tackle it and take a lead in the region in doing it. The North West, for example, has a climate change strategy where it brings together its policies on climate change, on energy, energy efficiency, water and waste. All RDAs have that sort of range of policies that you could just pull out and say it constitutes a climate change strategy. In the South East we have policies on ensuring that climate change adaptation is actually promoted and factored in to business planning. So we have made efforts to try to persuade businesses to plan for adaptation. We talk about ensuring the infrastructure provision is climate resilient. We talk about the whole notion of achieving a low carbon economy and all that implies and that is in our strategy. Each region has a climate change partnership. We have one in the South East and we have had it for about five or six years and it brings together key players and other interested parties in the region to focus on climate change. In most regions they are supported by the Regional Development Agencies and the Regional Assemblies and the regional government offices. They are raising awareness of climate change, they are focusing on the need for particular sectors to develop adaptation strategies, they are liaising and they are trying to add an additional climate focus to activities in the region.

Q520 Lord Teverson: One of the RDAs' important roles is defending and promoting their regions and almost being the 'champion' of their industrial sectors to Government. Does that not mean in a way that there is a real temptation for RDAs in future, if the Government is thinking of bringing in emissions schemes that affect particular sectors, given that different regions have different sectors of industry in them, to try to prevent certain types of climate change legislation that might make them competitively less advantageous perhaps with other regions let alone internationally? Is that not part of your role effectively?

Mr Tubbs: I think we might recognise that as a problem, but I think we would see more advantage in actually achieving the low carbon outcome. Going back to the international competitiveness point of view, there is a need for British industry to

deliver low carbon solutions and the world wants low carbon solutions. There is every opportunity, if you are actually producing what the rest of the world wants, to get your wealth created with that international focus. I think we are very supportive of the notion of international collaborative efforts to persuade other nations, particularly emerging nations, to adopt low carbon technology. We see the bigger picture because RDAs are not only concerned with promoting activities in their region, but there is an inward investment and an international focus to our activity as well. We do see the bigger picture.

Mr Watts: The rather worrying thing on this is that I am not sure there is a great deal we can learn from other cities in the context of a national Climate Change Bill. When we were setting up this organisation we knew we were shouting very loudly about climate change and we were very committed to doing something on it, but we thought we were probably a long way behind other cities. That turns out not to be the case. London is one of the world leaders amongst cities with its climate change programme. Equally, whilst the Mayor has been relatively critical of the Government and particularly about the scale of its ambition on its climate change plans, the truth is that the Climate Change Bill puts the UK at the forefront of what most national governments are doing in terms of a statutory commitment to tackle climate change. The only example internationally that we have come across where one would really look is to some of the Scandinavian countries, particularly Sweden, where one would want to copy their scale of ambition. They decided in the 1970s, in the face of the oil price rises, one would need to move their energy supply on to a decentralised route and they have really gone for it. Now they have a target, which I am sure they will achieve because they generally achieve their targets, of moving the whole of the economy off fossil fuels by the middle of the 2020s. I think the scale of the ambition in Scandinavia is something we could copy, but actually what we are doing here is relatively unique and ahead of the world.

Q521 Chairman: Would you like to see, subsequent to this piece of legislation, a piece of enabling legislation that actually created powers for RDAs and other local authorities in the country to do the job that is required? Is there a piece of specific legislation that will be needed in order to bring about behaviour change and the sort of powers that you would like?

Mr Watts: There are certainly some specific things that we would welcome, particularly regulatory changes that enable us to move more rapidly, ie implementing decentralised energy and removing the barriers to the supply of combined heat and power in the domestic sector. If we really want to move to large scale CHP in London then we need to be able to require existing developments to connect to combined heat and power. That needs a regulatory change. We would welcome a greater grant giving ability for us to subsidise particularly

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the consumer sector in making the right choices. There are some specific things. I am sure there would be different things in other cities.

Mr Tubb: I think we would want the same in terms of smoothing the pathway to achieving decentralised energy and to CHP. The RDAs' position on energy is that we do need a mixed portfolio. Each element of that portfolio needs to prove itself in terms of its contribution to carbon emissions, the security of

supply and cost-effectiveness. There are certain regions where some options will be more viable than others. I think we want to be able to smooth the pathway to achieving that. Some additional powers in terms of smoothing the pathway to decentralised energy, making it easier to get CHP and maybe a requirement that CHP is considered for all developments would be very helpful.

Chairman: Thank you both very much. You have been extremely helpful.

Witnesses: **Ms Tanya Olmeda-Hodge**, Head of Environment, and **Mr Michael Sayer**, CLA Member, Country Land and Business Association (CLA), examined.

Chairman: Welcome. Thank you very much.

Q522 Nia Griffith: Perhaps you would like to say a few words of introduction. Could you perhaps tell us what you mean when you say that the Bill is going to be 'a policy and awareness driver'? In what ways do you see that taking place in practice?

Mr Sayer: I think because of our feelings it is difficult to know quite how to enforce the targets and what you do if the country does not meet it. It does seem to me that it was largely designed to drive policy decisions in the future and to flag up targets for the international negotiations because, after all, we still need to get a post-Kyoto target and just a concept that one country might flag up a set of five-year targets, starting with the present Kyoto target, seems to me designed to set a benchmark for the negotiations that we hope will carry on and be given an impetus under the G8 outcome.

Q523 Baroness Miller of Chilthorne Domer: You say that the 60 per cent target is 'arguably adequate', but many of our witnesses, as I am sure you are aware if you have been reading the transcripts, have said that in fact it is inadequate. How would you feel if the targets were raised?

Mr Sayer: We would not be against a higher target. The difficulty is that the target is simply expressed in relation to 1990 levels of emissions rather than in terms of what level of atmospheric carbon you want to stabilise at and at what date and what implications that has for the temperature rise in the middle. Our information is not any better on it than the climate modellers and to some extent you would do better to put the question to the Hadley Centre. We have accepted their view that you would need something like a 66 per cent cut on 1990 levels of GHG emissions to stabilise at something like 550 parts per million by the middle of the next century. That would imply something like a two and a half degrees increase in climate change temperatures. That would be the maximum that one could easily manage in terms of coping with a temperature increase. We would accept that you could argue a higher target but, of course, it looks already quite good when compared to the G8 which is talking of 50 per cent. I suppose you have to start somewhere.

If you want a clear fix on it, I would tend to ask the Hadley Centre or one of the modellers because they will give a more focussed argument than I will.

Q524 Baroness Miller of Chilthorne Domer: Let me pursue it from your particular angle though.

Mr Sayer: As a sector?

Q525 Baroness Miller of Chilthorne Domer: Yes. When you look at some of the land use that is going on, for example, in Germany with the use of biomass and biogas and so on, I am just trying to get a feel for what you think in your sector the potential actually is.

Mr Sayer: If you express it simply as a target in relation to carbon dioxide, I do not think we have any difficulty in meeting the 60 per cent target based on the 1990 figures over time and that is partly because a lot of that is past land use change that is currently going out of the equation. There is quite a lot of scope for reducing direct energy emissions by going over to biofuels. Quite a lot of our members are interested in going over to biofuels. I know of one estate that is currently converting all its vehicles to 50 per cent biodiesel. So there is quite a lot of scope there. Also, with the bigger machinery you get more economies of scale even on fossil fuels. In those ways I think we could make a big contribution on the carbon side. There is more new afforestation in this country and in Ireland than in quite a lot of central European countries, if you are thinking of Article 3.3 of Kyoto. Those would be the kind of ways we would see. You may want to go on beyond carbon, I do not know.

Q526 Baroness Miller of Chilthorne Domer: I think there is quite a consensus it should go beyond that. If you want to comment on other greenhouse gases, please do.

Mr Sayer: In favour of concentrating on carbon is the fact that it is by far the most abundant greenhouse gas and there are a lot of efficiency savings that could be made, as I think the witness sitting here last demonstrated. I did not realise that they were quite as big as that. The technology is more readily available in the energy sector. If we look at nitrous oxide, for example, which has a much higher GWP, there is obviously some potential for precision farming techniques, applying artificial

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fertilisers and probably less for organic fertilisers because they are rather hard to handle. I think there is scope for better livestock management which would affect both nitrous oxide and methane. The Institute of Grassland and Environmental Research tends to know more about this than anyone in this country. At the moment I feel even they have some difficulty in quantifying how far you could go without actually extensifying agriculture and therefore presumably shifting production somewhere else. It is going to be much easier if you have got livestock indoors, but most of the livestock will be out of doors. I tend to feel the options there are rather more marginal whereas the CO₂ options are much more systemic.

Q527 Lord Vinson: Does it make sense to encourage organic output, which effectively halves the food output per hectare because of the extensification, when every hectare of land will be needed, if not to grow food, to grow biodiesel crops? The two policy considerations are pulling in opposite directions and I would welcome your view as to how you see that dilemma.

Mr Sayer: I think you could see any form of extensification in a sense as a wasted opportunity, could you not? You could look at set aside that way in this kind of context. If you want to manage purely for biodiversity or environmental reasons, that is a separate issue and you would select your land to do that on. There is no point in reducing production in order to reduce your emissions because the assumption will be that someone else will take up the production in another country.

Q528 Lord Vinson: One of the greatest savings we can all make is in home heating and reducing the levels of our home heating. You could argue that, far from cattle and sheep being a source of methane, they are a source of warmth. Quite seriously, we should be running our households at a lower temperature. I only put this as an example because, at the end of the day, all these targets have to be met by people individually doing something that reduces the use of carbon or energy, not just talking targets. To that extent, what are the CLA doing in terms of broadcasting best practice?

Mr Sayer: In regard to heating?

Q529 Lord Vinson: In regard to carbon saving.

Ms Olmeda-Hodge: We are just developing a tool which is going to be a greenhouse gas audit for farmers. It is going to be available in November. We are developing it with grant funding from EEDA (East of England Development Agency).¹

¹ Note by Witness: CALM or Carbon Accounting for Land Managers is based on IPCC methodology and will calculate the carbon balance of a farm business by measuring the GHG emissions and CO₂ removals with an easy to use web-based calculator. It will be backed up by advice on how to mitigate emissions and increase storage of CO₂ and will act as a benchmark for the land manager with which to compare future emissions. The tool is advisory and voluntary and is hoped to raise awareness of climate change by making it tangible to the land manager.

(The Committee suspended from 4.47pm to 4.56pm for a division in the House)

Q530 Lord Whitty: The Bill makes a passing reference to adaptation. In relation to land use and in particular farming, clearly there is a big issue of flood defences but are there other areas of adaptation that you think should be covered? Do you think the requirement in the Bill to make a report on adaptation policies once every five years is sufficient? Would you rather see this as a central role of the proposed Climate Change Committee?

Mr Sayer: We would like to see adaptation as a more central role. If you want to disseminate best practice, every five years is perhaps not often enough to be doing it. You are right to single out coastal management as one area where adaptation is needed and you probably know that the CLA has had a lot of interest in that. It would be helpful if we knew, as part of the reports that are going to be made under this Act, quite what government and local government are spending on adaptation and for what purposes, because that would to some extent enable one to focus the issue. I do not know to what extent your question is aimed at what individual landowners can be doing?

Q531 Lord Whitty: It is more what should that reporting mechanism built into the Bill cover.

Mr Sayer: It can certainly enable us to see what government is spending on adaptation and where. We would want to build it on from there but there are a lot of measures that individuals could take and to have good dissemination of advice on that would be helpful. You mention sea defence, for example. There are simple management methods that coastal owners could themselves be taking. You may be thinking more in terms of cropping strategies, forest and woodland strategies, balance of tree species and things like that, where there is clearly a lot of adaptation going to be required and where any dissemination of good practice and advice is really helpful.

Q532 Lord Whitty: A significant degree of climate change will change the land use.

Mr Sayer: Certainly, yes, even at the lower end of two degrees.

Q533 Lord Woolmer of Leeds: Taking agriculture as a whole, you are a net aid to reducing carbon, are you not? You help reduce carbon emissions as a whole, if you take account of forest land, wetlands and so on. Where agriculture does contribute to greenhouse gases is through methane obviously, as you said. Is there anything further that needs to be done to increase the extent to which agriculture takes carbon out of the atmosphere? Secondly, if greenhouse gases other than carbon were to be included in the Bill, what kind of incentives, regulation or price would bring about change in agricultural practices and reduce methane from agriculture?

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Mr Sayer: As regards the methane, it is mostly from livestock digestive processes, as you know. There is a certain amount that can be done by rebalancing the foodstuffs and looking at the carbon/nitrogen ratio in those. The difficulty is if livestock are out to grass, which a lot of the year they are. You are not going to be able to apply that as easily as when they are yarded. I see it as, to some extent, a marginal improvement that you would get just for that reason. As regards the nitrous oxide, where it might be easiest to apply is simply in the level of fertilizer application because it is quite easy to measure the artificial fertilizer use and what people have bought. In any case, I do not think people want to waste money by buying more than they need. When you get into livestock waste management, it becomes again subject to similar sorts of considerations as methane. You really need them inside to be able to manage the waste well. The risk is that if you overprice the fertilizer and you simply drive extensification thereby you are likely to be shifting the production you have foregone to another country. The results are simply going to be the same but somewhere else. As regards what we can do to sequester more carbon, that is mostly a question of land use change from agriculture to some kind of permanent land cover, permanent grass or tree cover or by afforestation, maybe lengthening forest rotations, growing bigger trees and potentially perhaps if you went on to mix uneven edged forestry, the sort of thing the Earl of Caithness's father in law was very good at—I remember he taught me all about it—you could stabilise to some extent the fluctuations in the size of your carbon sink. A lot of land use changes are relatively slow in giving you a benefit. If you were building up carbon over 100 years and planting new trees, it is quite a long time before you get that benefit. It may be that you would get quicker benefits from what agriculture can provide in terms of renewable energy and renewable construction materials. I suspect that renewables would come mostly within the existing arable rotation on arable land, maybe arable plus set aside. Potentially, there is a big, unused timber resource in this country because a lot of woods are really under-managed and there would potentially be a source of substitution there for construction materials which I think could be quite valuable, but there is not much policy for that at the moment.

Q534 Earl of Selborne: How would you promote the fact that woodland ownership and afforestation is long term? In other words, under the Kyoto Protocol, there is a mechanism for national inventories. Would it not be logical for woodland to give rise to credits under Article 3.3 and then to become part of carbon trading? Is that something which we should aim for in the medium or long term?

Mr Sayer: We would support the net afforestation under Article 3.3 being eligible for carbon trading. The sticking point, I suspect, is the verification. If you look at central and northern Europe, where they have these very good forest inventories which they have had over 100 years or more, since the 1880s and

1890s, where they measure their standing volume of timber every ten years, you then have a very clear measure of carbon. If you apply that to woods, you are going to know exactly what they have in them every ten years and you can maybe have a time limited certificate that you would sell every ten years and you would know what you were doing. In England, although you have the yield class tables that the Forestry Commission developed in the last century, an awful lot of woods do not really conform to a yield class type structure. You would need to develop some kind of basic, regular measurement of forests as a tool to enable them to trade, because otherwise you would not quite have the security. That of course could be done and one or two bodies are interested in doing that. One or two private forestry companies are interested in developing that.

Q535 Earl of Selborne: Could the same principle be extended to peat soils which you also mentioned as a significant area of sequestration?

Mr Sayer: Yes, but I imagine that you would either want to take some kind of local measurements of peat soil or you would be applying rather broad brush default factors and you might feel that was not robust enough for a trading system.

Q536 Earl of Selborne: The discussion just now demonstrates that the Climate Change Committee which is to offer expertise and advice on abatement policies is going to have to have a wide range of expertise, not least in land management. How do you see your sector fitting into the system? What sort of representation or interlocking sub-committees would you wish to see with the Climate Change Committee?

Mr Sayer: If we assume that the Climate Change Committee is to be an experts' committee, we would want to see land management and water management included in that. We have thought in terms of either a stakeholder committee or maybe a series of sectoral sub-committees that involve stakeholders as a way to engage the sector fully.

Q537 Lord Crickhowell: I am just looking at the Bill. I see land management and water management are not specified as one of the areas of the Bill at present.

Mr Sayer: No, they are not at the moment.

Q538 Lord Crickhowell: I wondered whether you were adding to the Bill the bids of the regional authorities to have membership of this ever growing committee.

Mr Sayer: We hope that one expert might do for each of those two.

Q539 Lord Crickhowell: In answer to one of the questions that has been put to you, you refer to the Energy White Paper, the Waste Strategy and the Planning White Paper. You say that there is nowhere in the draft Bill which specifically deals with the integration of these climate change policies to ensure that they are joined up and not generating opposing outcomes we think there should be. I am not quite sure what you are advocating. I would

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have thought the government might argue that that was the job of government perhaps helped by its existing Office for Climate Change, which is its advisory body which is to continue in order to bring the various departments together and to advise across the departmental boundaries; or are you suggesting it should be yet another job for the Climate Change Committee? What are you actually suggesting in terms of the Bill?

Mr Sayer: There is a feeling of unease that, despite all the interest in international climate policy, it seems to have taken quite a long time since Kyoto was agreed to introduce integrated measures at grass roots level, whether it might be in terms of biofuels or whatever. It seems to have been slow to integrate. It may well be that the Climate Change Committee should be the experts but maybe some kind of body that would ensure that there was coordinated delivery is going to be needed. Whether it simply improves the remit of an existing body I do not think is so much for us to suggest. We are more concerned that it seems to have taken rather a long time to get measures coordinated. Local authorities until very recently are still going through very much a learning curve on it.

Q540 Lord Crickhowell: We do keep coming back to this point. We are dealing with a Bill which sets out to do certain things. This Bill sets out to impose a statutory duty to set targets and so on and to create a Climate Change Committee to advise on that. There is other legislation. There is fiscal and regulatory legislation which is all there. This Bill only refers to emissions trading. If we are talking about coordination of government activity, can that really be written into this Bill? Is it not a job for government to do?

Mr Sayer: I would be content if the Climate Change Committee mentioned the progress or lack of progress in coordination as part of its reports.

Q541 Baroness Billingham: We have talked about expertise and the role of advice to the government is quite explicit in the Bill. I am just wondering if you and your members would agree that there is a role also for the Committee to build up a political consensus. This is a ground breaking objective, taking over several parliaments, et cetera. How would you and your members see the Committee functioning in order to create that political consensus to enable the project to succeed?

Mr Sayer: My reaction when you kindly sent us some of the questions in advance was that I would have thought, in terms of setting the targets, it really had to be science led. It would then be more for political leadership to build the political consensus to deliver the targets. If the Climate Change Committee were to be a Committee of experts, I would have thought that in terms of setting the targets they would simply have to be science based

and they would need to rely heavily on the models of the climate scientists rather than what people might want to achieve or put off.

Q542 Baroness Billingham: You do not see that the Committee would be interventionist in persuading people to change their behaviour and to talk about the political consensus in a variety of ways? Surely their evidence and their expertise could lead to an objectivity which would be extremely valuable to enable the climate change objective?

Mr Sayer: In that sense I would entirely agree, so long as it was not seen as becoming a series of political trades on the policies that were suggested. In terms of building broad, political support, I think it is helpful. It is at last starting to become a bottom up process in England over the last year and I am sure the Climate Change Committee can help a lot in that.

Q543 Lord Teverson: Is it possible to ask both witnesses to answer on Baroness Billingham's question?

Ms Olmeda-Hodge: I agree with Michael Sayer.

Q544 Lord Whitty: You referred to non-carbon gases. I was not quite clear though at the end of that whether you were saying that the Bill should require the monitoring of non-carbon targets as well as carbon targets, which obviously would have sharper effects on your sector than many others.

Mr Sayer: They are already being monitored in the UK inventory, the non-carbon gases. At the moment, particularly the Institute of Grassland and Environmental Research would give you a better answer than I would on quite what the scope for that would be. I suspect that it is relatively marginal. The evidence I have seen from them so far and from Defra suggests that there is still real uncertainty about quite how we could get a significant reduction. That we should be able to get more reductions is certain but I doubt that I could see them in the order of 60 per cent in practical terms. You were going to ask us about personal carbon budgets. We have this tool that my colleague was mentioning on greenhouse gas and carbon accounting for land managers. You could introduce personal carbon budgets if you gave people a calculator so they would apply the necessary factor to show what their energy use translated into in terms of emissions and they were not just given all sorts of disparate advice telling them to use trains instead of cars or whatever. They think they have done one thing well but they have not taken it all in together. Then I think you would get the response. It would be quite easy and for most people it would just be a CO₂ one. I notice that, for example, Sweden has a target to make everybody buy 17 per cent of renewable certificates for their electricity use by 2010 so there might be a way that you could integrate personal budgets with a degree of renewable obligations applied at consumer level. That might be the way you could take it forward.

Chairman: Thank you very much indeed.

Witness: Dr Martin Gibson, Director, Envirowise, examined.

Chairman: Dr Gibson, thank you very much indeed.

Q545 Mr Chaytor: How do you assess the level of awareness of businesses that Envirowise deals with in terms of the purpose of the draft Climate Change Bill and the wider government policy on climate change?

Dr Gibson: Envirowise has certainly seen through its day to day interactions with businesses a great increase in interest in climate change. We have not carried out any specific market research on awareness of the Bill but we have ongoing market research about general, environmental issues and that does show that a large proportion of companies are aware that there is an issue and that they should be doing something. We see that in dealing with larger, leading companies they are aware of the Bill itself and of the targets. With some of the smaller companies, we know that they are aware of climate change as an issue. We do not see necessarily awareness of this particular Bill or of the targets. Envirowise encourages companies to set themselves individual targets on different issues and we see that having an externally referenced target such as the ones here would help them to see the scale of change they need.

Q546 Mr Chaytor: Is the use of targets by companies in any way significant or is it growing? Do you think that, for the typical SME, the idea of an emission target is still a remote and fairly abstract concept?

Dr Gibson: An emission target would be a remote concept for certainly most smaller companies. They might be more able to understand an energy use target. One of the things that we are keen on in Envirowise is that, particularly for a lot of companies, much of the carbon account of a company will be indirectly through use of materials and water rather than their direct energy use. Getting some understanding of a carbon footprint and where they can take action to reduce it is very important but a long way off at the moment.

Q547 Mr Chaytor: Is the term “carbon footprint” increasingly understood or used or does this remain a term of climate change?

Dr Gibson: It seems to be increasingly well understood by all sizes of business. They know of the term. Whether they understand exactly what it means may be a different issue but it is something that we hear in regular conversation in business.

Q548 Dr Turner: You say that your work has involved large financial savings for businesses since 1994. How important is it for your clients to be able to demonstrate cost savings in the short term from their investments in environmental technologies?

Dr Gibson: Most of the changes that we see companies making are not about investment in technology. They are about changes in behaviour or the processes they are already using. Cost savings are a very important driver for many companies. There is no doubt about it, but I think they are only part of a mix of drivers. We see a number of companies these days that are doing environmental

improvements because it is the right thing to do, though obviously the fact that it saves them money is a good driver in itself. For smaller companies it is probably true that cost savings are a bigger, more important driver but, if I can give you a couple of examples of the sort of differences that we see, one of the companies that we have worked with is called Fortress Interlocks. They make switching systems. They did a redesign of their product. They reduced the amount of material. They reduced the time it took to assemble it and they reduced a number of components. They saved something in the region of over £1 million a year in production costs. That for them would have been a very big driver as well as gaining good competitive advantage, whereas Baring Asset Management have done things in the office that have saved them £2,000. They have done them because they are the right thing to do, but I dare say for Baring Asset Management that sort of cost saving is not a huge driver.

Q549 Dr Turner: Have you quantified the effect of your advice in terms of carbon savings? Would you be happy to have a target for your work in terms of carbon savings?

Dr Gibson: There are two ways in which we see our programme saving carbon. One is the direct savings that come from things like people using and heating less water, so direct energy use, but we believe the bulk of the carbon savings will be from the embedded carbon and using less material, so the carbon associated with the material. The direct savings from Envirowise are quite small in comparison to, say, the Carbon Trust, a greater part of whose remit is direct energy. We have been looking at putting the embedded carbon into meaningful terms. We have commissioned research by three different footprinting organisations to estimate or calculate the environmental savings made by Envirowise over the last 11 years. Those come to between 0.75 and 1.6 million tonnes of CO₂ equivalent, not an insubstantial amount. It gives us an indication that there is a lot of embedded carbon to be saved.

Q550 Dr Turner: What is your feeling about the possibility in the draft Bill of setting sectoral targets for carbon savings? How would that affect your work?

Dr Gibson: I realise I did not quite answer your last question. We would see carbon savings targets for a programme like ours as useful as part of a basket of targets, hopefully not too large a basket. We do not want to lose sight of things like water use and resource use and waste generation, but carbon is very important.

Q551 Dr Turner: Do you feel it is important to break down global targets into, if you like, bite sized chunks so that everybody knows what they have to achieve?

Dr Gibson: Yes, so that you can then have responsibility and it is easier to do that.

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Q552 Lord Woolmer of Leeds: You think the Climate Change Committee, when it publishes its recommended targets, should break those down into sectors, if I understood you right, and presumably sectors classified by end user rather than the source of carbon?

Dr Gibson: Yes. For some sectors, setting targets will be relatively straightforward. For others it would be very difficult. We see the analogy perhaps with the food industry sustainability strategy where initially it was thought they could set a target for the entire sector. It was then found that they needed to set targets for subsectors because a baker is very different than a bottled drinks manufacturer. Getting down to that level of targets could be very complex. For many of the smaller companies, it is our belief that whatever their direct energy use will be, it will be a small part of their turnover and they will not necessarily gain much from being able to make many improvements in their direct energy use from targets. It could be very difficult for smaller companies.

Q553 Mark Lazarowicz: The draft Bill places considerable emphasis on powers to introduce new emissions trading schemes. What scope do you think there might be to do that with the businesses and the field of activity that you are concerned with?

Dr Gibson: We feel that the powers of the Bill are very good in the areas of large, direct energy users but we are not sure of the impact they would have on other companies that are not large, direct energy users. Presumably the cost of carbon will go up, so products will become more expensive and people's day to day decisions will be affected in that way. In the type of work that we do, we think the biggest impact of the Bill is the fact that it is setting clear targets so that people will understand the framework in which their business operates.

Q554 Mark Lazarowicz: Perhaps not surprisingly as the Bill only sets down enabling powers, you do not have any particular proposals or thoughts as to how there could be new emissions trading schemes in your sector?

Dr Gibson: No, I do not.

Q555 Mark Lazarowicz: What you have been involved with in the past, as I understand it, is providing advice to business on the introduction of the various European Community regulatory directives and you have assisted your member organisations in trying to comply with them. Do you think there is scope to achieve further carbon savings through the regulatory and fiscal roles as opposed to emissions trading schemes? Have we picked up all the possibilities there?

Dr Gibson: We see the biggest driver for many companies as behaviour change. Many of the regulations so far have tried to change behaviour but it is not necessarily simple to do that through a regulation. For example, if I can use the Packaging Directive as an indication of how it has worked in the past, we found that when it was first introduced a lot of people could comply with the Packaging

Directive simply by buying recycling credit notes. They did not think about reducing the amount of packaging to start with so that behaviour change was not driven primarily by the legislation to start with. Over time, it has become recognised that there are in fact cost benefits and also other benefits to business in reducing their packaging as well as recycling at end of use. We think there are plenty of incentives there. Making a wider business case for reduction and making the benefits clear to companies and giving them support in doing that through programmes like Envirowise and the Carbon Trust is probably enough.

Q556 Mark Lazarowicz: You have just given us a classic argument for regulatory powers. Rather than encouraging reduction, you just simply have a regulation that says you do not do something. Is that not something which could also be utilised much more alongside the possible extension of an emissions trading scheme?

Dr Gibson: I dare say it could. We have not been able to think of new regulations that would clearly make a difference but having regulations there as part of the overall behaviour change package is a very useful way to do it. I suppose if we look at another regulation that comes to mind, the duty of care for waste, many businesses still do not know that they have a duty of care for waste but over time, since that was introduced in the early 1990s, the collection and treatment of waste have changed in such a way that it is now normal business practice so companies will be following it anyway. If you could normalise business practice through regulation, then yes, I think it would be very strong.

Q557 Lord Vinson: The question of packaging is not quite as straightforward as it seems. Having been in the packaging industry, you can reduce packaging but you can also increase damage and waste. The counter side is that you get far bigger wastage, far more customer complaints and a shuffle backwards and forwards of rejected goods. The idea that government could introduce regulation here is best left for people to work out the best solutions themselves, inducing a climate. Your firm tries to spread the good word of carbon saving through economic savings to the firms themselves. It seems to me that to work through natural human nature—what is in this for me? Oh, there is something in it. I can not only save the world but I can save money—is the right approach. Is that so?

Dr Gibson: Yes. We would entirely agree. I was saying “reduced packaging”. I should have said “optimised packaging” because it is the whole lifecycle that matters. I would agree entirely that the drivers of it being good and it saving money are very strong.

Q558 Mark Lazarowicz: Before we go too far down the packaging road, that was just an example. From what you have said so far, I get the impression that you have not any particular thoughts at this stage for how you might use regulatory or fiscal measures to achieve emissions reductions or carbon savings.

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Dr Gibson: No. You are quite right. We have not come up with particularly new ones. The area that we feel might be strengthened in the Bill is more to do with behaviour change and consistent, clear messages and marketing to help companies understand the framework within which the regulations are working. The Bill does refer to that but perhaps it could be strengthened.

Q559 Mark Lazarowicz: Would you have any problems with the Bill including enabling powers which would allow the introduction of regulatory measures to produce carbon savings alongside the emissions trading enabling powers which are currently in the Bill?

Dr Gibson: That would seem a sensible thing for the Bill to do, although we have not necessarily identified any particular regulations that may be useful in that regard.

Q560 Lord Crickhowell: Most of the questions in connection with regulation and fiscal incentives and so on have been asked but, arising out of what you have been saying about packaging, my experience is that far more is being wasted by business in sending out vast quantities of usually duplicate, triplicate, quadruplicate marketing material, whether it is wanted or not, to households and vast quantities of paper from which Members of both Houses represented on this Committee suffer. We are told that there are plans by local authorities or government to charge us if we have a large quantity of paper to dispose of in the rubbish. Have you any experience of providing incentives to reduce the vast volume that is being discharged? It is all very well talking about packaging but in my experience, coming through my front door, there is far more in terms of these efforts to market things than there is in wrapping the product that I may buy at the end of the process.

Dr Gibson: One of our strongest messages is that we want companies to look at the resources and, particularly if you talk about paper, the paper that they are purchasing rather than necessarily looking at the waste and recycling it. The cost savings and the biggest environmental savings can come from reducing the paper use in the first place. I would agree it does not seem good business sense to be sending things to people who do not want them, so we would suggest that any company looks at the resource it is using because that is where the biggest savings are to be made.

Q561 Lord Vinson: Your company seems particularly close to encouraging behaviour change. Do you think there should be statutory mechanisms for engaging stakeholders within the Bill to encourage behaviour change or do you think it will just go organically as the whole message becomes increasingly popular and fashionable, correctly so, to save carbon?

Dr Gibson: We would certainly agree that behaviour change is a key issue and we have already seen a lot of increase in willingness to do something. We have also seen more of the delivery organisations that

support business working more closely together already. I am not sure that the draft Bill would need any powers to encourage that but certainly having a strong central message that ensures that all government delivery organisations encourage resource efficiency and low carbon use would help. I am not sure whether you need regulation to do that or whether it can just be a government diktat.

Q562 Baroness Billingham: Do you think the Climate Change Committee really has a role to play in what you just suggested, a specific role which acts as an intermediary, if you would, between your organisation and the government in the way that the Committee functions?

Dr Gibson: Absolutely. We were hoping that might be one of the roles of the Committee. One of the things that we felt was missing from the expertise on the Committee was behaviour change and marketing expertise, so we would like to see that and we would like to see a role for the Committee. Programmes like ours and organisations like ourselves feel we have a role to report our findings to such a Committee so that it can build on the knowledge base that is there.

Q563 Lord Teverson: On adaptation, which in many ways is more of an immediate issue to businesses perhaps than carbon emissions or the broader subject, all the Bill does at the present moment is just set out a reporting regime. Do you think there should be more than this in terms of adaptation in the Bill or how do you see this particular subject should be tackled?

Dr Gibson: From the Envirowise point of view, we do not have particularly strong messages to give on adaptation other than that we agree it is a very important area. One of the points of learning we might pass across as a suggestion that might be acted on is that, in our dealings with businesses, they tend not to adapt until it becomes essential in their day to day work. Anything that the Climate Change Committee could do to show what type of adaptation might be needed specifically by different types of business we think would be helpful.

Q564 Lord Teverson: Can you give us one or two examples that come to your mind?

Dr Gibson: If you look at the sort of adaptation that may be necessary for coastal defences and the like, when adapting to that first of all, if there are going to be larger coastal defences, we would suggest that the construction of those is done in as resource efficient a way as possible. Also, companies operating in flooding zones would need to be given—and probably already are to some extent—very clear advice on what they might be able to change in their day to day activity.

Q565 Chairman: Your sponsoring department at DTI has always, in my experience certainly, been pretty sensitive about anything that smacked of compulsion. I am asking you in a sense to step

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outside of your remit. Do you see any possibility of us achieving the 2020 targets without resorting to quite specific levels of compulsion?

Dr Gibson: I find that a hard question to answer because I see almost a sea change in many of the particularly larger businesses that we are dealing with. Many of them are household names who have made statements on it such as Marks and Spencer. They see that it is something that will have to be done. If business starts to operate within that framework, it may not be necessary to be compulsive but I suppose there is only a short amount of time before we would have to decide whether that is necessary or not.

Chairman: The problem is that we are compulsive which is probably why we require compulsion.

Q566 Earl of Caithness: The Committee seems to many to be absolutely crucial if the Climate Change Committee is going to work. If you are going to keep on adding various representatives to the Committee, are you not going to end up with a Committee that is utterly useless? How would you envisage seeking to achieve what you want to do through a different system of liaising with the Committee rather than having more people on it? If the Committee is the scientific advice, can you tell us a bit more about how you want to interact with that Committee?

Dr Gibson: Certainly. We would like to see some expertise in behaviour change on that Committee, not from us particularly but just because we think that is part of the scientific argument as to how you change behaviour. I would imagine that the Committee would have either sub-committees or some kind of stakeholder engagement mechanism that it could use to engage with programmes such as ourselves, perhaps annual meetings, perhaps more modern electronic communications methods. That would be one way that would interact with the Committee.

Q567 Chairman: You have experience of the committee process and the appointment process. Given the extraordinary degree of confidence and credibility that this Committee is going to have to generate very quickly, do you think there might be an improved way of both appointing and confirming this particular Committee that would add public confidence?

Dr Gibson: My feeling is that the open procedures that are used for committees are probably the best way. The Nolan procedures would appear to be open and clear. Beyond the Nolan proceedings I personally could not say anything. I am not sure I can really speak from an Envirowise point of view on that.

Chairman: Thank you very much indeed.

Witnesses: Mr Allan Asher, Chief Executive, Energywatch, and Mr Ed Mayo, Chief Executive, National Consumer Council, examined.

Chairman: Thank you very much indeed. Can we start with an overview of your attitude to the Bill in general?

Q568 Ms Barlow: How much awareness do you think there is among consumers as to what the draft Bill is and what it is trying to achieve? In particular, as a target, is 60 per cent meaningful to them or meaningless? Is having a percentage reduction the best way of looking at these things in terms of their effect on society?

Mr Mayo: There is probably very little awareness amongst the public at large about this Bill and Bills of all kinds. Drawing on some of the work that I have been involved in that Defra has supported around climate change, we have some response from the public in terms of the idea of targets. They like the idea of targets. They think targets are an effective way, done right, of holding governments to account, possibly doing that across governments and parties as well. 60 per cent is meaningful only to those who are much more informed on the issues of climate change. There is a view that it would be of benefit if the target were better understood, known and shared. There are concerns around what would it mean if there were a change of government but in principle it is fair to say that this Bill, which is a first in the world, is something that the public would probably understand and would be supportive of, in so far as they are supportive of action on climate change.

Mr Asher: I would agree with Ed's assessment. 60 per cent is not a meaningful, objective figure for more than very few in the community. The devices that will make people modify their consumption patterns are where they are linked to key incentives the first and greatest of which is money. Second are information sources that show them that they are making a real contribution to environmental issues. We find that almost as powerful an incentive in research as money, although there are not all that many opportunities for testing that. One that does exist is the existence of some green tariffs that energy companies have where you pay a premium which goes to either offset schemes or guarantees that a certain proportion of power comes from renewables or whatever. The problem with that scheme is that there is almost no transparency about it. Consumers are highly sceptical. Even though something like 50 per cent of consumers say that they are prepared to put their money where the environment is, only one per cent—at most two per cent—sign up to such schemes. That highlights the real gulf around incentives, information and confidence.

Q569 Baroness Miller of Chilthorne Domer: Both your organisations represent the interests of current consumers and you have just identified what they see their interests as often, but of course there is also the question of future consumers. The Energy Act gave Ofgem the duty to bear in mind the needs of future consumers, thereby opening the door for it to act in

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a more sustainable way. Would you like to comment a bit on the balance between the two and how you think you might get the public to be more accepting of doing more for future consumers or citizens?

Mr Asher: In the case of Energywatch, our statute also defines consumers as current and future consumers. We have always seen this responsibility. By way of example, we have communications with 750,000 consumers a year. About 200,000 have some sort of problem that we help them with. Another 300,000 want information. For the last three years now the number one category of information people want is information about saving energy, either so they can save on their bills or for reasons of personal ethics. There is no doubt that that is a powerful driver and there you do, as you suggest, run into the clash between what you might see, or what an economist or some regulators might see, as the short term interests of consumers, which is the absolute lowest prices and highest level of efficiency and so on, contrasted with the longer term interests which do involve an understanding of issues of climate change and equity and concern for low income consumers, concern for global issues and things like that. There is no easy answer. Our approach though has always been to want to probe and test proposals which put costs on consumers to make sure that, where it is done, it is done in the most cost effective and transparent way, whether it is an energy efficiency commitment, a climate change levy or the emissions trading scheme. A lot of those heap huge costs on consumers without any proportionate abatement of carbon output. That is the formula for consumers becoming cynical and reacting against it, in my view.

Mr Mayo: We do not have any sophisticated forms of accounting across generations of consumers but we have a pretty strong track record of dealing with issues of sustainability. The reason is that it comes out of research where we find that most people want to do the right thing in relation to the environment. They do not find it easy to do so and therefore we have been able to focus as a consumer organisation on what would it take and how could it be easier for current day consumers to do the right thing in relation to future generations.

Q570 Baroness Miller of Chilthorne Domer: Do you think the utilities regulatory regime has kept up with the climate change agenda?

Mr Mayo: The honest answer has to be no. We have seen a slow set of moves towards both embracing the full depth and challenge of climate change but also dealing in a sophisticated way with the different claims that sustainable development makes in terms of the social dimension alongside the environmental dimension.

Mr Asher: I wonder if I could illustrate that? Where are the guidelines for green tariffs that the regulators come up with? Where are the feed in tariffs to promote home generation? Where are the smart metering solutions that would allow consumers to behave in more responsible ways? The debates have been around for a decade and there is still little or no action.

Q571 Baroness Billingham: I think that you both have huge responsibilities here in promoting good practice. What makes people adopt good practice is often financial inducement. I drive a Prius. I am astonished at the ignorance of what the benefits of a Prius are, certainly in London where we have a congestion charge, but far more strongly to do with the energy, the fuel consumption, the cost of driving. I have said this to the motor manufacturing organisations. You are not promoting these things strongly enough. We should be much more vigorous in telling people of the benefits and I just wonder what your response is to my criticism?

Mr Asher: In the case of Energywatch, for three years now we have been running a particular programme called Energy Smart where we encourage consumers to save money by doing three things. One is to switch to lower tariffs and change their payment methods but importantly take action to reduce their consumption. That involves some very simple measures for people that are easy enough to do: draft exclusion, insulation, moving to condenser boilers and a range of things like that. There is certainly much more that can be done. A lot of that though turns on being prepared to trust and equip consumers to act in their own interests. Sadly too many programmes are about treating consumers as though they are part of the problem instead of part of the answer. I am convinced that the more you encourage and enable consumers to act the more they do it.

Q572 Lord Vinson: Taking your point about getting consumers to buy in, picking up the point made by Baroness Billingham on energy efficient cars, there is a solution not only in reducing consumption but in creating low cost CO₂ free electrical energy as quickly as possible. The nuclear option is with us. It is a known technology. The rest of the world is getting on with it. Do you not think it should be part of your task also to point out to people that we have all the known technology for solving the problem so that we do not have to wear hair shirts indefinitely? We just have to go through to get cheap, CO₂ free electrical energy and our children would all have a very positive future if we went down that route. It is not an exclusive route but it is certainly one where we know the answers at the moment. Do you think an organisation like yours, the National Consumer Council, should be more positive in terms of the ways out of our dilemma rather than the restrictive ways of cutting back?

Mr Mayo: The positive element is exactly the approach that we have taken. As a consumer organisation this is where we have added value to the many environmental groups who have long argued on this issue but tend to come across in a finger wagging mode. Your point about a hair shirt is very well taken. We focus on how do you turn climate change into something that people can be positive about. I am tub thumpingly enthusiastic about the scope for engaging consumers in the right way, done professionally, done appropriately, not asking people to pay over the odds or to find things that are incredibly difficult to do but finding easier solutions

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for people to act in a sustainable way. As an organisation, we have not gone to the issue of nuclear. There is a strong argument around that. We have tended to focus on the areas that are every day decisions for consumers and the decision about nuclear is not one of those, so we have tended to look at how you run and heat your home, how you get about in terms of car and travel, the food you eat which is responsible for 31 per cent of the overall greenhouse gas emissions from the household. They may be more humdrum areas but they are certainly positive.

Mr Asher: At a policy level, I do not think any particular generation of technologies should be ruled in or out but they should all be subjected to the same scrutiny, looking at cost benefits and alternatives, trying to bring in all of the externalities. For nuclear power there are long term storage issues and things like that that need to be factored in, just as for other forms of energy, coal and others, there are these externalities as well. Where they are all brought in, I think people can make sounder decisions.

Q573 Dr Turner: The domestic sector is a very important source of CO₂ emissions. It is also a bit of a tough nut to crack. At the same time it still has lots of low hanging fruit in it like patio heaters, which are one of my great hates, for instance, and of course domestic use of transport is a serious issue. What is your view on the scale of carbon reductions that we can achieve in the domestic sector?

Mr Asher: I would not give a percentage but, as you say, there are many easily identified issues. I would not start with patio heaters.

Q574 Dr Turner: I would. Why not?

Mr Asher: I would start with a few other things, because in the scale of things the replacement of incandescent globes with compact fluorescent globes could be done in a very short timetable.

Q575 Dr Turner: They were just symbolic.

Mr Asher: The power consumption and the carbon output are far greater than the savings which would come from your patio heaters, but there are lots of others too: appliance regulations that mandate low energy circuits for colour TV or things like that. That again could be a very simple thing that has immediate and long term benefits. There are some choice things that need to be done too. With appliance efficiency levels, it is time that we started deleting everything below perhaps B. Those same things can be applied to all the appliances where it is not currently, such as home standards. There are well known lists of things which can start in the short term and give long lasting, very positive carbon effects. Smart metering, in my view, would be the one that most seriously would engage consumers so that they get feedback on the consequences of their consumption. It can also be used for time of day metering so that they can see a price signal as well.

Mr Mayo: I would see no reason why the domestic sector would be treated differently in terms of the scale of reduction that is required, which does not

mean to say that all of that reduction would necessarily be delivered as a conscious choice. We have little time when we are making these decisions. Some of these would be delivered upstream. This is something that we looked at within a Sustainable Development Consumption Roundtable which had the title which summarised the 80 page report or so of "I will if you will." What we are finding is that the public were willing to take action but they wanted to see others take action. They wanted to see government and business take action. What we described was a process in which you could harness the opportunities for business around climate change. For example, the decision to cut low energy efficiency products did not have to be taken by government. It was taken initially by Comet and then by other retailers, editing out the choices that consumers face because they did not want as retailers to be selling shoddy products on their floor. That was a combination of energy labelling and fiscal incentives to get to that, but there will be other times when you can engage consumers with things that make a real difference in their lives, which is where some of the symbolic measures do make a difference. We found that this was best seen as a spectrum. You could start people on the journey to the changes that we know are required through the relatively easier changes that do not require so much hassle and difficulty in terms of your lifestyle. That process of engaging people with those examples of smart meters would be one. People are starting to enjoy recycling, starting from where people are but moving them to the more difficult end where it may involve quite a major change in lifestyle, but in the process building the mandate for business and government to take the harder action with public consent.

Q576 Dr Turner: You are both very coy about identifying a target for domestic carbon savings. The Bill may very well set sectoral targets. If it does that, there would have to be, by your logic, a sectoral target for the domestic sector. What sort of order of target do you think would be reasonable? We would be looking for at least 60 per cent by 2050. Do you think it reasonable to set at least 60 per cent for the domestic sector? Is it achievable?

Mr Mayo: It is about how you define the boundaries in terms of cutting the sector up. Everything ultimately is domestic sector in the sense that this is all about our consumption as a nation. It is a question of what is factored in at different points in that. I would argue that it would need to be subject to the work of the Committee in terms of sectoral targets, but the domestic sector should be as ambitious as any other sector. I think it needs to be because I do not believe that action on climate change is something that can be done on the quiet. You need to take the public with you because you need public consent for some of the harder measures that may prove needed if we are not able to act fast enough with the current measures that we have.

Mr Asher: If you consider the range of tools there that includes renewables, efficiency measures and other things of that character, the more you have an

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integrated approach to this the higher those targets can be. It is a bit difficult in the abstract to come up with a sectoral target, say to 2050, in the absence of some clear idea of the leadership. For example, it seems to me that the government at the moment is relying hugely on supply companies to deliver a lot of these programmes. I do not know if you saw the article in *The Guardian* today from Consumers International. It points out something that I guess we all subjectively know: that consumers lack confidence in measures proposed by business that appear to be against the interests of business. That is an understandable reaction but, to the extent that we rely on businesses to communicate these messages and programmes, it is going to fall short. Some wider leadership is going to be needed if you really want to get those cuts higher.

Q577 Dr Turner: We are going to need that sort of leadership to achieve results in any sectors. Why should the domestic sector be so different? After all, the technologies are there. You can build a zero energy house now if you choose and so on. Why are you being so coy?

Mr Asher: You say that you can build a zero energy house right now. A consumer does not really have the power to make those decisions. The building standards, the materials and the information are largely lacking. Many consumers would very much like to do that. I have already mentioned smart metering. I would defy you to try and get one. Try and get the measures from the market place that help.

Q578 Dr Turner: Let us come back to a situation which we would have to have whereby the building standards are in place to require zero energy houses. The smart metering is a statutory requirement et cetera. What then do you think the domestic sector can achieve?

Mr Asher: No lower than other sectors. I would agree with Ed there that technologies and things allow that. As people have things like micro CHP in their homes and things like that, huge benefits can be made. Also, heating arrangements for communities. I want to make one caveat though. There is a small but significant sector of the community that should be using more energy, not less. There are lots of people who hover around areas of fuel poverty or with long term illnesses who are using far too little energy. Their homes are not heated adequately. That does not mean that their homes should not be insulated and that they should not be efficient but it would be awful if we imposed these constraints and had one size fits all messages for the whole of society.

Dr Turner: They do not have to be inconsistent.

Q579 Lord Crickhowell: Listening to all this I am even more worried than I have been already in a sense about this extraordinary duty we are supposed to be putting on the Secretary of State to deliver these targets. You have made it very clear that achieving them depends on a series of humdrum decisions and all sorts of actions by people either to deliver something called smart metering, appliance

efficiency or alternative bulbs that give out the same amount of light as the bulbs one can get at the moment, which the alternatives do not actually do. You have talked about the problems if you put levies and tax burdens on people without giving them obvious environmental payback. You summed it all up I think by saying that there was a range of tools. Here we are with a Bill that is supposed to be imposing a legal obligation on the Secretary of State. It talks about emissions trading. It refers by implication to all the existing fiscal and regulatory measures but the question I am asking you is, in legislative terms, what needs to be done to engage the tools that you have described and that you say are there? Is there anything you would change in the Bill? We are a Committee commenting on and recommending legislation.

Mr Asher: At the highest end, there are 12,000 firms engaging in the European Emissions Trading System and that system has to date not abated any measurable amount of carbon dioxide at all. The projected prices right out to 2015, if you look at the forward curve, suggest carbon prices which will not be sufficient to get sustainable new investment in that area. If there was one thing that would make the biggest difference, it would be for that to be backed up with a carbon tax. People hate the use of the word "tax." The reality is though that carbon taxes are clearly the most precise, economically efficient way of changing behaviour, giving incentives and providing a funding source for the redistributive effects that would need to be taken into account.

Q580 Lord Crickhowell: Right at the beginning you started by complaining about levies and taxes that did not produce environmental paybacks. You are not just saying a carbon tax; you are also saying something else, I think. You are saying there has to be a payback.

Mr Asher: I am saying a carbon tax which has the express goal of embedding a long term carbon price signal to engender efficient investment. The current ones do not and will not for another ten years and are unlikely to achieve their results by 2020. The Emissions Trading Scheme is not exactly a tax but it sort of has that effect. When we start auctioning components of the carbon allowances, that will look much more like a tax. You ask the question: what measures could be in this Bill that would make a difference? I say, at the very least, an objective power in the government, should the ETS system continue to under-perform, to back that up with a carbon tax that is set at incentive rates that would achieve those goals.

Mr Mayo: I do not see the Bill as delivering on the means. I see the Bill as primarily about setting the framework for accountability. I hear your question which is about if we are uncertain about the means. It is perfectly possible to point to a carbon tax as one part of the solution. The Princeton Environmental Institute has come up with ten wedges of different technologies that they think could deliver the necessary stabilisation targets by the set date, so there are people out there with the view that this can be done but I do not see the Bill's purpose as being

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prescriptive about that. Many of the powers are in place for government to take the action that is necessary. We welcome in a cautious way the powers around trading schemes, subject to it being done properly and in a worked out way. It is possible that trading schemes could work within that. I think this Bill is primarily about setting the accountability and the incentive framework for government to be able to do that. I do not think we would support bringing extraneous instruments into this piece of legislation. I think this is a clean cut.

Q581 Dr Turner: On that very point, the Bill also includes provision for enabling measures which at the moment in the draft Bill are almost entirely restricted to carbon trading schemes, the deficiencies of which and the problems of which we have already explored. I am only too happy to hear your suggestion of carbon taxation, which is a subject close to my heart. Can you see any objection to the Bill making provision for regulatory and fiscal measures to be adopted under these enabling provisions as well? Specifically on your carbon tax, I think you are right that you will find that the principle is taken a bit further in Select Committee reports of recent years which advocate a carbon tax and a carbon tax credit system to further incentivise carbon-free behaviour.

Mr Asher: It is a question of who controls the instruments and were it entirely within the control of this Parliament you might be able to make trading schemes work because they depend absolutely on getting the cap right and then monitoring systems and things like that. Across 27 nations of the EU, where there is a strong common interest or they have a high level of commitment to it and yet we have a carbon value hovering around zero, that suggests a lot of defections from commitment. For that to be extended across the northern hemisphere or across the whole world, the idea of doing that in a way that does not actually bite is a very obvious one, and so I think the instruments that one needs to use are ones that can have an effect. In the end I think it comes down to whether the Parliament agrees with the assertions in the front two pages of the Bill about the degree of the problem and the degree of the urgency required. I do not personally believe that the measures which follow are proportionate to achieve the degree of urgency or magnitude of the change suggested in the introduced by the Prime Minister or by the Secretary of State.

Q582 Dr Turner: So in other words I think you are saying you would support extra measures to be included in the enabling section of the Bill in addition to carbon trading?

Mr Asher: I think they must be, otherwise its capacity to achieve its results I think is not there.

Q583 Chairman: Can I try and square the circle on two of your answers? As I understand it, you are describing this Bill in much the same way as the Secretary of State describes it, as a piece of enabling legislation. Are you also saying, and this was in an earlier answer, there will be a requirement for

additional legislation in order to bear down on both the opportunities and changes in legislation necessary to accelerate the process?

Mr Mayo: At this point in time I cannot anticipate what the legislative requirements will be.

Q584 Chairman: I am sorry, I should have been clearer. We are talking about specific areas of behaviour change which clearly are not going to automatically flow from the Bill as drafted.

Mr Mayo: It is entirely possible to take forward a programme of engaging public action on climate change using many of the projects and techniques we do have. I agree entirely in terms of the longer-term frame it may involve elements of coercion—if patio heaters are frowned upon then maybe they have to go, or carbon taxes—and the power of fiscal instruments is absolutely there. We are going to need some kind of post-2012, post-Kyoto, framework for looking at the carbon price globally, and I personally would argue that cap and trade systems still have a strong part to play within that. Initially what we are trying to do is harness a lot of the goodwill and concern which is out there but what we are hearing from consumers is their knowledge of climate change varies. One woman said to a colleague of mine in research recently, “Climate change? Yes, I have heard of that, it is bad news, it affects the weather and I do not know what to wear in the morning.” That was at one end of it. At the other end of it, people actually recognise this is something they want to take action on but they do not feel empowered personally to do it, they are looking for a lead from Government, from business, but they are willing to do their part if they come on board. That can involve actions such as the example of micro-renewable generation. That is a technology solution but what we found in talking to people who have this installed in their homes—not people who chose to install it themselves but people who were tenants—is that it actually has a huge emotional effect. If your home is green and more sustainable, it is as if you want to live up to that home and it has effected a range of behaviour in that they were then turning down the thermostat, shifting between bath and shower, introducing grey water recycling. So what we found is that if you can find the right way in to tap into the goodwill which is there, that is the best way of building action. There are many opportunities for doing that but at the moment we have an absolute profusion of initiatives from Government crossing over different agencies, different departments, and an attempt to try and tackle everything and ask people to climb a wall of behaviour change rather than really focusing on things which most matter. We counted up the number of different pieces of advice which ordinary people have as consumers about how to live sustainably, we got to 500 and then we stopped. They were everything from fly less, drive less, to having an aloe vera plant in the living room.

Q585 Earl of Selborne: I am quite persuaded by the argument which Mr Mayo and Mr Asher have put, that if you put the right technology in place, such as

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your micro-generation in the house or your smart meter, it is a powerful influence on changing people's behaviour, I can accept that. Can we just think about cost? Clearly micro-generation retro-fitted into houses is not going to be starter for more than a small proportion of houses. Let us stick to smart meters, which Mr Asher has put great store by, I assume we are talking here of water as well as energy. What would be the cost at today's prices per house and how much is the consumer going to pay towards that?

Mr Asher: Over three years less than consumers currently are conscripted to pay through the energy efficiency commitment which from next year, renamed the CERT—carbon emissions reduction target—will be £10 per customer per fuel, so about £20 per household. The cost of a smart meter to provide the equipment and the installation is around £60—£25 for the equipment and the rest for installation and also telemetry. At this moment there is pretty full agreement between each of the six major suppliers and consumer groups about that point. They could be rolled out very quickly if there were not some profound regulatory barriers.

Q586 Earl of Selborne: You surprise me because when the House of Lords Science and Technology Committee looked at water metering, the bill for water meters, which was not a smart meter, was more than that. So how can you get a smart meter which is such good value?

Mr Asher: Because they are smart! That is a slightly glib answer but the technology is actually very simple for both dual fuel metering. I have seen provided at an even lower cost ones which have a much lower functionality. They can replace pre-payment meters to provide huge relief to the 4 million consumers who have to put up with the 19th century clunky machines there which cost £80 a year to run.

Q587 Baroness Billingham: One of the problems is that for the average person, the average consumer, they remember water meters as a methodology of making them pay a lot more. It is very unfortunate but that is something people will remember. You have a bit of a problem there I think in persuading people that they are going to pay less, because we all know that once we got our water meters we were paying a heck of a lot more.

Mr Asher: That is true but in energy, remember, we still have a very primitive model in the United Kingdom of decreasing block tariffs. It is still the case that energy companies make their money by selling more and more, not less and less. Until there are changes in things like that as well, so that the lower blocks of energy are provided at much lower costs with a rapid escalation in consumption with some redistribution effect for people needing welfare, meters of course will have that effect.

Chairman: A question from your Chairman, Lord Whitty.

Q588 Lord Whitty: You have been talking about the need to engage people and get people's consent and you also acknowledge that this is actually a framework Bill, but is there anything, and in particular I am thinking of the way and the processes by which the Committee operate, which could be added to the Bill to prescribe better ways of the Committee carrying out its function in terms of educating, motivating, provoking behavioural change amongst consumers as a whole? I declare my interest—well, Chairman, you declared it for me!

Mr Mayo: The way I see this is that the Committee ought to aspire to being an IPCC for the UK. I think that is what the public will recognise, alongside its democratically-elected members, as a source of legitimacy that this is a scientific view about the targets which are required to deal with climate change and therefore the efficiency of measures really to get towards that. I think that is why I would tend to see the Committee as something which needs a degree of independence and authority, that steps back from any delivery role, that the Committee would not have an executive function in carrying out programmes because there are far too many agencies already doing that and they could quite sensibly be rationalised. So I think the focus on the science base and focus on an expert view about the likelihood of achieving that over the series of five-year budgets is the most important thing that the Committee could bring.

Q589 Lord Whitty: Even within that framework I think you heard the witness from Envirowise at the end saying one of the experts ought to be a behavioural scientist which is not prescribed at the moment. That is a way of linking in to how you relate to consumers and the public.

Mr Mayo: I think that was a very welcome intervention because the science base can certainly include the social science side. I think there are now well understood and well established ways of understanding behaviour and behaviour change. It is not something you have to throw your hands up about. In other spheres like public health there are professional and well worked out approaches. If you build on that kind of behavioural science and social marketing perspective, and if that was available on the Committee as part of the overall work of the Committee, it would help in terms of its analysis and target-setting for the domestic sector certainly.

Mr Asher: I think the current structures of the Climate Change Committee, those spelt out in 5(5)(i) in the Bill, are reasonable but I do say that the need for some serious engagement with the demand side of the market place is required, and I do not find as a theme anything which seeks to empower or, as I said earlier, trust or engage consumers in a meaningful way. That does not mean we are calling for significant random consumer involvement, but that the way in which these things are set up can make a huge difference. To have the objectives of the Committee, the way it reports and, say, its relationship with the Office of Climate Change, I think needs to be clarified. Similarly, there ought to be devolution of some of the actions which come out

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of the Committee to local government, which is the area where so much, especially in relation to domestic consumers, of the action is—housing standards, points of information, advice.

Chairman: I am sorry we are going to have to stop there because there is a division in the Lords. This is one of the problems with our democratic process. Thank you very much. You have been extremely helpful, we are genuinely grateful. It would be particularly helpful if you would put in writing answers to our questions on energy policy and behavioural change which are quite important for us.

Wednesday 20 June 2007

Members present:

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|--------------------------------|-------------------|
| Billingham, B. | Ms Celia Barlow |
| Caithness, E. | Mr David Chaytor |
| Crickhowell, L. | Helen Goodman |
| Jay of Ewelme, L. | Nia Griffith |
| Miller of Chilthorne Domer, B. | David Howarth |
| Puttnam, L. (Chairman) | Mr David Kidney |
| Selborne, E. | Mark Lazarowicz |
| Teverson, L. | Dr Desmond Turner |
| Vinson, L. | Dr Alan Whitehead |
| Whitty, L. | Mr Tim Yeo |
| Woolmer of Leeds, L. | |

Witnesses: **Mr Jonathan Brearley**, Director, and **Mr Robin Mortimer**, Bill Team Head,

Office of Climate Change, examined.

Chairman: Thank you very much indeed for being here. We have seen Robin before. Can we start off with a question from Lord Caithness.

Q590 Earl of Caithness: The Bill before us is clearly a Government Bill rather than a departmental Bill, and that is right. How do you see the Office of Climate Change, is it intended to be a single body that works across government? Do you consider yourselves to be rather like the Climate Action Team in California?

Mr Brearley: First of all, the OCC does see itself as very much a cross-governmental resource. We are a unit that is jointly owned by six different departments and we report jointly to six different ministers, those are the departments and ministers which have an obvious interest in climate change, that is Transport, Trade & Industry, Defra, DCLG, DFID and the Foreign Office. I think we do distinguish ourselves slightly from the Climate Action Team who represent a much larger and wider coalition of people and organisations. Our aim is really to provide analytical resource for Government and for government departments to use.

Q591 Earl of Caithness: Once the Bill is enacted and becomes law you will be redundant, but you will be passing on quite a lot of important information to the Climate Change Committee.

Mr Brearley: Yes.¹

Q592 Earl of Caithness: Mr Mortimer, when you were asked in the EFRA Committee whether you thought the existing models were robust enough you did not give perhaps quite the clear answer that I would have liked you to give. Are you utterly convinced that the models you are working with are robust enough for your purposes and to hand on to the Climate Change Committee?

Mr Brearley: Can I just come in on one point before we get to the point about the models themselves. The OCC has three main roles, one of which is an

analytical function providing underpinning analysis understanding our transition paths to a low carbon economy, which absolutely will go through to the Climate Change Committee. We also act as programme managers across government on the existing Climate Change Programme and we run cross-cutting policy projects like the draft Climate Change Bill. In those other two areas I think there will be plenty of activity for us in the foreseeable future.

Mr Mortimer: The committee will not be bound by existing models, it will want to use its own analysis. That may include drawing on government models, like the DTI's energy model and the DfT's transport model, and no doubt wanting to scrutinise the assumptions and use other resources from outside government. Yes, there is some work ongoing within the Office of Climate Change to prepare for the work the committee will need but I do not think we would want to second-guess what it will ultimately want.

Q593 Earl of Caithness: My specific question is, are the existing models robust enough that you have got within government?

Mr Mortimer: Yes. Certainly the projections since 2004 have proven robust. The analysts in the departments are constantly going through a process of trying to improve because models can always be improved. Yes, I think we would say that the important models on the energy and transport side are robust in that sense.

Q594 Baroness Billingham: I have no doubt you have been following our exchanges of views over the last few weeks and I just wondered if they had thrown up any surprises for you? They certainly did for us in some of the responses we got from people who came to talk to us. I wondered if they would cause you to change your targets, for example, because some of the targets that you suggested have been queried by a number of people who have come to speak to us. I wonder how you feel about that and are we going to see a change, a stiffening of the objectives?

Mr Brearley: One thing I have noticed in the evidence that has come forward here, but also in the wider debate, is that there is not a whole consensus around what the level of targets should be,

¹ Note by witness: This was yes to the second part of the question and not the first—see response to Q592.

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particularly our long-term goal. It does seem that we have some very strong advocates out there, for example the evidence to this committee from Sir David King and from the Royal Commission on Environmental Pollution. At the moment there is certainly not an unequivocal case for us changing our targets.

Q595 Mr Chaytor: What is the latest best estimate of the percentage emissions reduction that would be required to keep the global rising temperature to two degrees or less?

Mr Mortimer: I think there are a number of prior questions, are there not?

Q596 Mr Chaytor: No, there is just one question.

Mr Mortimer: The level for the UK in order to achieve a global—

Q597 Mr Chaytor: Assuming the UK takes its fair share of global emissions reduction.

Mr Mortimer: That is it, is it not, assuming the UK takes its fair share. The position in the Bill is 60 per cent which is in line with the bottom end of the Stern range of what Stern considers would be needed by developed countries, but it does all depend upon what happens internationally as to what share the UK would need to take ultimately. There are two points to make on this. One is that the Bill is drafted in terms of at least 60 per cent and, secondly, there is this clause to allow amendment as necessary as the international situation evolves.

Q598 Mr Chaytor: But by focusing on the emissions reductions rather than the maintenance of temperature, does the draft Bill confuse ends and means? Should there be more about the objectives rather than just the emissions reductions?

Mr Brearley: The problem is that the ultimate end is change in temperature. To impact on that, the UK's role is so uncertain it would be very hard for us to have a very specific goal towards which government and the UK economy should be aiming. What we do here is say that at least 60 per cent is what we know we need to do to get us to the right temperature increase and, therefore, that gives us a specific objective to work towards and allows us to build policies for the economy to change. If we were to have a temperature as our goal then our role within delivering that temperature and, indeed, what we need to do to deliver that temperature change over time would be uncertain and would not provide the certainty that we think businesses and, indeed, Government need.

Q599 Mr Chaytor: Was there a debate about the choice of a specific target at a particular point in time as against the cumulative emissions over a period of time?

Mr Mortimer: I think we did look at that. Part of the reason why we opted for five year budgeting as an approach was because the budgeting framework shows that every tonne of carbon counts ultimately. We did not go to the step of then saying that there should be a cumulative target up to 2050 because in

a sense that prejudices the analysis that the Committee on Climate Change will need to carry out to define the optimal pathway because in order to arrive at a cumulative total to 2050 you clearly need to define the trajectory. The budgeting framework itself will ensure that every tonne of carbon counts, as I say.

Q600 Dr Turner: You say that the 2020 target is set as a range of figures to allow for different emissions trajectories but, on the other hand, does it not offer the opportunity to simply aim for the bottom of the 26-32 per cent target and take the easy way out?

Mr Mortimer: I think it will be entirely up to the committee to recommend budgets anywhere on that range, so the committee could come forward with a set of budgets anywhere between 26 and 32 per cent. The point of having a range there is to provide some upfront certainty at a very early stage, from now, as to what the Government's intentions are and where that trajectory should pass, but within that range, no, I do not think that we are prejudging that.

Q601 Dr Turner: How do you then respond to all those who say we should, in fact, start to frontload our reductions in emissions so we should not be allowing for any room for slippage in the early part of our trajectory?

Mr Brearley: The point is that this is part of the analysis that the Committee on Climate Change needs to do. On the one hand there is the basic argument that we need to frontload our effort but, on the other hand, what we are describing here are very, very big changes in capital stock and those changes will take time to feed through the economy. Balancing what is the cheapest and most efficient pathway with the pathway that delivers the most on climate change is exactly the sort of thing that the Committee on Climate Change needs to assess.

Q602 Dr Turner: Why is it that as currently drafted the Bill makes provision for changing the 2050 target in the light of science? Clearly if we are going to change a target, presumably a unidirectional change, it can only be to a bigger target, and if we are going to achieve a bigger target we are going to have to start achieving that bigger target sooner rather than later, so why not also have provision in the Bill for modifying the 2020 targets?

Mr Mortimer: From memory, I am sure we have the ability to do that also in the light of changes in science.

Q603 Dr Turner: I cannot remember but I think it refers only to 2050.

Mr Mortimer: No, it does refer to both. If I can just look at the clause. I think it is clause --- I can come back to you on that. I am pretty certain that it does have the ability to adjust both.

Q604 Chairman: The corollary of Dr Turner's question is we have here a set of targets and a trajectory. We had a very productive discussion yesterday with the Consumer Council and my own experience of targets is that there is always a fair

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amount of low hanging fruit that you can grab quite quickly after which it gets tougher and tougher. Are you sure you have not given yourself a slightly soft target early on where you say, “We will grab that fruit. It will look as though we are doing terribly well”, then all of a sudden you begin to hit the really rocky stuff and slip backwards? Is there a possibility that the early trajectory is not as ambitious as it should be?

Mr Brearley: Are you describing there the 2020 target in that context?

Q605 Chairman: Yes.

Mr Brearley: Having been around a number of different places where we are thinking about how the economy will move and how Government can help it be moved, I think the 2020 range is going to be a real challenge for us to hit. Coming back to this point—what we ultimately are going to need is a different type of economy which is going to need a different infrastructure, different capital stock. Therefore, what I think we will find is there are some early wins, for example energy efficiency, but over time there will be a middle period when we are moving the big capital stock and that is going to be a real challenge. That part of meeting the 2020 target will address some of those issues. Once you move the capital stock perhaps our emissions reductions will become a bit easier, particularly as technology begins to change and alternatives become cheaper than they are now.

Q606 Chairman: Are you sure we have a system here whereby the alarm bells will ring early enough or are we going to go through a couple of years feeling relatively pleased with ourselves and then have the alarm bell go off and discover we are in real trouble?

Mr Mortimer: I think that is very much the point of having the committee’s annual reports to Parliament because as well as looking back the committee are almost certainly going to want to look forward and say, “Where is the UK on its pathway towards both its current budgets and its three budgets out to 2022?” I think the committee will certainly want to say very early on whether it thinks we are on track or not. Just going back to the earlier question, it is Clause 3(4) which does include that provision.

Q607 Earl of Selborne: Continuing with this theme of the three five year carbon budgets. We have heard, as you will have gathered, some differing views as to what extent this will prove flexible enough to meet the targets. I wonder whether you have any thoughts on either allowing for the five year period over the next 40-odd years to be replaced by perhaps a three year or a longer period even, or a rolling five year budget period. Is there a case for allowing a bit of flexibility when we see how it works out?

Mr Mortimer: There is some flexibility at the moment in that there is a clause which allows the periods themselves to be adjusted in the light of the changing international circumstances but I think that leap to the international is the key because, having looked at the way this will work in practice, we think it is vital that the budgeting timetable is tied

in both to our international obligations under currently the Kyoto Protocol but obviously subsequently a future international agreement and also the EU Emissions Trading Scheme which is currently also on a five year timetable. Being in keeping with that is the intention and the Bill allows flexibility to amend if those change.

Q608 David Howarth: This is a particularly difficult problem because there are different imperatives and different directions. You mentioned international aspects but there is also the domestic aspect which is that policy is basically set in this country over a period of two to three years in the Comprehensive Spending Review rounds and then there is the question of annual reporting because you need to be able to be on top of where you are going and not delay too long, and also there is the political question of responsibility because typically in this country governments last four years, not five, and there is the possibility of government effectively evading its responsibility. Are you sure that the international reporting requirements are the most important of those problems? I can see there is a very good argument for saying that domestic policy depends on two to three year periods and that is what we should be concentrating on otherwise none will do anything.

Mr Mortimer: I think there are a couple of things to say to that. One is that as well as the international timetabling the Bill includes an annual reporting cycle both for the committee to report annually and for the Government to respond annually, so in a sense that responds to the domestic political imperative, if you like. The second thing would be that the Bill also has a provision to require the Government to set out its policies in order to meet each budget for the five and even 15 year period ahead, so although you are quite right that the Comprehensive Spending Review may be on a three year cycle, the Bill requires Government to look much further ahead both in terms of the budgets but also in terms of how it will meet them.

Q609 David Howarth: It is easier to break larger periods down into smaller periods than to do it the other way round and there is an argument for starting at the five year and working in that way. It is a practical matter in government.

Mr Brearley: There is also a pragmatic issue here in the sense that energy use, and therefore emissions, generally fluctuates for reasons which are beyond the individual’s control and beyond the Government’s control. What you have to balance on the one hand is having short periods with clarity of targets with having a long enough period so that when unexpected events happen those are balanced out year-on-year. If you go shorter than the five years there is a risk that actually government may fail to meet its targets because, for example, we have had a cold winter or economic growth was higher than expected, et cetera. The balance of those arguments, it is a judgment ultimately, and the fact

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that there are strong links with the international framework was one that pushed us towards five years.

Q610 David Howarth: What is your response to the rolling five year idea that was put to us?

Mr Mortimer: Having analysed it, we do not think that it is hugely different from the annual targets in the sense that the accountability, if it rests in a single year, would not accommodate the natural fluctuations in the way that the budgeting would. That is our assessment so far. The fundamental point goes back to it is a combination of five year legal accountability with an annual accountability process in Parliament. It is that balance that we are trying to get at.

Q611 Lord Vinson: The Bill very rightly preambles by saying that whatever the UK can do it is only to set an example to help other countries and any savings we made are simply not measurable on a global scale. The EU has committed itself to a 30 per cent cut in greenhouse gases by 2020 if other developed nations follow similar policies. The reality at the moment is Russia is toying with signing the Kyoto agreement, largely because if it does sign it can make a ball out of unverified carbon credits, the USA is sitting on the fence, India is not going to sign it and China is not going to sign it, so these enormous economies are going to keep expanding and they ask themselves why should they not. Meanwhile, back at home our major source of CO₂ free energy is going to be halved as our ageing nuclear plant is halved before it can possibly be replaced. Do you not think that some of the targets here are a bit pie in the sky and the reality is when we actually get there, we are not going to get there? It is making everybody feel good but it is not actually going to do much good except to make a general example that we all should be trying to do some good.

Mr Brearley: There are two parts to that question. The first is about how flexible our targets are. If you look at the Energy White Paper we are confident that we will get to 2020, although it is another question about getting to 2050. The relationship between this Bill and what happens internationally is a difficult question. Essentially part of this Bill is around demonstrating UK leadership and driving and helping other countries change their own direction but, of course, if in 20 years' time those countries have not changed then, to be honest, this Bill will not have been a success. The UK simply cannot do this on its own.

Q612 Lord Vinson: I just think we are underestimating the withdrawal. We are keeping our ageing nuclear plant going when it should have been replaced at least ten years ago but we have done absolutely nothing about that. We have got a serious energy crisis coming up in this country and we shall probably have to use any old tin cans to produce energy that we have got, frankly, in order to stop the

lights going out. I think your targets look wonderful and make everybody feel good but I suggest to you that they are wholly unachievable.

Mr Mortimer: Going back to the Energy White Paper, the emissions projections which are published alongside the Energy White Paper are the ones which we took into account when arriving at these targets and you will see that the two do indeed marry up.

Chairman: We are moving on to the, you will remember, Robin, the vexed issue of legal enforcement.

Q613 Lord Crickhowell: The pretence is being made that this Bill is legally enforceable and the statutory duty imposed on the Secretary of State can be enforced. I think it is very clear that there is no way that Clause 1, which calls on the Secretary of State to ensure that the carbon account is met by 2050, can be enforced. I suppose it is arguable that the five year periods covered in Clause 2 might be, though very serious scepticism has been expressed about that, not just by me but by others, including the Environment Agency and a number of very eminent lawyers. The suggestion has been made by ministers and others that somehow the whole thing could be subject to Judicial Review but all the precedents suggest that it is highly unlikely that the courts would be able to act effectively. There is no precedent for a long-term duty of a statutory kind being imposed that I can find, the Library in the House of Lords can find and even Defra, approached by the Library, have admitted there is no precedent. Given that it is highly unlikely then that this Bill is legally enforceable in the way that has been suggested, would you think that the proposals advanced, for example, by the Environment Agency to impose some real enforceable penalties, and they have cited the purchase of credits as one of them but you will no doubt have read their evidence, is a matter that should be pursued and is a serious alternative to the non-enforcement procedures that are contained in the Bill at the moment?

Mr Mortimer: The first thing I would say is I am not wholly convinced by the arguments against the value of the targets being in statutory form that some have put forward. Certainly some of the legal experts that I think the Committee have seen seem to be particularly referring to the enforceability ahead of the end of the budget period which I think is a different issue than a Judicial Review after the close of the budget period. The second point would be simply the nature of the targets themselves do place a different quality of obligation on the Secretary of State and his officials to have regard to the law in a way that a merely administrative target would not. However, in terms of the ultimate sanction, if you like, although there is no precedent, equally there is no guarantee that a court would not take such a step as to require the Secretary of State to do a particular thing to be in compliance with Clause 2, such as purchasing credit. The question of whether we should set that out and stipulate it in advance, there is a judgment about whether it would be sensible to pre-commit public resources to that as a particular

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way of meeting a budget as opposed to an alternative. This really goes back to the discussion we were having earlier about the long-term nature of the infrastructure that would be needed in order to ensure that we remain on track. The question would be if the UK faced a situation where it was going to miss a budget and could only react by taking short-term measures, ie purchasing credits overseas at a large cost, would that be a better use of taxpayers' money than to say, "Okay, there are reasons why this is the case, let us invest the same amount of money in longer term infrastructure which will then allow us to meet budgets in future". I think that is the balance which we are looking to get at.

Q614 Lord Crickhowell: I agree that there may be some value in setting budgets because governments do not like to be embarrassed and the committee will report and that may have some effect. The Environment Agency even doubted whether that might be quite as effective as has been suggested. Our job is to help you produce a Bill that is likely to make satisfactory progress through Parliament and I do have to suggest to you that certainly when it gets to the House of Lords at any rate, where there are a lot of rather good lawyers, it is highly unlikely that it will be accepted in its form as it is at the moment and Clause 1 will almost certainly get amended. Would it not at least be a good idea to be considering at this stage, bearing in mind that it may well be held that the duties imposed are wholly unenforceable, to look seriously at some means of the kind that are being suggested by the Environment Agency where real obligations and burdens would be placed on Government and on the Secretaries of State if they failed to carry out the duties imposed on them in the Bill?

Mr Mortimer: I just have to say that we have not as yet seen a proper proposal which looks workable. The alternative which has been put forward is a remedy which would effectively be some sort of requirement on the Secretary of State to produce an action plan and that seemed to us, if anything, to weaken the nature of the duty because the duty could be met simply by producing a plan as opposed to achieving the duty. As I said, the penalty through mandatory requirement to purchase has a downside in terms of pre-committing public expenditure in a way which may not prove to be sensible in the long-term. Neither of those appear to be good solutions. As you said in the question, we are in uncharted territory here and we are putting forward the Bill as a framework in which the combination of the committee's reporting, the requirement on the Secretary of State and the powers in the enabling powers to achieve the budget has come as a package and that stands in its own right.

Q615 Lord Crickhowell: Of course it is possible to have a purpose clause or to impose a duty that the Secretary of State can deliver on but I think Parliament may feel that it is not the role of legislation to be an instrument for spin and pretending that something is which is not. The fact

is that this is an unenforceable duty and would it not be as well to stop pretending that it is enforceable before we get much further down the road?

Mr Brearley: I think we would disagree with that. The combination of the Judicial Review process and the cost to ministers of what happens after that judicial process and the potential outcomes are very strong incentives for government to keep themselves within the budgets.

Q616 David Howarth: Is not the problem that the choice is between an unenforceable duty that sounds good and an enforceable duty that sounds less good? That is the choice between the Bill as it is and the action plan proposal. You have rejected the action plan proposal because it does not sound as good. It seems to me that comes down to a choice between a Bill that is rhetorical and a Bill that is practical. Is it not better to go the practical route rather than what might be called the press route?

Mr Brearley: I think the requirement for government to produce an action plan would be a very weak additional incentive, over and above the political stuff we talked about in terms of Judicial Review, to get government to actually change its course of behaviour. What we would like through the Judicial Review process, as government's response to that, is genuine consideration of why we are insufficient, why we are not hitting our budget, and genuine consideration of what the best and most cost-effective way of getting ourselves out of it might be. Coming on to the purchase of credits, credits do not change the trajectory of the UK economy, credits do not make us the year after we have bought them any more carbon efficient than we were before. Somebody at the point when we miss the budget has to make a decision between a very short-term investment to get us through that particular budget period and a much longer term gain to changing the UK economy.

Q617 David Howarth: What about the other proposal which his not that international credits should be bought but EU ETS allowances should be bought and retired because that would increase the price of carbon on the market?

Mr Brearley: But only for that period in time, so once that period has gone then the carbon market would be the same and the UK economy would still be the same.

Q618 David Howarth: Actually you could require it to be a long-term purchase even for the next period as well.

Mr Brearley: What I am saying is when we talk about fining government we are actually talking about fining taxpayers and fining ourselves. When doing that we have to think about what is most cost-effective and what is the best use of people's resources, it may be that purchasing credits or EU allowances might be the right way to do things but it may be investing in new regulation or subsidies for energy efficiency may be equally effective and that is a balance of judgment that has to be made at that time.

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Q619 Mr Kidney: When earlier this year the EU committed itself unilaterally to the 20 per cent reduction in greenhouse gases by 2020 they said that they would be willing to go to 30 per cent if other developed nations did the same. If the European Commission was to use the same basis for burden sharing as it has done previously, what would be the UK's share of this target amount?

Mr Mortimer: We do not know exactly. I can say that the 2020 range in the UK Bill of 26-32 per cent CO₂, assuming no further measures are put in place on other greenhouse gases, would translate into a range around 32-37 per cent in terms of other greenhouse gases. What we do know is that given that the EU's target of even 30 per cent is in greenhouse gas terms, the UK's existing target is of a very similar range.

Q620 Mr Kidney: Can you say that again for me. Of the 32-37 per cent of other greenhouse gases, what is the effect on our share of a 30 per cent target for greenhouse gas reduction in carbon emission terms in 2020?

Mr Mortimer: What I was saying was the UK's target range of 26-32 per cent CO₂ translates into 32-37 per cent of all greenhouse gases. The EU's proposed target would be at most 30 per cent greenhouse gases and, therefore, the UK's target range is already above the EU's commitment. As of now we cannot judge what burden the UK might be required to take.

Q621 Mr Kidney: That is the point of the question I asked, is it not? It is okay saying if the EU adopts a 30 per cent target and our carbon dioxide target equates to up to 37 per cent we are safe, it is not if our share is 40 per cent of greenhouse gases, for example.

Mr Mortimer: We do not yet what the burden on the UK will be.

Q622 Mr Kidney: Why have you not done that sum? We have shared the burden in the past, for example, under Kyoto with the rest of Europe, so we do know what the current calculations are based on. Why have you not done that calculation, or have you and you are not telling me?

Mr Mortimer: It is around 37 per cent. We can come back to you on that. What we can say is we know that we are in the range of what we are likely to be asked to take on under an EU burden sharing agreement.

Q623 Mr Kidney: I would like you to write because we would like that information before we write our report. If I can just move on so I can finish this part of the questioning. Under the provisions for banking and borrowing, how do you respond to the criticism that we could borrow one per cent in each budget period every time up until 2050 and be five per cent adrift of our then?

Mr Mortimer: I do not think that is correct actually because the one per cent borrowing of the subsequent budget then reduces the following budget by one per cent and if the Government were to borrow again it would simply reduce the

following budget by one per cent, so the cumulative impact does not accumulate, as it were. The maximum that we could be adrift in 2050 would be one per cent of the final budget. That is the first point. The second point is that the 2050 target is self-standing and therefore there would still be an obligation to achieve a 60 per cent cut in 2050 even if there had been borrowing into the last budget period.

Q624 Mr Kidney: I can see that it is not as simple in simple interest terms of five per cent from what you have just said but it is actually more than one per cent in total too. Should there not be a restriction in the Bill to stop borrowings twice running into budget periods?

Mr Mortimer: It would not work like that because there is no roll forward of borrowing, so in a sense if in period one the government borrowed one per cent from period two that does not mean that the borrowing from period three would make period three any lower than it would have been if we had not borrowed the first time. There is no roll forward at all, the maximum cumulative impact of borrowing in 2050 is one per cent.

Q625 Dr Whitehead: One per cent in period three is a smaller amount than one per cent in period two, or four or five?

Mr Mortimer: Indeed, yes.

Mr Kidney: It does not help, Alan!

Chairman: Can we move on. The one area of consensus that has come across from everyone we have talked to is the overwhelming importance of the credibility and composition of the Climate Change Committee. We will still start on that with Lord Whitty and then to Lord Jay.

Q626 Lord Whitty: The role of the Climate Change Committee for some of the advocates of this approach has been likened to the Monetary Policy Committee, but it is not really like the Monetary Policy Committee because it has no executive authority. I think you said in response to other committees that it is more like the Low Pay Commission, but it is not really like that either, is it, because there is a whole range and the Low Pay Commission ends up with one figure and you end up saying, "We are missing or we are hitting one figure", but there is a whole range of things the Government ought to be doing about hitting that target. Quite what is the status of the committee in relation to advice to ministers both on how far they have missed the target, if they are, and on what they are going to do about it?

Mr Mortimer: It will be an advisory NDPB. I think it is akin to the Low Pay Commission in its central duty to advise on the level of carbon budget in as much as that is a single figure for three consecutive periods. In that sense it is akin to the Low Pay Commission. I think you are right that its remit is broader in the sense that as well as advising on those numbers it will also need to advise on related factors such as the balance between domestic and international action and the balance between effort

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in the sectors of the economy covered by cap and trade schemes and sectors which are not covered. It is broader, yes, than that but it is akin to it in the sense that that is its primary function.

Q627 Lord Whitty: Do you have concerns about how the authority of the committee gets established in terms of what is laid down by statute in terms of its membership, in terms of the process whereby those members become members and the status of its report to ministers and to Parliament? Do you think we need to enhance that somewhat as compared with any other advisory committee, if you like?

Mr Mortimer: Enhance it beyond the normal public appointment procedures?

Q628 Lord Whitty: Possibly, yes.

Mr Mortimer: In our judgment, having discussed it with the Cabinet Office and the Commission for Public Appointments, no, there is a very open and transparent process and provided we follow that then the appointments should proceed in the normal way.

Chairman: I have experienced that process and it can at times be extremely untransparent and fairly loopy. I will not embarrass you with specifics, I promise you. I would shudder at the idea that the chair of the Climate Committee would be appointed in some of the ways I have been familiar with.

Q629 Lord Jay of Ewelme: It seems to me that this committee is going to be absolutely central to the whole concept underlying the Bill. My guess is that it will become much broader, more political and more controversial than the papers suggest, not just in the advice it gives but in the reports it makes on progress made by successive governments which in effect is going to be an audit of the performance of the government of the day, which could be pretty political stuff. It also seems to me, and to a lot of witnesses we have had, that it is going to be really important that the committee is seen from the beginning to be both properly resourced and fully independent. I was reassured up to a point by what you said about it being able to draw, for example, on models other than the Department for Transport and the DTI, whose credibility has been a little bit tarnished by some recent reports, and I think it is very important that it should, but can you assure us that despite all the pressures on Defra's and other budgets priority will be given to ensuring that the committee has the resources needed to establish itself from the start as a proper authoritative, independent committee and that the work that the Office of Climate Change will be doing will not just be to produce it with a set of briefs on which to draw but actually thinking about how it will establish its independence from the start.

Mr Brearley: I think we can. There is a balancing act here because what we do not want to happen is that Government and the committee are spending a lot of their time second-guessing each other and trying to model things in very, very different ways. What we want is an intelligent committee who are able to examine not only government analysis but analysis

from other places and then come to their best judgment. That may be mean independent modelling resource or that may mean simply aggregating the results of existing models. In terms of what the Office of Climate Change is doing, our remit is basically to provide the underlying analysis for the committee to begin to make their judgments. There is work being taken forward within Defra which is thinking much more about the shape of the organisation, how it is set up and also the appointments process. Between those two our aim is very clear, we need to have a very strong, credible, independent committee that will make recommendations to Government that are sensible and cost-effective.

Q630 Lord Jay of Ewelme: And the resources?

Mr Brearley: I think we said something on resources in the Bill.

Mr Mortimer: There is an indicative figure in the Regulatory Impact Assessment of around two and a half million the first year and two million thereafter. It is indicative and, indeed, the final figure will depend upon the scoping work which the Office of Climate Change is currently doing.

Q631 Chairman: So the budget to an extent will be set by the Office of Climate Change, not by the Climate Change Committee itself?

Mr Mortimer: No. The work that the Office of Climate Change is doing will be Defra paying for the budget so Defra ministers will have to make a judgment on the eventual shape of the budget that will be formed by the analytical work that the Office of Climate Change is doing now.

Q632 Lord Crickhowell: You have been saying that as an organisation you are preparing for the committee to get underway and that Defra is working out the budgets and so on, yet the Committee for Climate Change has got an extraordinarily tight timetable, it is supposed to be coming up with its first set of critical numbers by 1 September 2008. There are always uncertainties about the progress of Bills and the subsequent appointments procedures can be rather more drawn out than you perhaps imagine. I do happen to have some experience because after leaving the Cabinet I was asked to set up what was then the largest environmental organisation, the National Rivers Authority, and we were faced by exactly this problem. Instead of getting Defra and an organisation like yours to do the preliminary work and then handing it over to the committee who had to accept what they were given and do the best with it, I was asked to chair a shadow body before the legislation came in, the Department was perfectly entitled to set up such a body, and that shadow body included the key executives and most of the members who would later form the National Rivers Authority. So we had a whole year of preparing our own plan, making clear to the Government what our estimates were for budgets and what the organisation would require and when the Act finally became law we were able to act very quickly in

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getting the whole organisation up and running, so quickly that within a few weeks of being set up we had the Shell Oil Company fined a million pounds which brought people up pretty quickly to the fact that we had real powers. Have you looked at that precedent, because it is really quite a good one, and have you looked at the thought that to have a shadow body setting itself up and preparing its own structures would not only mean that the whole procedure would be quicker but that from the start it would be seen to independent and strong and not wholly dependent on the creation of the work done by others?

Mr Mortimer: That is exactly what we plan to do, to set up a shadow body. We are aware that the process of setting up a shadow body itself will take some time so the preliminary work that the Office of Climate Change is doing is in advance of having even the shadow body up and running as a Defra advisory body. The appointments process, we hope, will start over the summer and the shadow committee will be in place as soon as we possibly can have it.

Lord Crickhowell: Thank you very much for that information, you have not provided it in any of your papers so far and it is a very interesting piece of information which I welcome. It would be very interesting to have a little more in writing to substantiate the statement you just made which is a whole new revelation to the Committee.

Q633 Chairman: I want, if I may for one second, to come back to this business about the budget. The Carbon Trust has a budget of around £110 million a year, of which £1.5 million alone goes to its advisory committee. Are you not “whistling Dixie”, as they say in America, to imagine that this committee can do the job we are all asking it to do, to obtain the credibility that we need it to have, almost from day one, on a budget as slender as the one you are suggesting? It would be terrible to create a situation whereby this committee had to choose to accept the modelling advice which was, as it were, the least expensive in preference to one that which it might infinitely prefer, because it just did not have the budget to do it. I would caution you that you should be very, very careful in this; either you want a committee which is highly credible from day one, and will cost what it costs—just that—or you are going to give birth to a cut-price option which will never quite do the job you want of it, and, surprise, surprise, five years later will be discredited.

Mr Mortimer: The work we are doing we are approaching with a fresh mind. We are looking at what will be needed and the report will make its recommendations. The figure in the Regulatory Impact Assessment was an indicative one.

Chairman: Can I ask that you also stretch that fresh mind to the notion that, in terms of the appointments process, you look at the suggestion made by the incoming Prime Minister that here is a role, a perfect role, for confirmation hearings by Parliament of both the chairman and the appointed committee members? It is a wonderful opportunity

to stretch beyond the norm and give real public confidence to a committee that the public must believe in.

Q634 Lord Crickhowell: May I have one quick supplementary on that very point? I am going to ask the Secretary of State later whether he thinks it is a good idea that the Secretary of State should appoint the chief executive as well as the chairman. I do not know if that proposal comes from you but I am bound to say that if I was taking on the job of chairman I would not be at all happy at the thought that the Secretary of State was appointing the chief executive. Surely the committee ought to appoint its own chief executive.

Mr Mortimer: I think it gives concurrent powers. We have yet to decide exactly how the appointments process would work and whether the chairman would have a role in the appointment of the chief executive.

Lord Vinson: The Carbon Trust is currently being audited for wasteful practices. There must be a lot of money spare there, and I suggest you try and indent for it.

Chairman: Can I make the point that this Committee comprises people, all of whom have chaired any number of bodies. I urge you: it is impossible to chair a body for which you did not choose the chief executive. It is impossible. I cannot understand why government does not recognise this.

Mr Kidney: Just as a point of reference, my Lord Chairman, the draft Bill does provide for the committee to appoint the chief executive, but does say that the Secretary of State has to approve that appointment.

Q635 Chairman: Approve, yes, but appoint?

Mr Mortimer: It says that the Secretary of State “may” appoint the first chief executive, but that is a “may” not a “shall”, and it will depend on the timing of the appointment process exactly how that will work in practice.

Chairman: I feel an amendment coming on!

Q636 Dr Whitehead: You have mentioned fresh minds being applied to how a Climate Change Committee will work, but there are a number of what one might call not fresh posts in the stream already as far as what the Climate Change Committee will do, for example, the interim target by 2020—a fairly clearly set-out range of cuts in that target. Yet you have stated that the primary role of the committee is to determine the optimal pathway to 2050. Is it not the case, then, that what is there already may ensure that the Climate Change Committee does not, in fact, have the autonomy to decide the optimal target?

Mr Brearley: Do you mean in terms of policy that is already there? I think the Committee on Climate Change are going to have to take into account existing policy, and what they are going to have to ask themselves is how much we think the existing policy is going to deliver. They are going to have to think about other sectors of the economy that we have not reached yet. If they believe that our 2020

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goals are not going to be achieved or if they believe that we need to do more earlier within those first three budget periods, that is what they will recommend to government. Any system has to start within the existing policy structure that is already there. It is impossible to have a completely blank sheet of paper as to how we might do this, given that we are part-way down a programme.

Q637 Dr Whitehead: Except you could, in theory, I guess, have, as it were, a starting point and a finishing point, and the role of the Climate Change Committee would be to make sure the course from one to the other is plotted in the right way. You could theoretically do that. The way this is modelled is that, on the one hand, the Climate Change Committee is required to undertake what might be determined as crystal ball-gazing and, on the other hand, it has got some very clear targets in the meantime that it apparently has to steer on the basis of.

Mr Mortimer: We did think it was important to give a very clear upfront commitment as to what the range should be in 2020. As you say, that does limit the discretion of the committee because the trajectory has to pass through that range. Nevertheless, it is a reasonably broad range. Most of the analysis done up-to-date would suggest that the trajectory to 2050 would in any case pass through that range, and the point is to provide certainty to investors, to business and so on, as early as we possibly could. I have no doubt that if the Bill had been published with no interim target between now and 2050 there would be considerable criticism of it for not providing any indication of what the trajectory should be.

Q638 Dr Whitehead: If, for example, the Climate Change Committee, as it might do, was to say: "Well, actually, the shape of the curve, in our view, in terms of our modelling, ought to be of a different type than the curve that might get us to that particular range of reductions at that particular stage" (a number of the arguments concerning the extent to which one has to, as it were, bank reductions early on could well be analysed by the Climate Change Committee) and then they said: "Well, actually, your earlier target should be much higher than that", would they then, as it were, be prevented from placing that into the process, or would they be enabled to do it by their autonomy as a Climate Change Committee?

Mr Mortimer: No, they would not be able to recommend budgets which were not consistent with the targets on the face of the Bill, and that is because the Government has taken a view that the Government should provide some indication of what the range in 2020 should be. That is a prior decision which the committee has to work within.

Q639 David Howarth: That is fine, I think, as an argument for the minimum target of 26 per cent. I think we are still puzzled about the maximum, as to why there needs to be this 32 per cent maximum,

because that does seem, fundamentally, to undermine the committee's ability to report on what the trajectory ought to be.

Mr Mortimer: I think it is important on this point to clarify that the 32 per cent does not limit what could be delivered in practice, in that if the budget for the period 2018 to 2022 was set at 32 per cent but in practice the emissions went beyond that, then you would simply bank forward the additions. So the 32 per cent does not limit, in any sense, what can be achieved. It does limit, however, the ambition of the budget for that period.

Q640 David Howarth: It seems a bit pointless if you discover you can achieve more and the trouble is the law is telling you that you cannot have a target that is realistic.

Mr Mortimer: I think it is unlikely that we would be in a position to know that we were going to achieve more until nearer the time. As I said earlier, it goes back to the point that the Government has decided, and I think some of your earlier witnesses have supported the concept of us setting out clearly upfront a very clear range within which the trajectory to 2020 should pass and to provide that certainty for investors and certainty in the economy. That is the reason why we have had both a bottom and a top of the range.

Q641 Lord Woolmer of Leeds: On that point, you have said yourself that what the committee will have to do is look at the practicality of achieving the figures, and the problem of the fixed capital stock and so on. The implication of that must be that the committee will have to consider, sector by sector, what could realistically be achieved to build up some kind of overall figure otherwise the overall figure is plucked from the air. In the Bill, in section 20, the only obligation on the committee is to advise on the contributions by two very broad sectors: those covered by trading schemes and those who are not. Frankly, is that a great deal of value to business investors wanting to know what that might mean? Should the committee, in fact, set out at least its reasoning in some detail to justify these figures, so that, sector by sector, there is an indication—it may be a range—of what is expected over the five-year and 15-year period? That is my first question. Secondly, if this 15-year period is to be advised upon by 1 September 2008, what kind of consultation of stakeholders is going to take place by a committee that will not exist for some months, so that the stakeholders—potential business people—affected by these decisions are able to be consulted?

Mr Mortimer: On the first point, I think you are absolutely right that the committee will have to look sector by sector at what it considers possible across the economy, and it will be open to the committee to make transparently available the assumptions that are included, if any, in its recommendations on the aggregate contribution. The Bill simply stipulates that it should at least specify the contributions between those sectors covered by trading schemes and those which are not, for the important reason that there is a particular instrument to be used in

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relation to the trading sectors—ie a cap—which the Government will want to take into account the committee’s advice on. That is the reasoning behind that broad split. Having said that, it would certainly need in its analysis to look sector by sector, and it could make that publicly available. On the second point, again, it will be open to the committee to decide how it operates. It may indeed want to have some stakeholder engagement process and some transparency of that sort, but I do not want to prejudge that; it would be open to the committee.

Q642 Lord Woolmer of Leeds: In reply to your two answers, in section 20 it is not “at least” by those two sectors; it is “that is what they have to do”. It is not “at least” at all. Should it not be on the face of the Bill that the committee should spell out what this may mean on some sectoral breakdown other than that broad basis? You also said that they “could” make information available. If business people are to take decisions, do they not need this kind of information? Should there not be an obligation on the committee to publish in detail the basis for their recommendations?

Mr Brearley: I think the point is that although within the Bill we say that only those two things have to be published, in my view, without prejudging what the committee do (and, really, that is up to them), I would be surprised if they did not have that conversation with business and they did not provide those indications about what could be achieved in different sectors. There has to be a balance between what we define in legislation and how much we put our trust and our faith in the people who are, essentially, providing us with those recommendations. Coming back to our previous point, if we are going to build a strong and credible organisation I cannot see how we would do that unless they were very consultative and very open about their processes. Their recommendations simply would not have weight unless they did that.

Q643 Lord Teverson: On the Emissions Trading Scheme, there seems an inconsistency to me in that, in terms of targets, we are just talking about carbon dioxide, that is all, and yet when we come to the proposed trading schemes, UK-based, then it talks about greenhouse gases. So we move into the basket of gases rather than just one. I am interested in why there is that inconsistency in the Bill and I am also interested why there seems to be no provision for auction in the UK scheme either, where that seems to be increasingly pressing in terms of the EUTS and other broader schemes.

Mr Mortimer: On the first point, the key thing is that the targets in the budgets are solely relating to CO₂ because that is where we think the primary effort needs to be made. We have been very successful since 1990 in reducing other greenhouse gases—44 per cent since 1990—but there is more of a challenge in relation to CO₂. That is the reason for having a particular focus on CO₂. That is not saying that we are neglectful of the need to act on other greenhouse gases, and the reason behind the enabling power is so that if a trading scheme for other greenhouse

gases was seen as the right way to go about tackling those emissions then that would be a possibility. So I do not think there is any inconsistency there, although you are right to say that they are different—the coverage of those two is different. On the auctioning point, the sole reason that this is not in this Bill is because we have an annual Finance Bill. Just as we have had in the Finance Bill provision to allow auctioning under the EU Emissions Trading Scheme then with any future trading schemes, similarly, auctioning could be within a Finance Bill.

Q644 Lord Teverson: It just seems to me so much neater if that was a provision in there, but I understand that. Coming back, if I could, in terms of the gases, we had a situation in carbon dioxide where we had major decreases in carbon dioxide in the early-1990s and then it reversed. Surely, there is a scenario where that could equally be the case with the other greenhouse gases.

Mr Mortimer: There is provision for the Committee on Climate Change to provide specific advice on bringing forward legislation on other greenhouse gases. We have looked at that. The reason for the focus on CO₂ at this stage was simply because that is the area in which the greatest challenges lie, and to have a focus solely on that gas seemed to be the right thing to do.

Q645 David Howarth: I really do not understand this point about the annual Finance Bill and auctioning of allowances, because the draft Climate Change Bill does not just not mention auctioning, it forbids auctioning. It says it is not allowed to sell the allowances, they must be provided free. This is what the Schedule to the Bill says. So what happens then is we have an annual Finance Bill which breaches this existing Act. What is the situation? Is the Climate Change Bill then, for all time, impliedly repealed in that particular section, or is it not? Is it still the law or is it not? It seems to me a bizarre way of proceeding. Why do you not just say that it is permitted to auction allowances under this Bill?

Mr Mortimer: We had a long debate about this with the EFRA Committee. It is not our understanding that this Bill would prohibit auctioning, per se. The omission is simply saying that within the regulations under this Bill auctioning should not be included. It would not mean that the Finance Bill could not bring in auctioning provisions and, indeed, the Government is committed more generally to increasing auctioning as a more sensible way of going about allocating rights within trading schemes.

Q646 David Howarth: There is no power to start an allowance scheme that has auctions, because it is forbidden to do so by this Bill. So it is unclear under what power the Finance Bill will be operating at all.

Mr Mortimer: Our legal advice is not that this would, in a sense, trump the Finance Bill and make something in the Finance Bill unlawful.

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Q647 David Howarth: It is not trumping, it is saying there is no authorisation in the first place for that sort of scheme. So the scheme would have no legal basis. This is powers.

Mr Mortimer: No, our understanding is that this would simply rule out the inclusion of auctioning powers within any regulations under this Bill, not for the Finance Bill not to be able to include auctioning.

Q648 David Howarth: There would have to be primary legislation starting a new, entirely different allowance scheme which was not under the powers given by this Bill.

Mr Mortimer: No—

Q649 David Howarth: Under what Bill would it then be given power to do that?

Mr Mortimer: If these powers were used to introduce a particular trading scheme the associated auctioning provisions would simply be taken in through a Finance Bill, because they are financial measures but would be in relation to a scheme brought under these enabling powers. The reason simply being that revenue measures have, historically, always been taken through Finance Bills, and the Government's position is that that should continue to be the case.

David Howarth: I think you need better legal advice.

Chairman: You have lost me. Could you drop us a note on that one? Unravel that a little? Thank you very much indeed, both of you.

Witnesses: **Mr David Miliband, MP**, Secretary of State, and **Mr Robin Mortimer**, Bill Team Head, Department for Environment, Food and Rural Affairs; **John Healey, MP**, Financial Secretary, and **Mr Chris Taylor**, Economic Advisor, HM Treasury, examined.

Chairman: May we start off with the issue of reporting and enabling powers, and a question from Lord Crickhowell.

Q650 Lord Crickhowell: I want to take the reporting and enabling powers, really, with the fundamental question about the legal enforceability of the statutory duties imposed on the Secretary of State. The word has gone out from Government that they are legally enforceable but all the evidence that we have heard suggests otherwise. I think it is inconceivable that clause 1, imposing a statutory duty on the Secretary of State to do something by the year 2050, could be legally enforced. I suppose it is arguable about the five-year provisions, but the gravest possible doubts have been expressed even on that point, not only by lawyers but by the Environment Agency, among others. My first question is, bearing in mind it is highly unlikely that they would be enforceable by the courts or by judicial review, would you be prepared to consider the kind of alternatives suggested in their evidence by the Environment Agency to produce the kind of penalties that we accept internationally where the duties are legally enforceable but which do not appear to exist in the Bill as we have it drafted at present?

Mr Miliband: Good afternoon, first of all. Good afternoon to my Lord Chairman and to the Members of the Commons and Lords. I think it is probably important to say, first of all, that the Government is very keen to learn the final conclusions of the Committee's work. We have obviously followed the interim sessions that you have had and the evidence that you have taken. We are conscious that the timescale you are working on is a pacy one, so thank you for the efforts you have put in to stick to the time and to produce a report that can really help us fashion the best possible Bill that really will stand the test of time. We do believe

that the Committee's conclusions are going to be important in helping to raise the general debate and, also, help the Government and, hopefully, opposition parties, in coming forward with proposals that really do command national consensus and set a benchmark internationally which, I think, from all my discussions, is possible. In respect of Lord Crickhowell's question, I am not a lawyer myself but I do get legal advice on these things. I would say there are two points in response to your question: firstly, you mentioned in passing the five-year budgets but you have focused on the 2050 target. While I look forward to being around to see the consequences of our actions in 2050—or 2052 when the budgetary period actually concludes—the injunction is to live within budgets on a five-year basis. I think it is important to focus on the five-year budget. That is where the duty lies. Secondly, it is wholly legitimate that you raise the question “Should you not prescribe the penalties that exist rather than leaving it open to the courts?” I understand why you are saying that. We no longer prescribe the penalty of sending people to the tower if they fail in their duties—at least a metaphorical tower. Our judgment, but we are interested in your views and we saw the professor from Cambridge University who discussed this, is that it is best to leave that open to the courts, for a number of reasons. Firstly, it carries an additional fear behind it (judicial sanction weighs heavily on ministers). Secondly, it is important that we leave maximum flexibility. I think we will need appropriate sanctions. Thirdly, the whole point of our system is to live within budgets rather than to exceed them. I think that is why we have put a focus on the annual reporting as well on the five-year budgetary sanction. From our point of view, leaving it open to the courts to exercise their responsibilities in an appropriate way is the right way to go; to decide now what the sanction would be without knowing the

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circumstances in which it might arise seems to me to be the wrong thing to do—or seems to us to be the wrong thing to do.

Q651 Lord Crickhowell: Secretary of State, thank you for that answer. We want to improve this Bill and remove any shortcomings that may exist in it. You gave the answer yourself to why there is a shortcoming in the very first sentence of the Bill, because quite clearly no court is going to be able to ensure that the Secretary of State ensures that the budget will be met in 2050. I believe very strongly that Parliament is going to object to having a meaningless clause right up in clause 1 of the Bill. It may have a purpose clause, that will be fine, but the more we hear the more we are convinced that it is very unlikely that judicial review will prove an effective sanction. Therefore, we are seeking to find a way to ensure that the Bill does have bite rather than one that is seen as pretending to do something when it clearly does not. It is pretending to be legally enforceable, and our belief is that it may very well prove not legally enforceable. Therefore, we would like to sort this out at quite an early stage rather than have a fundamental flaw right up in clauses 1 and 2 of the Bill.

Mr Miliband: My Lord, I want to bring in the Economic Secretary here, but I would refer you to clause 2(1). It is the duty of the Secretary of State to set for each succeeding period of five years, beginning with the period 2008-2012 of an amount ... to ensure (not to take reasonable steps but to ensure) that the net UK carbon account for a budgetary period does not exceed the carbon budget. That seems to be to be wholly logical because clause 1 sets the long-term trajectory. Subsequent clauses then set out this innovation of budgetary periods. All of our legal advice is to say that far from being a Bill with a hole in the middle of it, it is actually a very robust structure.

Q652 Lord Crickhowell: But clause 1 says that the Secretary of State should ensure that the net UK carbon account for the year 2050 is at least 60 per cent.

Mr Miliband: Exactly.

Q653 Lord Crickhowell: I am suggesting that is not legally enforceable and could not be.

John Healey: Could I just be clear? What we are framing here is a duty, a legal duty, to meet the 2050 target, as you quite rightly say, my Lord, but, also, for the Government to live within the five-year budgets that are set as part of this framework. That is a high-profile legal duty. Our advice is that it would be enforceable in the final analysis through judicial review, through the courts. Sanctions, and whether or not they should be specified in advance or left to the court, is a separate issue, but I do not think—and you being a former senior minister, Lord Crickhowell, will appreciate as well as anybody—we should underestimate the strength of that legal duty within our system of government. You will appreciate that both the ministerial and the civil service code require ministers and civil servants to

act within the law. So both the political pressure and the prevailing propriety and legal pressures within government, I think, will exert a very strong pressure for meeting these legal duties which, in our view and our advice, would ultimately be enforceable through the courts. However, as David Miliband has said, we have taken the judgment at this stage not to specify the sanctions that those courts might choose to deploy, in part because, I think, it generally respects the tradition of the court and, in part, because the judgment of the court and any sanctions or steps they might require of the Government is most likely to depend upon the circumstances at the time, including precisely how and why a particular budgetary period or long-term target may have been missed.

Q654 Lord Crickhowell: May I have one final supplementary there? Accepting, of course, that there will be a pressure on government, because if the Climate Change Committee reveals that they are coming nowhere near there will be great political pressure, if not legal pressure, I still remain extremely dubious about whether the courts will want to get involved in this jungle because it is very difficult for them to reach practical judgments. As with most Bills, the duty is imposed on the Secretary of State, but this whole area of responsibility clearly covers the whole of government. Do you see any advantage in the duty being imposed on the Prime Minister, which would even raise the pressure on government as a whole? We have had some evidence which suggests that people do not understand that the word “Secretary of State” is a collectivity and think that the only pressure is being applied to Defra, when of course the responsibility is going to lie with a whole range of government departments.

Mr Miliband: It may be unwise for me to make too many projections a week in advance of an alleged reshuffle, but I look forward to persuading my colleagues that it is in our collective interest to live within the budgets. I know you are making both a symbolic point but, also, a legal point. I think, to be honest, it was not something that we spent a lot of time thinking about, whether it should be the Prime Minister rather than the Secretary of State. To lose the Secretary of State's head seemed like quite a large sanction for any government. The question has been put up, we have looked into some of the precedents and I think precedent is much skewed towards the Secretary of State bearing the responsibility. Of course, at an operational level it will be the Secretary of State, ultimately reporting to the Prime Minister, who, in Cabinet committees and elsewhere, would be arguing this through. So, I think, while I appreciate the good intentions behind the offer and the temptations, perhaps, behind the offer to someone in my position as well, it is probably wise to stick with the Secretary of State.

Q655 Lord Whitty: Can I come at this in a slightly different way? The operational part of this Bill is actually the Climate Change Committee. A number of people have said that it is unprecedented to set targets in a statute without the means of achieving

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those targets or any sanctions for failing to achieve the targets. Actually, it is not unprecedented. There will be an area very familiar to you in the law on fuel poverty, for example, where we have been set a target. The advisory bodies, at the moment, will tell you it is unlikely we will meet that target, and they will make various recommendations to you as to how you could better reach that target, but the difference in this case is that the advisory body will be a body which is set up itself by statute, where it is expected to be highly authoritative and, therefore have some ability to ensure that its recommendations are actually followed by government. So, rather than talking about sanctions in the way of “hauling to the tower”, or the kind of sanctions to which Lord Crickhowell was referring, should there not at least be a process whereby if governments were not following the recommendations of the Committee on Climate Change, following their assessment that you were failing to meet the trajectory, then there is at least some Parliamentary process, or whatever, following that situation where the Government has to explain why it has diverted from the Committee’s recommendations? Then the issue of court sanctions could come at the end of that. That would crystallise, if you like, the political pressure to which Lord Crickhowell is referring.

Mr Miliband: Let us leave out the court sanctions because, of course, they come at the end of a budgetary period, whereas you are referring quite rightly to the annual reports of the Committee on Climate Change and any judgment they came to about the extent to which the Government was on-track or off-track. It is not a policy-making body so I do not think we would be in a situation where they would be saying, and we discussed this with Tim Yeo’s Committee, where the Committee say: “We really think you should do the following new regulation on boilers in order to do this”, and the government did not do it. I do not think we are looking at that, we are looking at a situation where the Committee reports, and it reports the Government is either on track or off track. We have said in the Bill that the Government must respond to the report of the Committee and either pat itself on the back for doing so well or set out how it is going to get back on track. I think it was Tim Yeo’s Committee (correct me if I am wrong—it may have been the EFRA Select Committee) where it was put to us that: “Should you not institutionalise a Parliamentary debate?” in the way that you are discussing. I said then that I was open-minded about that. I cannot envisage a circumstance in which a government was off-track for its carbon budget but it gave a report on how it proposed to respond and then there was no discussion on it. I can imagine a situation where the government was on-track and produced a report to say how well it was doing and I can imagine that would not get much debate, but in a situation where we are off-track then I can see there being a big debate. That is something where we would be interested in the Committee’s view about, if there is to be a required Parliamentary debate or

otherwise, what form should that take. That seems to me to be a perfectly open and legitimate thing to suggest.

Q656 Lord Whitty: My suggestion is more equivalent to, if you are off-track on the economy you have a budget in the Finance Bill which has to be passed by Parliament. There is a reaction to a report which tells you that you need to make some adjustment measures.

Mr Miliband: John may want to come in on this but I suppose the economic equivalent would be the requirement on the Governor of the Bank of England to write a letter to the Chancellor when inflation is more than 1 per cent away from the 2 per cent target. That is actually a reflection on the Bank—it is explaining the Bank’s performance—so I am not sure if the Finance Bill ---. I see what you are getting at but I am not sure that is exactly parallel.

John Healey: In many ways we are breaking very new ground here, with this, and the parallel with fiscal rules or, indeed, with the fuel poverty target are perhaps useful but certainly not adequate. On fiscal rules, one lesson you can draw from that is that without the sort of strength of the legal duties and enforceability that is in this Bill of the climate change targets of the budgets, nevertheless, the imperative within government to stick to fiscal rules as part of our management of the economy and fiscal policy has been very, very powerful indeed. There is, of course, an annual budget, a Pre-Budget Report, which is a regular report on the state of the economy and the degree of public finances and the projections against the fiscal rules. There is the annual Finance Bill which is an opportunity to deal with tax legislation. In the same way, within the framework and from the framework and the annual reporting in this Bill, there would be the opportunity, and really the expectation, that government would then devise policies to make sure that we remained on track, whether those were tax or regulatory policies, and it would be potentially trading policies that would specifically be within this Bill. On fuel poverty, the essential difference for me, with that analogy, is really evidenced by this Committee; that we have potentially here a piece of legislation which will be a first in the world, that will be, we hope, approved and passed by Parliament with all-party consensus behind it—so in other words a cross-political consensus—designed not just to put this Government on the spot but designed to bind all governments of this country right the way through to 2050 and beyond. That seems to me extraordinarily and potentially powerful and, really, in a different category to the concerns that I understand you are having over the fuel poverty target. As David Miliband has said, the Committee will report each year on their assessment of performance within the budgetary period; it will be for the Government to respond publicly and it could be formalised but, clearly, I think, it is difficult for us all as Parliamentarians to imagine a situation where if government and the country was off-track there would not be activity in the Select Committees that

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took an interest in this, activities in both Chambers, and, indeed, very powerful scrutiny that would be a long way short of the point that Lord Crickhowell was originally concerned about, which might be the legal enforceability.

Q657 Dr Turner: Secretary of State, I would like to discuss the 60 per cent target with you—

Mr Miliband: “At least 60 per cent”.

Q658 Dr Turner: The “at least 60 per cent” target. You told the EFRA Committee that you were not comfortable about raising that target at this moment (at least not without further independent scientific advice) basically, because that had been recommended by the Royal Commission on Environmental Pollution. Their report, of course, was some years ago now, back in 2000, and there has been quite a considerable body of scientific evidence since then, notably the Tyndall Centre, and this evidence is summed up by the Government’s Chief Scientific Adviser as indicating that we should really be going for a target of 80 per cent. What are your reasons now for putting 60 per cent on the Bill now?

Mr Miliband: At least 60 per cent.

Q659 Dr Turner: Even with provision for up-rating it, why are you not going for a higher target right now?

Mr Miliband: For the many reasons that I adumbrated at considerable length when I appeared in front of the previous committees. Let us get the record straight, first of all. The Chief Scientist to the Government has said 60 per cent “is the correct target now”. The Royal Commission on Environmental Pollution, the originator in 2000 of the 60 per cent target, says 60 per cent is the right target now (that is not a quote but that is what they said), though it may need to be revised in the future. That is just for the record. Why stick to 60 per cent and why add the two words “at least” in advance? There is a legal reason for adding the words “at least” because we did not want to be in a situation where we could be accused, in a Committee like this, of government being taken to the cleaners because it had gone beyond 60 per cent in 2052. To be honest, there is also another reason, which is that the science has gone only in one direction since 2000, which is to say that the situation is more grave and that the need is more urgent, and it is absolutely right, therefore, that we say “at least 60 per cent” to signal that we know that, frankly, if the target is going to change it is only going to change in one direction, and that is upwards. Why not now go for another figure? One, because we have not had the sort of due process that the RCEP represented when it originally came to the 60 per cent—the intensive scientific work. Secondly, because we have got, I think, a broad-ranging national consensus that “at least 60 per cent” is now right. You have had non-governmental organisations, employer bodies, all saying: “Look, we can get consensus that at least 60 per cent is right”. I think that consensus is valuable. The third reason for not picking a figure now is that the 2020 target gives us plenty of scope to ensure that

investment decisions being taken now are guided in the right way, consistent with a range that goes beyond 60 per cent. Fourthly, we make provision in the Bill for change on the basis of the new committee that we are setting up, which will be the most authoritative committee that the country has ever had in this area. So I think those are very powerful reasons for saying there is no room for complacency, no sitting here saying: “It has got to be 60 and it will always be 60”; but very clear reasons for saying: “Let’s not shift the goalposts now, let’s say ‘at least 60 per cent’”, because it is the right thing to do and we can, at the appropriate time, on the basis of independent advice, revisit it.

Q660 Lord Vinson: I want to come back, if I may, to the question of enforceability. Coming back to the whole framework of the Bill, it sets us an exemplar, particularly for other nations, because we all realise that even if we did 100 per cent carbon saving over this period it would not actually be measurable in terms of the planet’s damaging emissions. So we are doing this to try and set, and perfectly properly, a pattern for the rest of the world to follow. I am only concerned that when we come down to finding that we have not met targets, that people will look round in five and ten years’ time and say: “There’s another three billion people born into the world all creating CO₂; that China, India and, probably, Russia and other countries have not gone ahead with this anyway, how long can we go on wearing a hair shirt where, actually, it is not making the slightest difference?” I think the important thing to build into the framework of the Bill is that people have a sense of duty, and it has got to be largely enforced, I think, as much as anything, by exhortation. If you start bringing in penalties, at the end of the day, the public pays the penalties. The Government does not pay; you have got to put the costs up, or do something, or tweak the restrictions even harder. I think people will take that to start with but when they see the rest of the world not necessarily following our example we have got to keep going, and at that point we have to rely more on exhortation than we actually have on physical, financial and statutory punishments. I think it is important—and perhaps you would agree or disagree with this—that within the framework of the Bill we recognise what we are trying to do as an exemplar. We are not going to save the planet, it is just an exemplar. There are lots of things we can do; we are about to go through a period where our CO₂ base is going to go down as our old atomic plants wear out and, because we have not taken any steps to replace the CO₂-free energy that they have got; our curve of CO₂ outputs is going to rise rather than fall during this very difficult next 20 years. So I would suggest we want to frame our enforcement procedures based on exhortation and goodwill as much as anything, rather than pretend that we are actually going to save the globe by the measures we introduce. I do not think the public will wear it, will they, beyond a certain point?

Mr Miliband: There is quite a lot to chew on in what you say. You are right, this is not called the “Save the Planet (Miscellaneous Provisions) Bill”, it is called

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the “Draft Climate Change Bill”. So I do not think we are claiming to save the planet on our own. I do not agree with you that exhortation (which, I think, is known in some political parties as the philosophy of social responsibility) is sufficient in an area like climate change; I think the power of the law is very, very important in ensuring that government, businesses and individuals are clear about the long-term emissions trajectory that we need to face as a country. In respect of the international dimension which you raise, and which is very important, to be fair the Bill is not silent on the international aspects of this, most notably in respect of the supplementarity provisions—in other words, the provisions for purchasing emission reductions abroad—which, in our view, makes strong sense because a tonne of carbon dioxide emitted in Bangladesh is as dangerous as a tonne of carbon dioxide emitted in Birmingham. So it is right to have that international dimension built in. I have been answering the question, on some of the media today, in the light of claims or results showing that Chinese emissions are now going above American emissions: “Why should we do anything”, which is your question. My answer to that is partly a practical one, which is that I believe there are economic gains from us being an early mover to low-carbon economics. Secondly, it is a negotiating answer. If I am sitting opposite, as I do, the Chinese or Indian Environment or Finance Ministers and I am asking them to avoid the mistakes that we have made in our 150 years of industrialisation, and then they say to me: “What are you doing?” and I say: “We are relying on exhortation”, I think they will, rightly, believe that I am not serious about this and I am in no position to lecture them about their needs. Thirdly, there is an ethical or moral dimension to this, which is that carbon dioxide sits in the atmosphere for 100 years, and the Chinese, on a flow basis, may be approaching American levels—for a country, it must be said, four times larger in its population—but in terms of the approximate stock of carbon dioxide, and taking into account emissions only since 1960 US aggregate emissions will be 50% higher than Chinese emissions in 2025. So I think there are three very powerful reasons there why it is right that we take action here.

Q661 Lord Vinson: My point was not that you should not have some targets and a degree of enforceability built in to start with, but the reality is, I think, that some five or ten years out, when people look round and say: “How long are we going to set an example for when others are not?” we may have to then depend much more on goodwill rather than—

Mr Miliband: What if, actually, it is doing us good? What if, in fact, we are winning markets? It is the case, at the moment, that environmental industries are the fastest-growing job-creating sector of the economy. It is the case that venture capital and other finance is moving into the so-called “green collar” jobs very, very fast. What happens, actually, if we are doing ourselves a favour by taking the action

here? That rather undermines the suggestion that we are donning a hair shirt. Maybe we are just being smart.

Lord Vinson: We will have to wait and see.

Q662 Chairman: You gave, I think, an excellent answer to Dr Turner just now. The corollary of which, surely, is that you are shooting yourself in the foot to seek powers through secondary legislation to reduce targets which we all, I think, concede are only likely to increase. It looks, I would suggest, to the public like sleight of hand.

Mr Miliband: You might want to specify which you are talking about, but there are provisions in respect of the targets on the face of the Bill and there are also provisions in respect of revision of the five-year budgets.

Q663 Chairman: Basically, I am suggesting that any downward revision that you seek by using secondary legislation is a mistake and is, inevitably, going to be misinterpreted.

Mr Miliband: It is interesting. The provision is on the basis of major—I cannot remember the exact phrase—scientific or other changes and on the basis of recommendations from the Climate Change Committee (so there are quite strong locks built into against that). You are saying those are not sufficient locks; that they should be more substantial? Only for lowering it? Is that what you are saying?

Q664 Chairman: I am suggesting if there is brand new scientific evidence, surely, that is the evidence that ought to be debated in Parliament in the form of primary legislation because you have brought that evidence forward and have felt it is of sufficient force to allow for a reduction in the targets. That is the only circumstance under which you would want to do that. Therefore, it is in your interest, I would suggest, to seek primary legislation as opposed to seeking the escape route of secondary legislation.

Mr Miliband: I am always interested in avoiding shooting myself in the foot, but I have to say that is the first time anyone has suggested to us that we are shooting ourselves in the foot. No one has, up to now, said that this is somehow a loophole that a foxy government might try and escape through, not least because you have got the Climate Change Committee built in. I can see that suspicious minds—I know not why yours might think that—but of all the things doing us reputational damage I have not heard that that one is being used against us. I do not know if you have any reflections?

John Healey: Only that as things stand, as the draft Bill stands, the two figures that are in primary legislation, as things stand, are the 2020 and the 2050 targets, not the budgets. I think you may be talking about the budget period and the budget levels.

Q665 Chairman: I am suggesting that in a Bill like this—

John Healey: We would have to return to Parliament in order to change the times—

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Q666 Chairman: That is precisely what I am saying. I am precisely accepting what you are suggesting, that this is breaking new ground—you used that very good phrase—and is the first in the world of its type. Secondary legislation is a pretty discredited instrument, in many senses. It just does not seem to fit with your ambitions for the Bill.

Mr Miliband: This is the purpose of a pre-legislative scrutiny.

Q667 Chairman: Sure. That is why we are here.

Mr Miliband: Exactly. It is an interesting point and if we can think of an answer we shall give you one before you conclude your proceedings.

Q668 Helen Goodman: Back to the issue of the level of targets. I wonder if I could ask you to explain why for 2020 you have set a range. Is there not a very serious risk that that just drives us to a minimalist 26 per cent position?

Mr Miliband: It is interesting. We have been accused in other quarters of being in a position where it is going to drive us to the 32 per cent. So it is interesting that you think it will be minimalist. The Energy Review showed that under current policy, if all current policy is put into place, if all policies that we are committed to are put into place, we will reach just under 26 per cent. I think I am right in saying that does not include the commitment to zero-carbon homes from 2015/2016. I do not think we will be taking refuge, if that is what you are saying, in the 26 per cent, although no doubt, if that is where we end up, we would want to say that was within range. I think it makes sense, actually, to have a range, and of course by saying “at least 60 per cent” you have got something of a range at the top end as well, at 2050. The range is important for another reason, which is that what has come through to us from the business community very, very strongly is that the debate about 2050, which has been significant, and the debate about so-called annual targets (I do not know if we are going to cover that ground today) completely misses the point. They say: “We are making investment decisions not on the basis of where we are going to be in 2050 and not on the basis of where we are going to be in one year, but where we are going to be over a five, ten, 15-year horizon”. That is why it was a very important decision the Government took, I think, to put the 2020 target in legislation. It is very important that the Government took the decision to make the proposal that there should be three carbon budgets set at a time for 15 years. What business said to us is that a range, a ballpark, actually helps them. For the same legal reason that we introduced the words “at least” in respect of 60 per cent, I guess we would have to have introduced the words “at least” in respect of 26 per cent, and you would then have said “at least 26 per cent” which would not have given the sort of clarity that you get from a 26-32 per cent range. Of course, it is CO₂ which it is important to remember, as well. Some of the discussion I have read in the Committee about the European target, which is, of course, framed in greenhouse gases, has jumped backwards and forwards between CO₂ and GHG (greenhouse

gas). From a business point of view, the range actually provides a degree of confidence and certainty. I suppose that would be the correct answer.

Q669 Helen Goodman: So you are not saying that you would be concerned if we did better than 32 per cent?

Mr Miliband: No.

Q670 Helen Goodman: You could read the Bill like that, as it is drafted at the moment.

Mr Miliband: I would be more concerned if we were below 26 than if we were above 32, if that is what you are asking.

Q671 Helen Goodman: No, I am just suggesting to you that it is rather odd to put an upper cap of 32 per cent, particularly when we know that, in terms of the end point, we are only likely to need to have bigger reductions, and that argues for front-end loading.

Mr Miliband: I want to bring John in, but remember—and you have been in business as well—giving them that ballpark is important for them. The other thing to remember is that if you exceed you can bank. So it is not like it is wasted effort in any sort of way, if you go beyond.

John Healey: There is, also, of course, the provision to change the targets, so that, we believe, this will help us in the international negotiations that we need to play a leading part in to secure international agreement. So if there is a significant change in international law and targets which leads us to the conclusion that we should change the targets including raise them, we can do that. If we are spectacularly successful or we have policies in place that, again, look like we are going to over-achieve that range, again, we have the facility, as the Bill is drafted, to be able to make those sorts of changes too.

Helen Goodman: Thank you.

Q672 Mark Lazarowicz: I appreciate what you have said but I still do not quite understand why, if you can say “at least 60” for 2050, it is not as simple to say “at least”, say, 30, or “at least 32” for 2020.

Mr Miliband: Because it is more precise, is the short answer. 26 to 32 gives you a clearer—maybe goalposts is the wrong way of thinking about it—landing place in terms of business thinking about the carbon price and other investment decisions that they are making.

Q673 Mark Lazarowicz: It is not a figure that business itself is going to directly work with; it is a figure for government to work with, to set its carbon budget.

Mr Miliband: I am not sure about that.

Q674 Mark Lazarowicz: I just do not understand why a range is right for the earlier period but the Bill is phrased in the terminology of “at least” for the later period, particularly when, as John Healey has said, it would require, apparently, legislation

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(obviously it would require legislation) to allow for reaching a higher target if that seemed possible with science and technological progress.

Mr Miliband: Do you take my point about trying to give confidence to business about the sort of effort we are going to be asking of them? The other indications they get about our effort come from decisions we make on the emissions trading scheme, which up to now exist until 2012: the European Emissions Trading Scheme, in respect of European commitments, 20 per cent by 2020, possibly 30 per cent if other countries go with it. You have had business representatives here. I think it gives them clarity and confidence, and that is what they have been seeking from us.

Q675 Mark Lazarowicz: I understand that, and I do not want to pursue it too far, but this is an obligation upon government, as a result of which you will be producing carbon budgets, and that is what government and business are looking to, surely to get an indication about their future investment strategies?

Mr Miliband: It is an interim target, remember. It is there to get you on a trajectory down to 2050.

Q676 Mr Yeo: You gave, I thought, a very convincing answer to Lord Vinson about the advantages of having quite challenging targets. In particular—

Mr Miliband: So convincing, he cannot stand to hear any more!

Q677 Mr Yeo: He has folded his tent and gone! Particularly the point about business, perhaps, getting significant first mover advantage in what may be very, very large global markets for a variety of environmental goods and services. It seems to relate to this point as well, though. I agree it is very desirable to give business a certain amount of predictability—that is what they quite reasonably ask for in the medium term—but if they are doing well surely what you need to be able to do is to up the ante very quickly. You do not want any procedural difficulty in saying: “Let’s make the target more challenging”, because not only does it strengthen our hand in the first round of post-Kyoto negotiations as we get towards 2020 but it is also going to give the British economy an enormous boost because we are going to be charging our businesses to make even faster progress towards a low-carbon economy.

Mr Miliband: By that token, Tim, the more the merrier. On what basis do you set a coherent target? By implication, no number is high enough.

Q678 Mr Yeo: I would not say “no number is high enough” but I think if you want to dismantle any barriers to swiftly making the targets more challenging, either in the light of worsening science (which is conceivable) or in the light of, perhaps, better business opportunities (which is also conceivable)—

Mr Miliband: We can talk about dismantling barriers and we would just be showing how open-minded we are at the prospect of putting into primary legislation the requirement to change the targets. That, I suppose you could say, is a new barrier to upping the ante on business. By any stretch, 26 to 32 is a stretched target. That is a pretty big effort. It is open to any business to try and do more and service bigger markets and go further. We are not capping them, we are not limiting them—as I made the point about banking; if you overachieve then it is good for the country.

Q679 Mr Yeo: Your party ally, the Mayor of London, has, of course, set quite a demanding target for London, which he seems very confident of achieving. By comparison with that, this is not particularly stretching.

Mr Miliband: We always look for boldness from the Mayor of London and we look forward to seeing how he is going to meet it using the extensive dictatorial powers that we have given him. Let us see how we go, I think, is the fair way of putting it. You have all been too polite to raise the fact that because of the increase in gas prices and the increased coal burn over the last three years, carbon emissions have gone up in the last two years. So thank you for not mentioning it. We have some stretching targets in there, and I actually think the range in that sense helps.

John Healey: The other thing about the targets and business confidence is that the targets codified in legislation, with what we hope will be the full and cross-party support behind this, are a confirmation of serious policy intent. What business will then be looking to Government to do and work with us to do will be the policies which will help deliver that, whether those are a readiness on Government’s part to invest in some of the new and environmental technologies, which are going to build our competitive position through the new Environmental Transformation Fund which David has been instrumental in looking to set up, or indeed through some of the regulatory or tax policies which we may put in place as a result of this. It is the broad commitment which will give business, on the sort of timescales that David has talked about, the confidence of the direction of serious intent of policy that this Bill is designed to create the framework for.

Chairman: Thank you. Moving on to sectoral targets, Lord Woolmer.

Q680 Lord Woolmer of Leeds: In section 20 of the Bill, subsection (1)(c), it talks about the Committee advising the Secretary of State on the respective contributions made towards meeting the budget by two broad areas, sectors covered by trading schemes and other sectors. Does that mean simply a block one figure for sectors covered by trading schemes and one sector covered by the rest of the economy, or is it meant to be there could be several sectors broken down into those areas covered by the trading schemes? One witness told us that he thought it

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simply meant two blocks of figures, one to cover all trading sectors and one for all the rest. Does it actually mean a more detailed break-down?

David Miliband: I will not say anything rude about that suggestion before I found out who the witness was who suggested that—it might turn out to be one of my colleagues which would be extremely embarrassing—but I think it is very hard to imagine a situation where the Committee is not transparent about its working. If it has tallied up a figure for sectors covered by the trading scheme, I would have thought they would want to show some of their working. The choice is for them but I would have thought some degree of transparency makes sense.

Q681 Lord Woolmer of Leeds: Just remind the Committee at this point, broadly speaking, what proportion of the economy is covered in trading schemes and what is the rest at the moment as things stand looking forward, subject to the Climate Change Committee?

David Miliband: It is 52 per cent covered at the moment, by the European emissions trading scheme.

Q682 Lord Woolmer of Leeds: Where do you see it going?

David Miliband: Importantly plus the commitment to get aviation, which represents about 7 per cent in, so you are up to 59 per cent by then. We are setting up a UK trading scheme for medium emitters, the carbon reduction commitment which was published in the Energy White Paper, for about 4 to 5,000 medium emitting organisations in the public and private sector—supermarkets, universities, NHS trusts, local authorities, the BBC, et cetera—so that pushes you up again and that will get you beyond the 60 per cent figure. It is an irony really because climate change is described by Sir Nicholas Stern as the world's greatest market failure, but the answer is not to abolish markets, the answer is to use public intervention to structure markets to drive low cost solutions or low cost responses to the problem. I think pricing is an important part of that. The fact that the carbon price for 2008-2012 on the ETS is now a healthy 25 euros a tonne and is basically heading in one direction only is I think encouraging.

Chairman: Can we stay on this with a question from Lord Selborne?

Q683 Earl of Selborne: If we look at the sector by sector level it is clear that you have accepted the Committee must simply chisel down and if it is to give authoritative advice it must have the ability to produce convincing models for each sector. Would you accept that that should also include sequestration as well as emissions? Defra after all has responsibility for land use and there is quite a lot of possibilities, is there not, for adding that into long-term trading schemes?

David Miliband: Your Lordship speaks with great authority as the chairman of Kew. The short answer is that there is extensive provision for discussion for so-called sinks in the Bill and I can imagine the Committee moving into that area as well. There was a slight fad five or ten years ago, "Plant a tree and

save the planet", I think one has to be slightly careful about that, but the issue of avoiding deforestation is a massive issue for the battle against climate change—18 per cent of emissions come from deforestation. The Chancellor made a significant announcement about the rainforests in the Congo Basin and 10 African countries in the Budget, £50 million, an £800 million fund over three years which I think will significantly play into that. So I think it is open to the Committee to move into those areas.

Q684 Earl of Selborne: How is it going to ensure that it does have access to all the information and models it requires? Is there any way that you can see it being inhibited from collecting information from Government sources?

David Miliband: Not at all. I think full access to DTI and other models is an important part of the workings. There is no point in them having to reinvent the wheel or build their own models because others will not share them with them. There are models in the public sector or in government but also in expert bodies, some of whom have given evidence to you.

Q685 Earl of Selborne: If it finds that the resources in Government are not adequate, would it have the funds to commission extra modelling?

David Miliband: I think so. We have made provision for £750,000-worth of research funding in the first year. Our advice is that that is not going to be a problem.

Q686 Baroness Miller of Chilthorne Domer: Just a minute ago you referred to the effect of increased prices having some effect.

David Miliband: Carbon prices.

Q687 Baroness Miller of Chilthorne Domer: I beg your pardon. Anyway increasing energy prices are a key to my question. The Committee will be putting certain pressures on and encouraging movement in one way whilst we have a regulatory regime, and I am thinking particularly of Ofgem, for example, which is still predicated on really pre-climate change thinking. Do you think at the least, and I know you do not want to add all sorts of things into this Bill, you should have another look at the regulatory regime and see whether it needs to have its duties updated in line with this new thinking?

David Miliband: It is interesting the way you phrase it, that the regulatory regime was framed for a pre-climate change world. I do understand what you mean, it certainly was a world before climate change had the sort of profile it has at the moment which I think is a good point. What Ofgem say to me is that they have extensive powers to take account of environmental and other factors at the moment some of which are written in their statute. I think it would be silly of me to come and sit here and say there is nothing that could be improved in any of the regulatory regimes that exist. I think I would want to look at some of the actions that Ofgem have taken and be sure there was a problem before we tried to fix it, if you see what I mean, rather than just a

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theoretical issue. I am not sure if the Climate Change Bill is necessarily the right place to do this. You referred to “having a look at” those issues. You also were generous to say that we want to avoid this becoming a “Christmas tree” of everybody’s ideas. I suppose my starting point would be let us be sure there is a problem; if there is a problem then let us deal with it.

Q688 Baroness Miller of Chilthorne Domer: Could you give me any examples of how Ofgem have interpreted their powers—and I know they changed under the Energy Act to include a sustainability duty for example—where they have really changed the trajectory through new ways of thinking?

David Miliband: It would be worth me, or even better Ofgem submitting a memo to the Committee in pretty short order. I know they will be able to do this because I asked exactly the same question and they submitted a memo to me soon after I came into office. I think they would point to a range of issues, not least to the Energy Efficiency Commitment where they are important players in respect of micro generation where they have been charged by the Chancellor with coming up with some important new evidence about how feed-in and other new tariffs could work. I think it is a totally legitimate question to ask, I asked it myself, and I think it is worth them submitting a little note because I know the Chairman and the Chief Executive are very committed to the agenda and they would want to be able to show you that they were not living in a prehistoric age.

John Healey: Perhaps I could add just in relation to the Bill—the area that you point to is certainly one for active debate but not one perhaps for this Bill because it is an essential principle of the Bill that it is for the Government to come up with the policies that will be required in order to meet the established budgets, and with the exception of certain specified areas such as the ones we have already touched on, the degree of effort that may be required between sectors that are and are not covered by the trading schemes, in general I do not think we expect the Committee to be coming up with detailed sector policy recommendations.

Q689 Lord Jay of Ewelme: A number of our witnesses, probably the majority of our witnesses have argued for the inclusion of aviation and shipping in the emissions targets given their importance and given the very swift growth of aviation emissions in particular. The arguments against it are, as I understand it, that they are difficult to measure and there is not an international trading scheme yet or an international regime covering them. Surely the measurement should not be insuperable and of course aviation is, as you said just now, going to be included in the European Trading Scheme quite soon, so would it not be in keeping with the laudable aim of leading on climate change and being, as you put it just now, an “early mover” to a low-carbon economy to include them from the start or at least to include aviation?

David Miliband: Yes to include them, and that is what we have tried to do through clause 15 of the Bill. You referred right at the beginning of your question to the need to include aviation and shipping in international targets, and that is absolutely right. The Kyoto agreement and the run-up to it were brokered—it shows how fast things moved—before aviation was seen as being a significant issue, so you are absolutely right it has got to be part of the equation, and that is why we have made special provision in clause 15 to include aviation and shipping. Two issues need to be sorted out before we can do so. Firstly, what levels of emissions are coming from aviation and how to classify them because there is an intense scientific debate highlighting the extra dangers associated with emissions at 35,000 feet so we have got to make sure that we are ascribing the right level of blame. Secondly, we have got to clear up this issue of if you are flying from Britain to France whose budget does it count against: is it 50/50; is it ours, is it theirs? It is a perfectly reasonable question; are you just punting this into the long grass and you are never going to do this? No, and I can defend myself better against that allegation because of the progress we have made on the Emissions Trading Scheme. It is now in prospect that we are going to have to sort this out at European level. I think it makes sense to sort it out at European level and then include it in the Bill, and that is why we have made special provision to do so.

John Healey: And similarly in relation to shipping we have pressed the President of the International Maritime Organisation to get arrangements that would see some sort of trading scheme and allocation arrangement within shipping.

Q690 Lord Jay of Ewelme: I suppose the further point is given the tortoise-like progress in the ICAO and in the International Maritime Organisation, being a bit more forward in the Bill at this stage would provide a real lead to them, otherwise there is a real risk that neither is going to be included, there is not going to be an international regime and this is going to be quite a hole in the international arrangements.

David Miliband: It is unfair that you mentioned the ICAO but you did not mention the EU—unusually!

Q691 Lord Jay of Ewelme: I did earlier on.

David Miliband: That is a reason for including it. The EU is not being dilatory about this now. After a long period of pressing we have finally got a commitment to get aviation in and if we are going to get aviation in let us see what the rules are. One of the best things that has happened in this area we have been pressing to get it in as soon as possible and in the end we got a determination that aviation should go in in 2011 and 2012, domestic and international. Then you say what about the period between now and 2011 and 2012, are we not going to end up with much higher emissions, growth in emissions are projected at around 4 per cent per year whilst efficiency improvements are projected at around 1.5 per cent per year—leading to an overall increase in emissions in the order of 3 per cent per

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year; what have the European Commission done? Very smartly they have said, “We are going to set the baseline at 2004 level of emissions,” so in other words the cap is going to be set and the effort is going to be required against a 2004 baseline even though emissions are only going to come into the ETS in 2011 and 2012 for domestic and international, so I do not think you can stand up the argument we are somehow “fiddling while Rome burns” because we have got it in. Once we get the technicalities sorted out on an EU basis we can incorporate them in a pretty quick way.

Q692 Mark Lazarowicz: Just briefly on that point, would it not make sense though to include international aviation or a least intra European international aviation on an interim basis in the Bill and making some decision as to how that would apply for the UK and then in due course change the regulations once you have the details of European emissions worked out? If you do it now it is going to be easier to comply with the regulations from 2012 onwards.

David Miliband: 15(2) is pretty interim, it says by order I can do it.

Q693 Chairman: We urge you to do it.

David Miliband: Does it not make sense? The “it” is dependent on mode of calculation and method of allocation. If clause 15 were not here you would have me bang to rights, but clause 15 is here. I do not know whether we could toughen up the wording of clause 15 but I think the position that says we are determined to get it in; we have got European agreement to get it in; we are sorting out the technicalities about how you get it in; once we have sorted them out it is going to be in, and I can decide it subject to a negative resolution, and at the 2004 baseline so they are not getting away with increasing emissions.

Q694 Lord Crickhowell: Secretary of State, I very much welcome your positive words on this. Dare I say it I think they were rather more positive than some of the words we had from the Department of Trade and Industry when they came here the other day. As I understood the evidence, they were saying there really is a difficulty in getting at the basic facts because, after all, we are going to have to rely on the French, with the implication that it will be unreliable information from the French for any information on planes going in and out of France. Surely the great strength of the EU arrangements as they are emerging is that we will have some very solid information being fed into the Commission from all the countries in the Commission and that we will be able to rely pretty squarely on the EU basis of information, because after all Europe is a worldwide hub, it is not just a very small part of aviation, so I hope that what you were saying is that we will move really quite fast to use the material that will emerge from Europe to go where I think you want to go and where I want to go.

David Miliband: Hear, hear! I say to that. Correct me if I am wrong but you may well be speaking with the authority of a former Secretary of State for Transport.

Q695 Lord Crickhowell: No.

David Miliband: You spoke with the authority of a former Secretary of State for Transport!

Q696 Lord Crickhowell: There have been so many that I might well have been!

David Miliband: You certainly spoke with the confidence of an avowed pro-European, which I am very happy to recognise. Look, you are right, the EU after much huffing and puffing has finally got serious about this, “We are going to sort it out and we are going to sort out the allocation methodology,” I shall revisit the DTI’s evidence, I have been working very closely with the Department of Transport on this particular item. As it happens, I saw Alistair Darling today and this was not raised as an issue, so I think we are in the same place, to tell you the truth.

Q697 Mr Yeo: On aviation no-one will be more pleased than me if the EU can stick to the 2004 baseline when it brings the American airlines into the scheme; I think that would be a significant achievement. The Department for Transport told us that including aviation in the EU ETS did not mean that we could incorporate it within UK carbon budgets, in fact they say it was impossible to do so. Is that your understanding?

David Miliband: If you are going to include aviation you then need to revisit what counts --- the 26 to 32 per cent reduction is based on a baseline that does not include aviation so you would need to recalculate quite a lot of your numbers.

Q698 Mr Yeo: That is a very helpful clarification.

David Miliband: Oh dear!

Q699 Mr Yeo: We are very constructive in this Committee. Just related to that point, as we look further down the track within the EU, say to phase four after 2012, it is likely that we will face centrally determined EU targets. How will those interact between the British carbon budget targets and the centrally determined EU targets?

David Miliband: Just so I understand exactly what you are saying, are you saying centrally determined British caps within the ETS or burden-sharing of international agreements in which Britain has to play a part?

Q700 Mr Yeo: The latter.

David Miliband: We already have, as you know, our share of the Kyoto European “burden”. Europe is required to achieve an eight per cent reduction in GHG on 1990 levels, Britain 12.5 per cent—we are on track to get 22/23 per cent so we already have that. The EU 20 per cent Greenhouse Gas Commitment by 2020—obviously it is a different EU than when we shared out the Kyoto targets, it is an EU of 27. On any basis, if you use the same method of calculation as a basis not as a negotiating

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position, we are being sufficiently ambitious in the targets that we have set. If you are up to a 30 per cent EU reduction, say for the sake of argument the United States and other industrialised countries take strong action, and in those circumstances the EU says it will go from a 20 to 30 per cent reduction by 2020, because we have set a 26 and 32 per cent reduction in CO₂, which translates 32 to 37 per cent, more or less, in greenhouse gases, on most of the ways of sharing out the European “burden” we are pretty well-placed. I do not see a situation in which we are going to have fallen behind the game in such a bad way that the EU burden-sharing agreement would cause us a problem. However, the international obligations are a legal requirement and we would certainly want to incorporate them in an appropriate way.

Q701 Mr Yeo: Would you accept that in relation to those industries covered by the ETS the simplest way forward after 2012 would be a single EU target for a particular industry and a 100 per cent auctioning system so that each country could buy whatever it felt it needed to?

David Miliband: There is a great football manager’s team which looks good on paper but we are playing on grass, which strikes a slightly cautionary note in my mind. You are absolutely right that the theory of, I would certainly say, a European economy-wide cap and then high levels of auctioning is a sensible way of thinking about the theoretical model. Once you are into sectoral allocations that adds another twist and before going “Snap” on your offer I would want to think what you really mean by sectoral allocations and look at that. Then there is also the question of once you have got auctioning is the auctioning done at a national level or at a European level, and if it is done at European level all sorts of questions emerge, so I am sympathetic to the idea that Europe-wide power is important in this area and, as we have seen, it has been the European Commission, our ally in this case, which has ensured that weaker caps have been rejected by countries other than us and tougher caps imposed, and to the extent that has been driven by their notion of European science and a European cap, that is a good thing. Your instinct that high levels of auctioning are desirable is also sensible and we are putting our toe in the water with a seven per cent auctioning level for Phase II which I think given we are in an experimental phase of the scheme we can learn a lot from, but there are big financial issues raised by it.

Q702 Chairman: One last word on aviation because it is rather illustrative of how difficult it is to move forward. We had interesting evidence from easyJet who are quite clear that the improvements they thought could be made to engines and that planes in future would allow them to be more effective and more efficient. They differentiated between what they termed “clean” and “dirty” flights. There is a point here that, John, you might like to make a comment on. The real problem here is that as these new planes come on stream easyJet are not going to pulp their old planes, they are going to be a sold into

what is actually a bigger and bigger secondhand aircraft market which in turn fuels low-cost flying around the world, so what appears on the one hand to be a technological benefit ends up creating a dumping ground for a lot of “dirty aircraft” and an ever-expanding low-cost airline sector around the world. How do we address that type of anomaly?

John Healey: In general we have to do it in two ways. Firstly, we will do what we can to encourage the airlines to improve the technology and therefore the environmental performance of the planes that they are introducing into the fleet and, secondly, as a minimum, surely we have to make sure that the aviation industry is paying the cost that it imposes on the environment and the rest of us and has built into it an incentive to try and improve its environmental performance. Our judgment is that this is the most effective policy for doing that (because in a sense doing it unilaterally within the UK is only of very limited value particularly with this industry) and that is the reason that we have placed such a great emphasis and put so much work into trying to get aviation into the European Trading Scheme.

Baroness Billingham: It was interesting that when we had the exchange of views how relaxed they were on the targets we specified and it was extremely encouraging to us as a Committee to hear what they were saying and actually very surprising.

Chairman: Moving on to carbon budgets, David Howarth?

Q703 David Howarth: Can we come back to the issue you anticipated earlier about a five-year period as opposed to what happens annually. You started a debate with Lord Whitty but it needs, I think, a bit more discussion. I there are probably two distinct issues here. One is about whether in the multi-year targeting five years is the right number of years, and the other issue is the issue that you started talking about to Lord Whitty which is what happens on an annual basis. These two issues interact but they are not the same issue. If we could start with whether five years is the right period, the argument in favour of it, as I understand it, is that it is associated with international agreements that we are subject to and that we want to negotiate but the argument against it is that Parliaments do not generally last five years, they only last four on average, and secretaries of state, if I might be so bold, last rather less than that.

David Miliband: Have you been talking to Gordon then?

Q704 David Howarth: Not necessarily. But there is a problem of responsibility and accountability that if the target period is so long then everyone involved can say “Do what you like, it is not going to come home to roost within my period of office,” and so the question then will be should the period be something more associated with what happens domestically, for example three years which is the period we use for the Comprehensive Spending Review and the setting of domestic policy? If you can answer that first and then I will come on to annually.

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David Miliband: The arguments for five-year budgets are good and the arguments for other lengths of budgets are not very good, so let me say why. Five-year budgets are not merely associated with international agreements, they are the same as our international agreements, which is rather important, and they were decided upon at international level not on a whim but because they represented the best judgment about an appropriate period that gave sufficient flexibility and balanced flexibility and certainty, and I think those are very powerful arguments. As it happens, it is also the same length as the maximum length of our Parliament, which is a happy symmetry. You would need to be very persuaded that you had got very, very good arguments to move away from that. The arguments against the five-year budgets seem to me to be weak, frankly. If I came along to this Committee or another Committee and said, "Sorry, I have only been here for six months, it is all the previous chap's fault," you would have my guts for garters. You would say, "He's in your Government, you have just had a reshuffle, what happened to collective responsibility?" and you would be right to say that. The allegation that somehow the half life of ministers should be the basis on which to make a judgment about something as important as a carbon budget does not really add up. As for the length of Parliament, as the last three elections have shown, the Government is in a strong position to have to defend its previous record over the previous four years, so if one gets into the jiggery-pokery of that, to be honest, I do not think it is going to work very well. So I feel on that ground pretty secure in saying nothing is perfect but five years is the best way of doing it.

John Healey: David is right, the strongest arguments are for a five-year period. I think the arguments for anything other than that are not as strong. If we think about the purpose of the five-year budgeting, its purpose is to set some tough, reliable legally framed targets for government to devise policies to meet. That implies and certainly the scale of the challenge of climate change implies that we need to develop some serious policies. If you look at those you need that sort of time-frame in which to do so. If you look at the Climate Change Levy, it was in March 1998 that the Chancellor first asked Lord Marshall to take a look at this. It was in April 2001, three years later, that it first started, a three-year period. The Road Transport Fuel Obligation from the point at which we announced we wanted to consult on doing this to the point at which it will start is nearly three years, about two and a half years. David's Carbon Reduction Commitment was first announced in 2006, it will start in 2010, the first capped phase of that will start in 2013, so you have got there a four-year lead time—

David Miliband: A bit slow!

John Healey: So in other words, if you want serious policies developed in the way that is required for such significant policy changes, whether that is tax or regulatory, you need a period within which to frame those and a five-year rather than a three-year seems to us the sensible way of doing it.

Q705 David Howarth: There are two responses. One is that is a very good argument for having five-year spending periods rather than three-year spending periods and perhaps you should have a word with the Treasury about it.

David Miliband: He is the Treasury!

Q706 David Howarth: The Secretary of State should have a word with the Treasury. The second point is of course coming back to the international agreements that these are only existing international agreements, Kyoto and the EU ETS are five years at the moment, so is your view that if the international agreements were to go to a much longer period (and there is an argument for that given what John Healey has just said) that the budget period should be lengthened or would you still want to stick to five years?

David Miliband: I think there is a facility in the Bill, clause 12, to alter the length of the budgetary period but you would need a very good reason to be out of sync with international budgeting. Secondly, I would put a small wager that it will still be five-year budgets on international negotiations for some time to come.

Q707 David Howarth: Could we just move to the second question which is what happens annually.

David Miliband: Did we not go through this on the other Committee you were on?

Q708 David Howarth: We did, *de[acute]jà vu!*

David Miliband: Ask a different question and I will give a different answer.

Q709 David Howarth: As I understand it, what happens on the Bill is the Government reports in March, the Committee reports in late June, I think the limit is 30 June, and then the Government responds to the Committee in October, so what we have is a very long period before there can be any debate of the sort that I think you were talking about earlier, and that does seem a rather slow and weak response. You were talking I think quite positively about beefing up what happens on an annual basis but the question is how far are you willing to go?

David Miliband: I got a bit lost with your months. Could I get Robin Mortimer to set out what the procedure is so we know what we are arguing about.

Mr Mortimer: The first report you mentioned, the March report, is the final account report of what has happened in the two years previously because that is the earliest at which the data is available for the penultimate year. The Committee then reports at the end of June in each year. The reason for that is because that allows it to take account of not only the domestic figure but also figures under the EU Emissions Trading Scheme which are available from around May, so it gives the Committee six weeks or so in receipt of those figures as well to produce the report. The Government response is then three months which is the standard time for responding to a select committee, and that is the reasoning for that.

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David Miliband: So the March thing is a red herring. The March report is every year a final report on the budgetary period. The annual, which is what you are talking about, is June and is three months, so what is wrong with that?

Q710 David Howarth: I think the question is would you be prepared to beef that up a bit in the following way: that instead of it being simply a question of two reports, that the Committee is given an opportunity to assess whether what the Government is saying about its progress is likely to succeed—and this is actually a question about the role of the Committee—and whether in any subsequent debate there might be a discussion about the differences between what the Government thinks is going to happen and what the Committee thinks is going to happen?

David Miliband: But, David, there is complete freedom for the Committee really in how they report annually. We have not written here: “And, by the way, you cannot make any comments about any aspect of Government policy that you do not think is working absolutely perfectly.” They are going to report every year, they are going to report on performance and different sectors of the economy. That is a pretty powerful mandate by any stretch of the imagination. I thought your point was June was too late for the previous year, but actually there is a pretty compelling argument because of the Emissions Trading Scheme. I then thought your point was going to be: what about the three months? In fact, your point is: do not bind the hands of the Committee in how it reports; and we have not.

Q711 David Howarth: So you expect the Committee to be able to do policy analysis?

David Miliband: There is a specific provision in the Bill for the Government to ask for policy analysis but it is not a policy body, it is a body to report on the country’s performance in meeting the carbon reduction targets which have been entered into.

Q712 David Howarth: There is a difference between a policy setting body and a policy analysing body. You are saying you would be quite happy for the body to be able to analyse Government policy without being asked to?

David Miliband: Analyse the effect of Government policy is the way I would put it. So it would say, for example, “We note in the domestic building sector ...”, and I am sorry to go back on the session with boilers but it is the example we used in the EFRA meeting --- or was it the EAC meeting? No, it was the EFRA meeting which was less good tempered than the EAC meeting.

Q713 Mr Yeo: Not so well chaired!

David Miliband: The chair of the EFRA Committee is not here so I will tell him that you said that and I defended his honour! They can say, “Look, we note superb progress on transport, excellent progress in the business sector, households are doing this, that and the other, but we have a real problem with home heating” and then they will be able to analyse what

is happening there. I think that is reasonable. We are talking about a serious committee of serious people to do this.

Chairman: We have a series of extended questions about the Climate Change Committee. I will move on to Lord Caithness if I may.

Q714 Earl of Caithness: Secretary of State, would you agree that the carbon budget is one of your most important tools and has enormous social and economic significance?

David Miliband: Yes.

Q715 Earl of Caithness: Then what are you doing with clause 13(4) allowing retrospective changing 17 months after the end of the budgetary period? Is that not going to put the whole thing into disrepute?

David Miliband: I do not think so. It is one of these data issues, it is when the data becomes finally available. Clause 13(4), did you say?

Q716 Earl of Caithness: Yes, 13(4).

David Miliband: It is a technical issue. Robin can explain.

Mr Mortimer: Towards the end of a budget period the verified data will only be available for the first three years of the budget, therefore the verified data for the last two years will not be available until after the close. Therefore it is possible that if there were a very late significant development, whether it be fuel prices or weather at the very end of a budget period, the Government would not be in a position to judge to respond to that until well after the close. That was the rationale for that clause.

Q717 Earl of Caithness: But then it is no longer a budget. A budget should remain a budget. What you are talking about is the consequences of events, possibly outside your control, during the period of that budget. If you are going to alter the budget 17 months afterwards, you are going to bring it into disrepute.

David Miliband: I cannot alter it on my own. I can only alter it if there have been significant changes to the basis on which the previous decision was taken. It is quite a specific clause, 13(3). Then I have to do it only on the basis of an affirmative resolution procedure. So they are pretty extraordinary circumstances.

John Healey: And after advice from the Committee.

David Miliband: And after advice from the Committee, yes, I beg your pardon. So it is not a whim. It is not me saying, “It has been a bit chilly and that is why we have a problem, so I am going to move the goalposts.” I think if we did not have this in, someone would say, “Look you had an extraordinary set of weather circumstances in the last winter, it is not consistent with the basis on which decisions were made, should you not have the opportunity to re-visit it but should you not make it very difficult for Government to re-visit it?” That is what we have done.

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Q718 Earl of Caithness: I think you are going to end up with a situation where you will look as though you are going to have moved the goalposts for your convenience, and I think that is something which needs to be looked at in the Bill.

John Healey: I think there are two issues here which perhaps we have not been quite clear about in discussions. The first is whether or not it is right necessarily to have the facility to alter the budget. We have explained briefly why that in our view is required. Secondly, it makes sense to have a point beyond which it is not possible to make that alteration, and it is sensible to fix that point at the point at which the data is known with some certainty. That is what you have captured in clause 13(5).

Q719 Earl of Caithness: I hear that and I understand that argument. I think it will still be an Achilles heel for you. Can I move on to my second question and that is, Secretary of State, you have to consult the Committee before amending a carbon budget but you do not have to consult the Committee before amending the targets for 2020 and 2050. Why is there that anomaly?

David Miliband: Why is there that anomaly, Robin?

Mr Mortimer: The rationale is that the Government sets the targets and the Committee works within that framework. That is the reason why.

David Miliband: I see, yes! Sorry, finish your answer.

Mr Mortimer: So the Government is setting the broad overall goalposts within which the Committee is then working.

David Miliband: Let me carry on with you then, if I may, Chairman. The rationale is that the Committee has no say over the targets which are behind the legislation, they are given to them by Parliament, so in that sense as a point of logic it does not make sense for them to be revising the terms of reference essentially which they have been given.

Chairman: We will be sending that clip to Denis Norden!

Q720 Earl of Caithness: Would you agree that the Committee could give you advice you ought to change your targets?

David Miliband: My basic view on this is that if I am the Secretary of State you cannot stop the Climate Change Committee giving advice on things which they think are important, and that is the truth. Any Secretary of State who says, "Look, you must not tell me what you think about X" is going to be taken to the cleaners and quite rightly.

John Healey: And I think it must be true that there is nothing in the draft Bill—and I may be sticking my neck out here—which prevents them from doing that. If they are providing annual reports on the overall performance of policies in relation to budgets within the targets, then clearly if there is an emerging view and case that the Committee is establishing that the targets ought to be reviewed, then I think it is hard to expect them not to be drawing attention to that.

Chairman: Moving on to the economic impact of mitigation.

Q721 Dr Whitehead: I was going to mention earlier that you might consider allocating landing slots at UK airports in carbon values rather than plane values and that would eliminate your 30 aircraft fairly quickly. I did not get an opportunity to ask that so I cannot. Turning to the Stern Review, if I may, I think it is regarded as reasonably widely acknowledged that the central establishment of the Stern Review was that if we do not limit emissions then the economic costs are going to be between 5 per cent and possibly over 20 per cent of global GDP. That has come under some criticism by some economists who have argued that that was based on a fairly controversial approach to the discount rate. Do you think that controversy has undermined the effectiveness of the Stern Review, particularly perhaps in terms of changing hearts and minds and opinion in North America? The Stern Review is I think quite pivotal to a number of arguments which are made in respect of the Climate Change Bill, and that could represent a substantial difficulty in terms of establishing that range of the do-nothing penalty as opposed to the penalty that he estimates for doing something.

David Miliband: I can speak from my point of view as Secretary of State for the Environment. The number of ministers of all kinds who have said to me, and who I have seen reported in Foreign Office telegrams, their minds have been shifted in a fundamental way by the Stern Review is legion. So the direct answer to your question, has it torpedoed the effectiveness of the Stern Review in changing lives? The answer is no. Is there a healthy debate about the Stern Review, its assumptions, its methods of working? Yes, there is. But, remember, there are two main debates. One is about equality within generations and the other is about equality between generations. The allegations against Stern pull in opposite directions in each of those two debates. So I think most people who observe these things can take different views on the debate. At the end of the day, the fundamental Stern point is that business as usual is more expensive than mitigation, and that I think has come through those debates. I do not know whether you want to add anything, John, but I feel that very strongly.

John Healey: You are right, Stern is pivotal to conducting and furthering the debate and we hope getting international commitment and then agreement to act on climate change. There has been a debate around some of the Stern analysis including around the approach to discounting but, in our judgment in the Treasury, Stern is right and in our judgment, and I might bring Chris Taylor in here who is an economist who worked on the Stern Review, the debate has not led to a serious and sustained criticism of the approach which Stern took although ultimately on the question of discounting it is informed both by economics as well as ethics.

Mr Taylor: It is a very important part of the problem, the way in which it impacts over time, and you cannot avoid that because these impacts are happening to a large extent in 50 to 100 years' time. A lot of the existing analysis placed a very low weight on the future and I think a lot of people ethically

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found that difficult to justify. A lot of the reason they did that was because they wanted consistency with market rates, so you had some consistency there. One academic in Cambridge described that as an ethically impoverished way of coming to decisions on what the markets are telling us, because that is individuals acting on their own personal resources not what society might want to confront. Particularly when you are talking about the environment rather than general economic growth, you are talking about something which is a scarce resource. So you could not avoid this debate. We have opened it up and it is on-going and hopefully I think that will be the most important thing on the issue. One of the key contributions of the Stern Review will be this debate that is going on amongst the academics on the way in which we value these things. I personally feel we are winning a lot of the arguments which are going on there.

Q722 Dr Whitehead: Do you think there is perhaps another element to that debate which is, and perhaps David and John might consider this, that part of the centrepiece of Stern is that, as it were, climate change is one of the biggest market failures one can think of and the ability to do something about it via the market is patently not something which one should simply allow to run. Stern, it seems to me, makes a substantial case that actually intervention to shape the market as opposed to leave the market to get on with it is the right way forward. Yet a number of the positive consequences of Stern in terms of new industries for Britain and so on are offset to some extent by the fact that there will be substantial churn and change-around and there will be stranded assets, there will be loss of manufacturing in traditional carbon-intensive industries and so on. Should that be left to the market as a consequence of Stern or should that be an area of, as it were, consequent intervention on the back of what Stern has suggested is a market failure in the first instance?

Mr Taylor: My simple economist's answer is that you should try and price the market failure and try and effect that in decisions which are going on. The way in which you introduce that would probably want to reflect the wider impact and set targets which people talk about and that is what we suggest in the review.

David Miliband: The cry, "Leave it to the market"—I know that is not what you are saying—is completely philosophically incoherent because markets depend on the rules under which they operate, markets depend on the institutions which govern their activities, and how you shape those rules and shape those decisions depends on market outcomes. It is a decision not to put a price on carbon, that is a political decision we have taken over the last 150 years, it is no more of a political decision to put a price on carbon than not to put to a price on carbon, it is no more conscious a decision to do so—"conscious" may be the wrong word—it is an active decision not to price carbon as well as to price it. So I think the debate is not, "Do you leave it to the market" or "Do you leave it to the Government", the question is, what role does

Government play in deciding how you use market forces to deliver the public interest. Different governments with different values will have different judgments about the public interest, about the values which underpin it, about social justice, about economic efficiency, and so on, but surely in this area we can say it is right that we are cognisant we have a market failure, that we are clear that market failure arises out of a political decision not to price carbon, so the critical thing is to shape the rules of the market so that carbon is priced. The question is not, "Is it a market solution or is it not a market solution", it is, "How do you use markets." I think that is the critical thing, that we have failed to understand that basic point, that the market will respond to the signals it is given and the rules under which it operates.

Q723 Dr Whitehead: The quicksilver of market decisions runs down different channels if you, say, decide to price carbon as opposed to having a market failure because you have not decided to price carbon. Nevertheless, you will have consequences of that in terms of industries, manufacturing jobs, people who no longer have employment perhaps in carbon-intensive industries, as a result of that different way of, as it were, guiding the market. Is there a role for mitigation in that respect which perhaps has not yet been countenanced particularly in terms of the fact that when those targets seriously begin to bite those effects will become apparent?

David Miliband: Surely the answer is it depends. I may have misunderstood your question but the extent to which we succeed in making sectoral agreements, global sectoral agreements, really bite, some of the issues you have raised are significantly attenuated—I would not use the word "mitigated" because I think it is confusing—but the debate which is going on about the nature of developing country contributions and whether or not global sectoral commitments should be part of that is in some way answering your point. It does not end the competitive advantage that developing countries have on wages and all sorts of other things in respect of heavy industry, but it does say that we do not want them to use the environment as the way to gain.

Q724 Lord Teverson: One of the things I guess as parliamentarians we are quite concerned about is the fact that this Bill does give quite extensive enabling powers to the Secretary of State and clearly there is a balance here between wanting to get on with the job and get it done but at the same time we are quite jealous of what might be done in the future, particularly in terms of primary legislation and also in terms of emission trading schemes which could affect large parts of British industry. Do you think that balance is right or should we use perhaps the super affirmative resolution procedure—and I have to admit before I became a member of this Committee I had never heard of super affirmation before—

David Miliband: We all become parliamentarians in funny ways at different times in our lives, don't we?

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Q725 Lord Teverson: You mention the negative resolution procedure which is clearly a very low level of acceptance through Parliament. How do you see that balancing? What is the Government actually proposing in terms of procedure for these areas?

David Miliband: It is a very fair question and you are absolutely right to frame it in terms of the balance between ensuring we have speed but not haste—I suppose that is the way of putting it. Obviously we believe the proposals we have put forward, really in Part 3 of the Bill, are sensible otherwise we would not have proposed them. We have suggested the affirmative resolution procedure and the implication of the question is that you feel that is perhaps an insufficient block or lock or basis on which to take far-reaching decisions. In a way, I guess I would say let us hear a bit more of the reasoning about why you think that is insufficient, it is not a theological or ideological point.

John Healey: I think it is important to add that before we even get to the stage of secondary legislation, whether it is affirmative or negative, we are likely to have gone through a very exhaustive and very public process and would be required to do so. If we take the carbon reduction commitment, which was cited earlier on, it is subject to serious consultation beforehand, probably the exposure of draft legislation, so that any regulations which are likely to be introduced to set up new trading schemes are not the sort of regulations which might suddenly come out of the blue and you would spot at the last minute at the back of the Order Paper. These would be clearly signalled in advance, fully consulted on and probably significantly amended during the process before they even got to Parliament.

Q726 Lord Teverson: One of the issues is, is it not, in some of these areas of secondary legislation is this problem of the nuclear option, where you can completely reject but it is quite difficult to go through amendments. Maybe this is an area where being able to have a more intelligent approach to proposals is important.

David Miliband: We have just been gossiping to each other here—we just make up policy as we go along. Clause 31(1)(i) says that you have to consult persons who are affected, and 31(1)(iii) is about affirmative resolution. It has become part of the parlance that one talks about draft proposals being brought forward. John has just talked about it. You can imagine that becoming custom and practice, although perhaps the Committee might think that should be something which should be institutionalised. It is good practice really.

John Healey: It is a good and important principle that legislation where it possibly can be, whether it is primary or secondary, should be produced in draft before it is introduced. We even do it with at least half the Finance Bill on tax legislation these days.

Q727 Chairman: I have enormous sympathy with that. I do think, and this has come up many times before, this Bill does present the Government and in fact presents Parliament with a wonderful opportunity to take forward a lot of things which I

know privately we have all talked about as parliamentarians and which could significantly heighten the level of transparency and public engagement. I think this Bill uniquely has the characteristics that make that opportunity very attractive. It is a very special Bill, and we will come on to that in a moment in discussion regarding the Climate Change Committee. I would urge you to grasp every opportunity to exceptionalise it, not in ways which make life impossible for ministers but in ways which encourage the public to feel this is their Bill. This echoes something the Secretary of State said earlier on, this is a different kind of Bill, it goes beyond being a normal Bill in a sense, it is a manifesto for a sustainable future. I think there are all sorts of small opportunities here for you to engage with these possibilities as opposed to retreating behind the conventions. I hope that is helpful?

David Miliband: I agree with that.

Q728 Lord Woolmer of Leeds: If the Government were at any time to seek to bring in personal carbon allowances—

David Miliband: Whatever would give you that idea!

Q729 Lord Woolmer of Leeds: --- do you think that really ought to be the subject of primary legislation rather than secondary legislation? Would many of the issues not be of the kind and intensity that it would be better to take that through primary rather than secondary legislation?

David Miliband: Yes, I think you are right.

Q730 Lord Woolmer of Leeds: Would the Government be willing to put that on the face of the Bill?

David Miliband: I am an enthusiast for the idea of personal carbon allowances, I think it is an interesting and dramatic idea, it is worth researching. Technically I suppose you could smuggle it in under one of these provisions but frankly that is not the real world. It is inconceivable that a Government would do that. To go out of your way to exclude it is OTT, to be honest, because why pick on PCAs? I think you are right to say that it is a different order of magnitude of change than some of the other trading schemes we are talking about. Personally, I think it is over the top to institutionalise a discrimination against it but I cannot envisage it being smuggled in under these provisions.

Q731 Lord Woolmer of Leeds: Given your explanation, it seems an extremely good reason to exceptionalise it, you have really said it would be quite exceptional in terms of any other trading scheme you could consider introducing.

David Miliband: To go into slightly discursive mode, which is unusual for a Government, there are many, many checks against Governments doing audacious things, especially if you have been in government for some time. I think one of the most important things going on at the moment in politics is that the Government is driving forward in areas like this and

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raising debate about difficult and radical ideas and is not having to go into Opposition to do that. I think it is frankly inconceivable that fundamental changes like that would be smuggled in under these provisions. To have a clause excluding them seems politically odd to me. Just in brackets, there would be quite big technical issues about drafting an exclusionary order of that nature. The ebb and flow of politics I think will take care of this rather than legal diktat.

Q732 Lord Whitty: I have a quick question about adaptation, which for a lot of people may be a bigger issue than some of those we have just touched on. The Bill just requires a report every five years on adaptation with very little detail and by the Secretary of State. Do you think there is a case for putting adaptation as part of the remit of the Climate Change Committee and giving it the authority of that Committee, so that the Climate Change Committee would look at ways in which we had adopted adaptation measures? If not, alternatively should there be a bit more detail as to what the Secretary of State's five yearly report should cover on adaptation?

David Miliband: It is a good and important question. I was pleased we got adaptation in and highlighted it as an important issue. Of course it is covered every year in the Environment Agency's annual report, and you know that better than anybody. Certainly I would be open to thinking how we could expand the specification here. I think there is value in institutions like the Climate Change Committee having a pretty clear remit and they are in the carbon budgeting, emissions reduction business. To then try and ensure they have the expertise to take them into the adaptation business as well is a pretty big stretch. Exemplifying, developing, expanding, the requirements makes it sound like Government does not want to do it, but the basis on which we report on adaptation is a helpful suggestion and we would be interested in thoughts on that.

Chairman: We will now talk about the Committee which time and time again has come up in evidence as being almost the *raison d'être* for the Bill.

Q733 Lord Crickhowell: Secretary of State, I think we all agree that we want this to be a most authoritative Committee and you have said so earlier and I think that is the general view of most witnesses and of this Committee. Can I just raise three points? I, in putting questions to Robin Mortimer earlier, expressed concern about the initial way it was being set up, particularly in view of the very tight timetable there is likely to be between the period when the Bill becomes an Act and when it first has to make recommendations in September 2008. I was concerned that the preliminary work might all be done by Defra and the Office of Climate Change and I received the very welcome news, which I do not think we had had before, that the precedent I cited—which was when I was asked to set up a National Rivers Authority we were formed as a shadow authority which did all the preliminary work and therefore was able to move straight in to doing the

work and having done the preliminary work itself there was confidence that the Authority had been soundly set up in the way the Committee wanted—was a good one. Can you first confirm that it is intended to go down a shadow authority route in setting the whole thing up?

David Miliband: Yes. My memory is that it is in the consultation paper. I will ask Robin to check that.

Q734 Lord Crickhowell: If so, I have missed it.

David Miliband: I might be wrong.

John Healey: Increasingly, particularly where we are setting up independent bodies that we want to get up and running in short order to do a serious job for us, that is what we tend to do in government. I am doing the same under other legislation at the moment to set up an independent Statistics Board and am looking to appoint a shadow chair in fairly short order to set that body up before formally it will come into constitution on 1 April next year.

Q735 Lord Crickhowell: Speaking from my own experience of setting up what was the largest environmental regulatory body at the time, it certainly worked, and I would commend it to ministers. The second question arises from a series of questions we had earlier: attention was drawn to a clause in the Bill which says that the Secretary of State may select the chief executive. Both the Chairman and I expressed horror at the idea that the Secretary of State should appoint the chief executive because we felt it always ought to be done by the chairman of the Committee and that to have the Secretary of State appointing the chief executive was a possible route to disaster. Could you perhaps consider that strongly held view which the Chairman expressed almost more strongly than I did, that really the appointment of the chief executive, of course confirmed by the Secretary of State, should be the job of the first chairman and preferably his Committee?

David Miliband: Of course we will consider your thoughts. Can I ask you to consider the case of the first chief executive? One reason for saying “may” is that you may end up appointing the first chief executive before the first chairman.

Q736 Lord Crickhowell: Can I just express the view, having been the chairman of a large public body, that I think I would have refused to be the chairman if I had thought the Secretary of State was going to impose the chief executive on me, and I cannot think of a bigger route to potential disaster. However, having expressed that view, can I then ask a third question about this? I believe in an earlier Committee, the EFRA Committee, you said the Government had not yet decided how long each term of appointment should be. As we are having five-year budgeting cycles, do you think that it should be expected that the appointments should be for at least five years?

David Miliband: I think that is reasonable. There is public precedent on this. I do not have a deeply strong view. Five years makes sense but you might want to have a term limit of ten years, two five-year

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terms. There are a range of things you might want to put in. I would welcome your advice on this because the Committee has a lot of experience on this and a lot of you are or have been chairs of such bodies. We are open to all suggestions on that.

Q737 Lord Crickhowell: Finally on the question of real independence and funding, the initial budget has been suggested by your existing committee. Clearly the shadow body will have some strong views, speaking from bitter experience we had some pretty painful battles to get the initial funding right for the NRA. Is there a possibility that the funding should be made more independent? The Electoral Commission and the National Audit Office are examples. Or are you satisfied the funding arrangements planned will give the Committee the sort of independence that we are looking for?

David Miliband: I would be delighted to get it off the Defra baseline, if that is what you are suggesting!

John Healey: I am not sure I agree!

David Miliband: I would be delighted if you can think of another way of funding it.

Q738 Lord Crickhowell: It seems to me this is a very good moment for a policy discussion between the two ministers.

David Miliband: I am not sure if you were suggesting we should fund it through the Lottery or that Parliament should fund it. All suggestions to get it off the Defra DEL gratefully received!

Q739 Chairman: I think what you are hearing, Secretary of State, is a consensus view of the Committee, that with no ill intent you can actually cripple a committee before it has started its business by appointing the wrong chief executive, allowing it to be under-resourced and cramping its ability to develop credibility and a reputation. I am not suggesting it is something which is done deliberately but it is something I am afraid that governments do because it is the way they have tended to go about the job. Anyone in the private sector will tell you exactly the same thing. I am afraid the way governments set up committees and organisations is all too frequently cack-handed.

David Miliband: I take that seriously but I have seen no evidence that this is cack-handed. We are going through it in a very clear way, we have produced a budget, no one has shown me that £750,000 for research is the wrong figure. As I said to the EFRA Select Committee, when they come and say to us, "We have to do this because of all sorts of reasons", it will be a mature discussion with mature people.

John Healey: I have to say as a Government we are investing a great deal in the credibility, authority and effectiveness of this Committee. It would be quite wrong and rather foolhardy, would it not, to design constraints and design failure into the start, either by somehow omission or commission, by appointing the wrong people or setting them a budget they could not work to.

David Miliband: I will take that as a thought for an increased spending review.

John Healey: Clearly those are decisions for the Secretary of State for EFRA.

Chairman: Minister, I think that is exactly what you are hearing here, that the overwhelming evidence is that securing Government's position and the future of this entire venture will largely depend on the credibility which attaches itself very quickly to this Committee. Therefore to in any way hamper it or cramp it is entirely counter-productive. I am certainly not being critical of the specific way in which you are going about this, but I am saying that unfortunately the processes which have been developed over the years, in all our collective experiences, do not contribute by and large to the creation of what you wish to achieve. That is all.

Q740 Lord Crickhowell: There is just one point which might give us greater confidence, and that is that you do not close off the initial 12 month budget until at least you have had the views expressed of the shadow authority once it has been appointed. I think it would be very helpful if they were able to at least see what the budget provisions were and express a view about them before they became a statutory body.

David Miliband: That is a very helpful suggestion. I am a great believer in having a mature and strategic relationship with the vast numbers of members of the Defra family, so called, the Defra network. They have to be engaged in a serious, adult way, the suggestion is a good one, it sounds like basic management practice.

Q741 Lord Whitty: Just to take that slightly further, one of the concerns on the Committee is, and if Lord May were here he would say it, that that £750,000 if used for research is not sufficient to establish the independence of the Committee. Although the Committee obviously will have access to all the models which exist in the Treasury, the DTI, the Meteorological Office and everywhere else, that need not be included in their budget, and they also have to have the ability to do some of their own research and their own modelling, and certainly the view Lord May was expressing a couple of meetings ago was that £750,000 would go nowhere near that. I am not personally able to validate that but it did sound to me that the kind of figure he was talking about was several times that size. Maybe those kinds of discussions are covered by what you have just said about having mature discussions—

David Miliband: Also the Office of Climate Change are looking at this whole budgetary question. Let us cross the bridge when we come to it.

Q742 Helen Goodman: You have both made it absolutely clear that the Committee is not to be a policy-making body, but if you look at clause 5 of the Bill, which covers matters to be taken into account in connection with the carbon budgets, there is a very long list of things which need to be considered by the Committee as well as by the Secretary of State—economic circumstances, fiscal

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circumstances, social circumstances, energy policy—surely those are things for ministers, not the Committee?

David Miliband: They are for both.

Q743 Helen Goodman: Surely those are things which should be policies which flow after the budgets have been set?

David Miliband: I think that sets up an uncreative tension because if you have one body giving advice on the basis of one set of terms of reference and another body, ministers, making decisions on the basis of another set of criteria, that does not feel sensible. It makes more sense to say, “We want a recommendation in the round and we want a decision in the round.”

Q744 Helen Goodman: Why is it that when you are talking about carbon budgets, you have this long list of things to take into account, but if you turn back earlier and look at targets, there are only two factors—changes in scientific understanding and changes in international circumstances?

David Miliband: With respect, it is only a particular power in 1(4). The targets which have been set for 2020 and 2050 have, I would argue, been set on the basis of all those matters in 5(2)(a) to (g).

Q745 Helen Goodman: So you would not take them into account if you were going to amend the target?

David Miliband: I think it would not be right to say, “We have discovered something new about fuel poverty, let’s re-write the target.” I think it is reasonable to say, “If there has been some big change in scientific knowledge or international law ...”, given the question which was asked about the EU commitments earlier. I think it is right to make that distinction actually.

Q746 Helen Goodman: I think it is perfectly reasonable to take account of changes in scientific understanding and the international negotiations, for all the reasons we have discussed, I was simply challenging the other long list of things.

David Miliband: Sorry.

John Healey: I think the long list is really there to signify it will be a great deal less use to Government and the country if we have a Committee which is only making recommendations or giving advice on carbon budgeting based entirely on environmental considerations, because clearly central and urgent and important as they are, the sort of policy decisions, the steps we need to take and that we need to try and build consensus behind, have to take into account the sort of concerns which are listed at the end of subsection (2), which do take account of the social impacts, which do take account of the economic impacts. So I think this list is in a sense a set of markers to reflect the sort of things which within Government when we come to policy decisions we try to take into account.

Q747 Helen Goodman: When the Monetary Policy Committee takes decisions, what range of factors does it take into account?

John Healey: In a sense I do not think they are directly comparable. The particular decision and remit of the Monetary Policy Committee is very tightly directed towards hitting a particular target around inflation. The whole concept and complexity of carbon budgeting and policy decisions which need to underpin that in order to achieve those have a much, much wider range.

Q748 Helen Goodman: That is true but the Monetary Policy Committee has been successful in part because it has managed expectations well. One way of managing expectations well for industry on the environmental front is not to have too many different factors which might mean we fudge the decisions. Would you accept that?

David Miliband: I can understand that but not the implication that we are fudging decisions, because you have the 2020 and 2050 targets on the face of the Bill. It is not completely random what the budgets might be and for the first budgetary period you have got international agreement already. So there is a lot of science to go into the final decision but the ballpark is pretty clear.

Q749 Earl of Caithness: Can I ask the Secretary of State just how independent you think the Committee is going to be given its reliance on Government modelling and expertise?

David Miliband: All of my experience is that committees are very independent.

Q750 Earl of Caithness: Even when they have to rely to the extent—unparalleled extent I would suggest—on Government modelling and expertise as this Committee will have to do?

David Miliband: Yes. We are not going to be able to boss these people around, let us be absolutely clear about this.

Q751 Earl of Caithness: You will financially, if you do not give them the budget. Lord Whitty has already said, and we have received evidence from Cambridge Econometrics saying that the budget has to be considerably more than you have allowed for.

David Miliband: Let us just play the game though. Say we do not give them enough budget and we say they cannot have it. The idea that this going to then remain a private issue and the Committee then carries on in an under-performing way is not the real world. They will at some point come out and say that. Then the Government can either say, “We’re right, they’re wrong” or it can say, “We’re going to have to do something about it.” There is a pretty big nuclear option there for any committee of this kind which feels it is not allowed to do its work.

John Healey: On the implicit assumption that somehow the modelling and analysis in Defra or the DTI or in Government is somehow suspect, this is work which is painstakingly built up, it is developed very closely with a lot of external experts and academics, it is often tested and improved. Actually, if the Committee is finding that in some way it is flawed or got gaps, then we would expect the Committee I think to press those parts of

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Government which have got some of the analytical modelling responsibilities to up their game and improve what they do.

Q752 Earl of Caithness: The Government modelling has not been exactly great to date.

David Miliband: Which modelling?

Q753 Earl of Caithness: DTI and Energy, they have not been as accurate as they should have been from many people's point of view.

David Miliband: I would never say we are perfect but if you think about the modelling which was done in advance of the first set of allocations under the emissions trading scheme, we were one of only three countries in Europe to correctly estimate what the baseline was and to ensure we allocated to create scarcity in the market. That was not a bad shot.

Chairman: This is for further discussion but, for example, the evidence we took on the modelling and targets projections—and the minister will know about this—regarding passenger transport, in fact the entire process covered by the Department for Transport is hardly impressive. I think that is where this concern lies. There is a lack of faith in projections particularly in those from the Department for Transport.

Q754 David Howarth: Would it not help in this debate if all of these Government models were completely open to all researchers to use and then you could have a completely open debate which would be quite cheap from the point of view of society, in the same way that the Treasury model is open and the IMS uses it and so on?

David Miliband: I think the MARKAL model, which is one of the main ones, is open.

Q755 David Howarth: I think some aspects are but not all.

David Miliband: I am happy to look at that.

Q756 Chairman: A last questions on the Climate Change Committee because—it is not that we are obsessive—I am afraid the evidence we have been receiving is pretty obsessive about the nature and importance of this Committee. Is it possible for the Committee to carry out the quality of analysis you are asking of it and provide the advice on the first three carbon budgets by 1 September next year?

David Miliband: Yes.

Q757 Chairman: It is both possible and practical?

David Miliband: Yes, as long as we get on with it.

John Healey: They will be good people, they will have the resources within Government to draw on and they will have a budget to be able to do it.

Q758 Chairman: Would you consider this as an opportunity to go down the route which has been suggested by the incoming Prime Minister, that possibly both the chair and the members of this Committee might be subject to confirmation by Parliament?

David Miliband: It is tempting to answer on behalf of the Prime Minister-to-be and so I shall not resist the temptation. I am sure the line to take is that we will welcome all suggestions about how the chair and the chief executive should be appointed, confirmed and other matters.

Chairman: Splendid answer. Emissions trading is the last issue.

Q759 Lord Teverson: You mentioned personal carbon accounts would not be something which would be subject to secondary legislation, but perhaps I could ask what are the sort of areas you would see as secondary legislation or amending primary legislation which are likely to happen in the first few years of this Bill?

David Miliband: A good example is the carbon reduction commitment, the emissions trading scheme for the medium-emitting public and private sector organisations.

Q760 Lord Teverson: Okay.

John Healey: You might also use the powers to make judgments on the energy efficiency commitment. There are a number of areas which could potentially be used in this way.

Q761 Lord Teverson: And in terms of sectors outside the EU ETS?

David Miliband: Those are outside.

Q762 Lord Teverson: Yes, I understand that.

David Miliband: We discussed earlier that 50 to 60 per cent of the economy is covered. If you wanted to extend further, this provides you with the basis of doing it.

Q763 Lord Teverson: I understand that. In terms of what you would normally understand as particular sectors, what is in your mind? I am sorry if I have not listened carefully enough to your answer.

David Miliband: No, my answer probably did not cover that. Heating would be an area which is not covered at the moment by such schemes. I suppose that would be an example of a sector.

John Healey: The point about the legislation is that it gives you the framework within which, should you assess there to be the case for doing so and having gone through the process of consulting and being convinced that was the right thing to do, you can move more rapidly without having to resort to primary legislation to do some of these things. But it does not necessarily pre-suppose that we have made decisions or are convinced of that case at this point.

Q764 Lord Teverson: In the previous session we talked about auctions, and there has been a lot more coverage of this area recently, and I know it comes under the EU ETS rather than any scheme here, it is to do with power generators and windfall profits. So this is, probably not to the degree of private equity, going to become a big discussion point as time goes on. My colleague here, David Howarth, and I felt the draft Bill actually excluded the ability of there being auctioning which we felt was unhelpful and

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something which the Government probably would want to do and the Treasury even more. How do you see that and is that something which you would see would happen in the future?

John Healey: Chairman, perhaps it would be helpful if I send the Committee details of clause 16 of the current Finance Bill in which we take powers to be able to auction under phase 2 of the emissions trading scheme, which incidentally will allow us to do so by the beginning of the second phase of the trading scheme on 1 January next year, which this timetable for this Bill would not have allowed.

Q765 David Howarth: Could I suggest then that the drafting of Schedule 2, paragraph 5(3)(a) should be looked at again? At the moment it says, “The regulations must provide for the allowances to be allocated free of charge”, it is an obligation. I think it would be a lot easier to draft that in terms of permission and then perhaps adding something in about allocation by auction only with Treasury consent, because otherwise I think there will be legal problems over this particular way of drafting.

David Miliband: Let us look at that.

Q766 Helen Goodman: I would like to ask you a question about emissions trading. You will be even more aware than we are of all the problems with auditing overseas credits. We have received some evidence on this and I wanted to ask you whether you would be sympathetic to having a very tight cap on the purchase of credits from beyond the EU ETS in the Bill?

David Miliband: What do you mean “from beyond the ETS”?

Q767 Helen Goodman: I mean from Non-Annex 1 countries. I think that is what they are called. Countries like India and China and so on.

David Miliband: To prohibit credits being purchased from Non-Annex 1 countries?

Q768 Helen Goodman: To limit the extent to which such credits can count towards our achieving our target.

David Miliband: The Bill already has the commitment to follow both the Climate Change Committee and the international rules on complementarity. Under phase 2 we have said two thirds of effort—the effort level is about 12 per cent of the cap, two thirds of effort is more or less 8 per cent of the total—can be purchased overseas I think that is not an unreasonable basis.

Q769 Helen Goodman: You think two thirds—

David Miliband: Of effort. Of effort level.

Q770 Helen Goodman: Could you say what you mean by that?

David Miliband: Effort is measured against business as usual, so we are requiring under phase 2 of the ETS more or less an 11 per cent reduction; the cap is 11 per cent below business as usual. So the amount of effort that can be purchased overseas is measured as a percentage of the cap therefore and that is how

we calculate that more or less 8 per cent of the total scheme is bought overseas. So given this is a global problem, given that a tonne of emissions in Bangalore is as dangerous as a tonne of emissions in Birmingham, it seems to me to make sense to have that. The way to tackle abuse, if it exists, in the Clean Development Mechanism, is not by limiting the amount of purchasing overseas. The way to tackle abuse is to have better systems and better schemes under the CDM and that is what we are determined to do.

John Healey: Can I just caution caution for two reasons on this. The first is that rather than set a unilateral UK limit for the use of overseas credit, which in effect we would be doing if we used this Bill to do so, it is better to be bound by the international obligations that flow from the international agreements of which the arrangements for overseas credits are forming a part like in Kyoto. The second reason is this, that this Bill is part of our UK drive and effort to try and secure stronger international agreements, and a central plank of that is our ability to use trading schemes to see a transfer of investment, to seek action on climate change in some of the developing countries. So our ability in fact both to get schemes with sufficiently strong assurance arrangements but nevertheless which can increase the liquidity of those flows from the developed to the developing countries is likely to be a critical part of our ability to get international sign-up to the sort of things we need to see. To put constraints in the Bill, particularly unilateral UK constraints I think, would be a concern.

Q771 Helen Goodman: If we were to have a very tight limit, say 10 per cent, it would not constrain the amount of trade, it would not constrain the level of flows which went from the UK because people could buy those credits on a voluntary basis. What I am challenging is the inclusion of very high levels of credits in meeting UK targets because of the difficulty not of assuring whether the projects themselves reduce carbon dioxide but whether they are truly additional. Whether there would not be other ways of doing this.

David Miliband: I sort of get what you are getting at but is that not covered by the requirement that the Committee take stock and advise on that issue? The distinction you are drawing between a voluntary decision to purchase overseas and an enforced cap and a higher cap, I am not sure that is a distinction which has got strength in terms of what it really means in practice, apart from the obvious reason that under both scenarios you would have quite high levels of purchases overseas. What we have to do is assure ourselves that we have robust systems, both for driving money into the developing world—and Africa is getting very little of the carbon finance, so we need a better job of bundling up projects—and we have to make sure they are genuinely achieving emissions reductions. Of the 630 projects under the CDM, I have seen quite a lot of headlines but I have not actually seen proof positive that those 630 projects are not worth their weight.

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Q772 Helen Goodman: Could I put it to you that if we are too successful with this, in channelling flows, and we are including them against our target, we are giving the other countries an incentive not to sign up to further targets themselves?

David Miliband: It is an interesting point but I would put it the other way round. In all of my discussions with the Chinese and Indians, never mind some of the poorest countries in Africa, they need to know both that we are serious about getting our own houses in order and serious about channelling funds into low carbon development. What I say to them is, "The old choice was economy versus environment. You either cared about development or you cared about climate change." Funnily enough the 1992 Rio Convention almost institutionalises that choice because it is twin-track, it says, "We want all 189 countries signing this to agree to fight dangerous climate change and all countries separately to support sustainable development." I say that is the old choice. The new choice is, "Are you for low carbon development or are you for high carbon development", which is a single track approach rather than a two-track approach. I think if you are serious about low carbon development, that is not just a transition for us, it is a leapfrog for those other developing countries, and for that they need carbon markets which work, not as an excuse for us, not as an alternative to domestic action, but as a supplement or a complement to it.

Q773 Helen Goodman: Could you explain how including the credits in our targets can be presented to the general public as not being an excuse, because I think there is a very wide perception that it is an excuse.

David Miliband: Let us leave to one side the polling or other evidence about whether or not they are seen as an excuse. Are they an excuse? No, because they are supplementary to domestic effort and they are 8 per cent of the total value of the scheme. First of all, buying our way out of trouble to the extent it purchases more emissions reductions, is a good thing to do, not a bad thing to do. If you can achieve 4 or 5 or 6 tonnes of emissions reductions abroad for 1 tonne of emissions reductions at home, then you want to do it abroad. Equally, you do not want to be in a position where you are doing nothing at home. It is a balance, that is why the international agenda is as it is. There is also a transitional point about this. We do not want to be in a world where Annex 1 countries are limited in number and Non-Annex 1 countries are fundamentally not. We want to get, in the second half of this period we are talking about, to a situation where there is not Annex 1 and Non-Annex 1 but there is just the Annex. That is why I try to say by 2050 I am determined our emissions will be at least 60 per cent lower than they are now, however in getting from here to there in a transitional period we will be using these mechanisms to achieve greater global carbon reduction.

Q774 Earl of Caithness: Secretary of State, you mentioned something in your penultimate reply, is that not something for the Committee to advise on?

This is not really a question, it is a nagging fear I have got, that we are going to put too many powers on the Committee because it is going to become a three-humped camel and not do the job we all want it to do. It is a gut instinct that I have that unless that Committee is highly focused and highly specialised and purely scientifically based, if it starts to get on to other tangents, it will lose respect and will not do the job which you and your successors want it to do. That is not a question, it is just a nagging fear I have that the more evidence we have, the more the Committee seems to expand and I think that is potentially very worrying.

David Miliband: I respect your guts but I have spent quite a lot of this afternoon fighting off attempts to get the Committee to do more, whether in adaptation or in policy-making or all sorts of other areas.

Q775 Earl of Caithness: I am delighted to hear that.

David Miliband: This issue is fundamental to the whole global shooting match in this area. Making sure that you have proper complementarity rules is absolutely essential to getting the whole thing to work, so I do not think this is a nice one to have; it is not a nice to have, it is a got to have.

Q776 Chairman: You have given us a lot of your time and we are very grateful. Can I mention two things which have cropped up, for which I doubt you will not have immediate answers for, I have become convinced, and I suspect most of the Committee have, that whilst it is an attractive idea to have things like the obligations placed on local authorities to partner with you, they probably in detail have to be in a separate Bill. That is certainly where I have come out. I did not start there, I started thinking there were ways of levering local authorities into this Bill. It might be very helpful for the Bill to at least refer to the fact that this will be a huge component in making progress. That is just one point. The other is really for the Minister. The other dog which has not barked is behaviour change. Behaviour change does not come inexpensively. I have looked back and for example the AIDS awareness campaign which would at current values cost £15 million a year to be effective, and I think what we are looking at represents a bigger behaviour change than AIDS. Somewhere in the Treasury you have figures relating to what it would have cost to transfer to the euro and the nature of the behaviour change that would have involved. I guess what I am asking is, has the Treasury taken account of the very considerable costs which would be involved in persuading the public of the necessity of these behaviour changes, and the fact that they certainly should not come out of Defra's budget?

David Miliband: Hear, hear.

Q777 Chairman: I think it is a stand-alone Bill, I think it is a very complicated area but it is going to need funding and I wondered if the Treasury has addressed that.

20 June 2007 Mr David Miliband MP, Mr Robin Mortimer, John Healey MP and Mr Chris Taylor

John Healey: To the extent it is possible to model and cost aspects of behaviour change, it forms a part of cross-government expenditure and in the Treasury the sort of assessment we try to do with looking at the potential for policy options, and that is true on tax, it is true across the board. In general terms we do try to take that into account. In specific terms, it is quite an inexact science and quite difficult to do.

David Miliband: This gives me an excellent chance to encourage you all to change your behaviour by visiting direct.gov.uk to use the carbon calculator which has been launched today.

Q778 Dr Whitehead: I cannot get on it.

David Miliband: It is so popular! I can say I have been on to it several times to show various members of the media but that is part of behaviour change. If

you visit any of the well-known websites you will see it. I can also exclusively reveal to the Committee that if you visit Second Life, which some of you may think speaks to current circumstances, in Second Life you will find a very fetching avatar of myself which you can look at. You can also go and visit the climate change island on Second Life where you can calculate your carbon emissions and talk about your carbon emissions with other second lifers. So there you go.

Q779 Chairman: There is a huge amount of goodwill on this Committee towards the Bill. I have never worked with a group of people who so badly want it to be superb and I hope that has come across in our questions. You have been incredibly generous with your time. Thank you very much.

David Miliband: Thank you.

Thursday 5 July 2007

Members present:

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|--------------------------------|-------------------|
| Billingham, B. | Ms Celia Barlow |
| Caithness, E. | Nia Griffith |
| Jay of Ewelme, L. | Mr David Kidney |
| Miller of Chilthorne Domer, B. | Dr Desmond Turner |
| Puttnam, L (Chairman) | |
| Selborne, E. | |
| Teverson, L. | |
| Whitty, L. | |
| Woolmer of Leeds, L. | |

Witness: **Dr Lu Xuedu**, Deputy Director General, Office of Global Environmental Affairs, Ministry of Science and Technology, People's Republic of China, examined.

Q780 Chairman: Dr Lu, thank you very much for taking the time and trouble to come and talk to us; it is very much appreciated. I know it has not been easy so it is even more appreciated in that sense. Is there anything you would like to say before we start the questioning?

Dr Lu: Excellencies, ladies and gentlemen, thank you very much for allowing me to be here and for giving me the opportunity to give evidence. I will try my best to answer any questions you may have and give any information on climate change, and tell you what has been done in China now and what will be done in future. I welcome this opportunity. I asked for assistance for the translation but just now I said to the interpreter that I will try my best to speak directly, although I may need some assistance from him if I cannot find the good word to express my idea or if I cannot understand your question. On those key points I will try my best to convey my ideas, messages or information to you directly.

Chairman: Thank you. We will start with a question from Lord Jay, if we may.

Q781 Lord Jay of Ewelme: Dr Lu, may I echo the Chairman's thanks to you for coming to answer questions today. Could I start with perhaps a rather general question? We have noted China's National Climate Change Plan and we have noticed that that plan states that: "The first and overriding priorities of developing countries are sustainable development and poverty eradication, which we entirely understand, but we have also noted the importance that the plan gives to measures to combat climate change. Now, clearly all countries have to try to find a balance between growth and development, on the one hand, and measures to combat climate change on the other, and I wonder if you could begin by just saying how China hopes to find that balance between these two sometimes competing priorities.

Dr Lu: Thank you very much for that question. We think that climate change is an issue of environment but also an issue of development. In our climate change programme it says that ultimately, all in all, it is an issue of development. Why is that? We say that we know climate change is caused by development. In the development process, human beings emit a lot of greenhouse gases, so these GHG emissions caused this question of climate change.

Now, how to address it? To address this issue, we believe that we need to have less emission on one hand, on the other hand, we also need to develop our economy. So it is our philosophy that this issue should be addressed through better development. We need to find a good pathway of the development. Through development we can have capability, technology, and economy, to address it. So it is our belief that this issue is a very important issue of the environment but, more importantly, it is an issue of development. And we hope that we can find good solutions, we can find the good pathway of development, and during this development process we can address this issue. This is the goal of sustainable development that we should seek, so we do not take it (protection of climate and development of economy) as kind of a contradictory issue, saying: "Either environment or development". I guess that it is not only for climate change but also other environment issues that we should find a good solution to address it, a good pathway of the development during the development process, then we can address such issue. In this process I guess that the fundamental important issue is the technology research and development. So in China we pay great attention in particular to technology innovation to address climate change.

Q782 Lord Jay of Ewelme: Thank you. If I could just follow up one question, on your theme of better development and sustainable development, David Miliband when he was Secretary of State for the Environment giving evidence to us a little while ago said he saw the issue as one of not so much a choice between the economy and the environment but between high carbon development and low carbon development. Is that how you would see that as well? Would you accept that kind of argument?

Dr Lu: I guess we share the same view, because if we say that the better solution of the good pathway of development means low carbon economy development. This concept in China is under discussion, and in particular for government climate change policy debate.

Q783 Nia Griffith: Do you think you could give the Committee some practical examples of how China is tackling the rising levels of carbon dioxide

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emissions, and in particular could you give us some more information about the Chinese government's national climate change programme?

Dr Lu: Yes. I guess maybe I can give some numbers for you, then you will have a better understanding. Actually, it is in China's National Climate Change Programme, and I have the document with me. It is not easy to get all the numbers of the Programme, but I can give you some numbers and then you will have a better understanding. From 1991-2005, annually we used only 5.6 per cent increase of energy consumption to support the economical increase of 10.2 per cent. You will see that actually, if you look at the development processes of nations, the faster the development process, in general, the more energy consumption the nations will need. This means that the energy consumption growth in faster development stage, in general, will be higher than the economic growth, but in China, we only use half. We call this as the elasticity of energy consumption. In general it (elasticity) is higher than 1 but in China it is only 0.55. It means that actually many other countries may use a lot of energy to support their economy growth in the faster development process but we use less. This is one number. The second number, also for the year 1991-2005, the annual energy saving for the GDP unit is about 4.1 per cent in the 15 years, so you can see that the energy efficiency improvement in China is really significant for quite a long time, fifteen years. Now, this is what we have done in the past. What we are going to do under the National Programme? I also have some numbers for you so that you can have a better understanding. But before I give you the numbers I can inform you how the Central Government of China pays great attention to this issue. I guess maybe you have heard from the media that this National Programme should be released in April, but at that time the programme was not done, and we were questioned by the media, public, even some the criticised, why the Chinese government delayed the release and so on. I can tell you the story. At that time we were going to release that Programme by Ministries headed by the National Development and Reform Commission, but we found that this was not strong enough, so we requested the State Council to release this in the name of the State Council. Releasing by State Council would be much more powerful than by the Ministry, so it took less than two months for State Council to decide to release this in the name of the State Council. I guess you will understand that this is much more powerful documentation than the documentation issued by a Ministry. It is something like a mandated documentation, so from this point you can understand that the Chinese government is paying so important attention to this National Programme. Now, there are some numbers in the National Programme. We say that we should cut down the per GDP energy consumption by 20 per cent, or we say to increase the energy efficiency in the year 2010 by 20 per cent. I guess this number is well known by the public. Actually we have not yet counted how much this action will lead to emission reduction. I am not a diplomat, but expert or scientist, and according to

my own calculation it will be more than 1.2 billion tons carbon dioxide emission reduction. The second number is for renewable energy, including hydro. The share of the renewable energy in the energy mix should reach 10 per cent in year 2010. This is also a really challenging target. The third number I can give you is that the Government is now organising ten huge energy saving projects. For these ten projects it is expected that the energy saving of 240 million tons coal equivalent will be achieved. That will mean about 550 million tons carbon dioxide emission reductions, so this is a huge amount reduction by efforts. Another action that is under way is that the Central Government is going to close down about 500 million MW of generation units of low efficient power generations. This means a very high cost but we can enhance a large amount of energy efficiency. These are the actions taken by the Chinese government. And the numbers that I offered to you just now are parts of this National Programme for this climate change, only small parts of that. Actually, under the National Programme we developed a lot of actions, a lot of policies. One may question whether this documentation is only a paper documentation, or only a paper decision? My answer is no, because the Central Government is now materialising those policies and actions. Each ministry or agency of the Central Government will consider which action or policy under the Programme should be done by their own, by individual ministries. This is for Central Government to consider and is now under consideration. Before I left Beijing I was involved in the consultation of taking actions, for instance, for my Ministry what we should take under that Programme? I can also give you some more information. My Ministry has taken actions already because my ministry will take the overall responsibility for all the technology research and development related to climate change, and we have already released, I guess you may not know this, the China's Scientific and Technological Actions on Climate Change on 14 June, now the document of the Actions is on the website, in both Chinese and English. It is a follow-up to that National Programme. Further, all provinces, all governors, have been asked to take the similar actions as central government, in their provinces, in their regions, so you can see that this is not a documentation decision. I hope I have made it clear.

Chairman: We know we only have another 45 minutes of your time, so we will try and have very closed questions to make it simpler in a way for you to give us tighter answers. Nia Griffith?

Q784 Nia Griffith: Thank you. You said two things really; you said that you are going to find the solutions through technology, and you have also said that you have been more efficient than many other countries in your ratios between development and energy consumption. Do you see the things that are happening now in terms of the development of power stations and so forth meeting your ideals of more efficient ones, or are you still in the phase of

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building the old style? If so, when do you intend to implement your programme of getting rid of the less efficient and bringing on the more efficient?

Dr Lu: Good question! Yes, we do see the issue, the problem, and I guess this is why we say we are a developing country. On the one hand, from the Government's point of view, we try to make every effort to do this. So for the new projects those companies or entities will be asked to use new technology. But of course the Government cannot intervene or enforce too much. We have the policies to guide them. On the other hand, you will see that in the poorer areas, in particular in the countryside, and also in the west of China, the poorer areas, the poor population, and the poor communities, it is not very easy for them. They need to consider their jobs and consider how to feed their families today. So I guess it will be our task to try, step-by-step, to improve this situation. Also, it is our hope that we can get assistance from outside so that we can improve this situation in a much quicker manner.

Q785 Dr Turner: We are scrutinising, as you know, a proposed Climate Change Bill; we believe it is the first legislation of its kind in the world. Does the Chinese government have a view about the potential effectiveness of the legislation that we are considering?

Dr Lu: Yes. Actually we appreciate very much the efforts made by the United Kingdom, in particular your Parliament, to consider this. Personally I think this is a very good action taken to address climate change. It is my observation or my personal view that this bill will have a significant influence not only on China but also the world. This will show that the United Kingdom is continuing to take the lead in addressing climate change. Actually, I have been involved in climatic change issues for some time, and I really appreciate the leadership that your government is taking, and has been taking in the past 17 years, or more than 17 years. This law I guess will be number one in the world. I guess, as stated in your draft bill, this bill will also give a signal to business people, the whole of society, to address climate change in a more certain manner for a long run, so this is a very good action. We say, actually your action today will be the action of those countries tomorrow. So I think this action, this will be my belief, will have a good, significant and positive influence on the world. Maybe if I can add, this bill will also give very strong signal to the business community, that they should develop a low carbon economy.

Q786 Dr Turner: Thank you. It is very interesting because the United Kingdom CO₂ emissions are less than one tenth of China's present emissions, but our government view is very strongly that we cannot expect others to reduce their emissions unless we show a lead, so do you feel that if we pass this legislation and start to show the results, this will make it easier for major emitters, such as China, to reach internationally binding agreements to tackle climate change? Will it influence that process?

Dr Lu: I think maybe I can explain the first issue first, the comparison of countries in terms of emission amount. I think it is not really fair to make such a comparison between countries. You are not taking into account the population of countries. For comparison to compare the emission from China that has 1.3 billion people with a country, say, that has only maybe 100,000 people, I think it is not comparable. I know that there have been a lot of such comparisons but I do not think this is very meaningful. We should understand the situation that the GHG emissions in the developing world, including China, as the economy is developing, will continue to increase. We understand—and I think this is also recognised by the public, by the international community—that up until now we do not have the way to develop our economy without increasing GHG emission. If one can find such a solution to develop economy, then I think we will be very happy to follow. So on this issue we do appreciate, as I said, the greater efforts of the leadership that the United Kingdom has taken in the past more than ten years. On the binding commitment, my point is that when we can take such a binding commitment, will actually depend on our capability, our economic development level. That will be my belief. I cannot imagine what would be the development level but I can make sure that the development level will be lower than your development level of today. So I guess that at some time in the future, when we believe we have the capability, we can do so and will do this. But on the other hand, and I think I should make it clear, no matter what kind of commitment we are going to make to the international community, we do believe climate change is a serious issue. We will, maybe, do more at home compared to what the international community expect, as we are planning on the National Programme. I think maybe this is a little different for the Chinese government from other governments. When we say we are going to do something we will do that. When we commit to do something, we will make every effort to meet our commitment. I guess you see that in many other countries their governments today make a commitment, but tomorrow when the government changes, they will say: "No, this is not my responsibility" and will not meet the commitment. This has happened in many countries, even in many developed countries. It is like playing children's games, but for us—no. We are very serious. Today we say we are doing this; tomorrow we will continue and keep our promise. We will keep our policies very consistently. There is one more thing that I would like to say why we are so doing. We do believe we will suffer very seriously from climate change, and we believe the poor will suffer much more than the rich because the poor have less capability. Poor people are more vulnerable, so I guess from this point of view you can understand why we take that position.

Dr Turner: You have your own incentives!

Q787 Baroness Miller of Chilthorne Damer: Dr Lu, you have explained very well the importance of the example that this Bill is aiming to set, and you will

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know that the target for 2050 in the Bill is 60 per cent. We have had some evidence that we should be setting it higher at 80 per cent. As a developed country, with the technologies and the skills that we already have, do you have a view how we might arrive at a target which we are capable of meeting?

Dr Lu: You mean China, or the developed countries?

Q788 Baroness Miller of Chilthorne Domer: Your view of the United Kingdom target at 60 per cent?

Dr Lu: I have a very close working relationship with many officials from your government, from the Foreign Ministry, Defra and other Ministries, and I also asked a similar question to them. I said it is a very ambitious target, we will appreciate, and then they explained to me that I guess it is the Energy White Paper. I can more or less believe that it would be reachable but I can also understand that you will need greater efforts. Also I heard that some very high energy consumption facilities may not continue to be operated in the United Kingdom so as to achieve the target, maybe transfer to other countries. Of course, there will also be many measures to cut down emission, but most measures will be in energy efficiency improvement, renewable energy development, and also carbon capture and storage. Yesterday I had a meeting with an official of Defra for this kind of project. We are also going to develop such technology, and we appreciate the efforts by your government to help us to develop the technology of carbon capture and storage as one of the potential options in the future to cut down the carbon dioxide emissions into atmosphere.

Q789 Earl of Caithness: Dr Lu, in your National Climate Change Programme you state that both mitigation and adaptation are integral components of climate change. However, as we all know they are very expensive options. Do you think that the international community is adopting the right policies towards both of them, and what is China doing?

Dr Lu: Thank you for that question. My observation is that the international community has not yet dealt with or paid equal important attention to the two issues. The international community has paid more attention to the mitigation of climate change but not adaptation to climate change, and we believe that these two issues are equally important. Of course, one also argues that mitigation is the long-term measure of adaptation, and we recognise that, sure, but nowadays we suffer already from climate change so we do need to pay more attention to adaptation. Just now I said I am a scientist. I have done for more or less ten years research on the impact of climate change. And if we are going to take the actions to adapt to climate change, we have to know the impact of climate change. If we wish to know the impact of climate change we need to know what would be the climate change scenario. Then this raises the question: If you want to know the climate change scenario, you need to know the future development, the future emission of greenhouse gases. So this is very tricky, and it is not very easy to understand the

whole system, so we say there is much more uncertainty in terms of the adaptation compared to the mitigation. I guess this is why maybe the international community has not yet made more policies to guide or regulate the adaptation, and I guess now it is time for the international community to make more efforts. In China, we have studied this issue for quite a long time and we are still facing the question that it is uncertain. We tried to make some policies to guide the different departments, to guide the local authorities, to take actions on adaptation but we have found it is really difficult. And we appreciate the assistance from your government for us to study the impact and adaptation in China. We have made very good progress. In one province, we have some policy recommendations to the provincial government for them to consider how to integrate the adaptation into the long-term economic and social development plan. So when they develop their economy and society, this adaptation issue will have been taken into account. I guess this will be at less cost compared to that you will have to take adaptation action at a later stage. So it is a very key issue but it is not easy to deal with.

Q790 Lord Woolmer of Leeds: Good morning, Dr Lu. China said that it will “seriously fulfil” its Kyoto commitments but at the moment, of course, this does not include targets for carbon dioxide emissions reductions. Two questions. What is the Chinese government’s approach to the future of the Kyoto regime after 2012? Under what circumstances do you think it is possible that China would accept binding targets on emissions reductions?

Dr Lu: Thank you for that question. I can just answer part of that and I will be happy to follow up this issue. Generally I say that, no matter what kind of binding commitment we will make in future, for the time being it is not the time, because I do not know if your Excellency has had any opportunity to visit China or not, in particular the poor areas, you will find that if you have only visited Beijing, Shanghai, Guangdong or Hong Kong you will see that this is one China, but if you go to the countryside or if you drive from Beijing Tiananmen Square, two hours’ drive, you will see a totally different situation of China. So we say that for the time being we have not that capability to make those commitments as developed countries have. We hope we will have the capability very soon in the future, but it depends on this development process. Anyhow, we will continue to make our efforts to address climate change, both mitigation and adaptation. We now have this National Programme for the year 2010, and we are going to further elaborate the Programme for the next five years. You know in China we make such a plan every five years, so we will continue to elaborate the National Programme five years by five years. So I guess, even though we may not in the near future be able to make such a commitment as this country of UK, the efforts that we will take in terms of carbon emission reduction will be of a huger amount than many of the other developed countries. So there are two things. One is that the form of this binding

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commitment, for us this is not very important. The other thing that is more important is the action that we are going to take. So we were questioned a lot for this but sometimes it is not very easy to explain clearly why it is. This is my personal observation. But maybe, when you consider this issue, you also need to consider the culture of China. It is a totally different cultural tradition. Chinese people are not good at, say, maybe public relations. We do a lot but we may not say anything. Some countries may say a lot but may not do anything. We prefer to do things at home, to do a good job, and this is also our contribution to the international community towards addressing climate change. It is not necessary to speak out across the world: "Hey, I am a good pupil, a good student". It is not necessary, and this is cultural, I guess. This is my personal observation, and maybe others will have a totally different view.

Q791 Baroness Billingham: To a certain extent you have touched upon the question I want to ask you because you have already talked about your personal links with scientists in other countries, and clearly this is incredibly important for the future, but what further action does China hope to see from developed countries to help developing countries such as your own manage the effect of climate change and, of course, reduce emissions?

Dr Lu: Thank you very much for this question. Yes, we do have great expectation for our partner countries, in particular the European countries and other developed countries that can help us in this process, in these efforts to address climate change. We will make every effort to mitigate climate change, because, as I explained, it is also in our own interests. Climate change is not of good benefit to us; we have to address it. Then we will make our own plans, and if we can get assistance from outside—and I do not want to cite those provisions or articles of the Kyoto Protocol but just say to do something in reality: If we can get more assistance, or if somebody can help us, we can do much better, we can do more. For instance, I guess the key is the technology. I can give you some examples. For wind power generation we are also developing the turbine of wind power generation but we can only produce wind turbine less than one megaWatt per unit, but in many other European countries or Japan or other countries, they can produce turbine of 3 mega Watt per unit, so you can see that the efficiency is totally different. Now, as I heard, it is very difficult to get the technology transferred to China. The Chinese, the Chinese companies, are willing to pay, even willing to pay very high to buy this technology, but the companies with this technology do not want that. They prefer to sell equipment to the company for the power generation. Now, it is at very high cost. So what can we do? OK, we do not have enough budget for the equipment, so we have two choices; one choice is we use this less, this small unit that we can produce, it will be at lower cost and lower efficiency, or another choice is we can only build one or two as a kind of demonstration project, we cannot do too much, with large capacity unit and high efficiency.

So this is the question of technology, and this is only one example. Many technologies in China are imported from other countries, those technologies can be widely applied if those technologies can be affordable at a reasonable price. We are not going to say we need a greater concession, but we say they should be affordable compared to our economy and capability. Then if those can be widely affordable and applied, you can see a larger amount emission reductions of greenhouse gases can be achieved through the wider application of those technologies. Also this is something that will benefit those business people, I guess, in the developed countries. They can get a larger share of the market. This technology transfer issue was debated at the UN climate change convention and Kyoto Protocol process for quite a long time and we had a lot of documentation decisions but no actions. So this is something that we feel is very unfortunate and we hope this situation can be improved, where both poor countries and rich countries can co-operate in making technology transferred. Then this can really achieve large amounts of emission reductions in the developing world.

Q792 Baroness Billingham: Can I ask a further question, then? You have talked about technology but you have not mentioned, for example, direct financial assistance from developed countries to China. Do you think that is a realistic goal?

Dr Lu: That is also very important. We talk a lot about financial offers, including industrial investment, because in the developing world, particularly in China, the middle and small companies are seeking the financial investment everywhere, more or less, but because international assistance is very complicated, it is not very easy for them to access to the financing service, so maybe this financing assistance also can be facilitated for China and other developing countries. Financing assistance means that they can have resources for good technology, for good facilities, this will improve products on the one hand, on the other hand will also reduce the emissions greenhouse gases.

Q793 Earl of Selborne: Dr Lu, could you tell us what in your view have been the practical outcomes so far of the European Union and China on the Joint Declaration on Climate Change, and could you also tell us what other international forums China will be participating in?

Dr Lu: We have a very good relationship with the European Union on climate change, and also with the United Kingdom. After we signed the statement on climate change, I guess we have had till now three meetings at official level. The statement set out this Working Group on Climate Change. And we signed the agreement also with the Union on the carbon capture and storage project cooperation. It was signed and we have now implemented that agreement. Also, with the assistance of European countries we held successfully the Asia Carbon Expo last year, that attracted greater participation from the world. It also stimulated the carbon market

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development in China. And I guess there are many other very good results of the cooperation. I can show you another, the impact and adaptation. We had this dialogue with the European Commission and Member States and we will continue to work together, so that from two sides we can further reduce the uncertainty on adaptation issues. And for the international community, we will try to participate in all those that we believe can facilitate this co-operation on climate change and can address climate change with co-operation on technology, research and development. One example is the AP6, the Asian Pacific Partnership on Clean Development and Climate. We are the initial member of the Carbon Sequestration Leadership Forum—actually I am the co-ordinator from China side—and also we are member of the Hydrogen Forum. Now, the United States announced that they are going to initiate another forum and we are also going to be engaged in that, but we would like to say that all those forums, no matter what kinds they are, we would consider, and our view is that should be something to facilitate the implementation of climate change convention and Kyoto Protocol or to share information to address climate change, not something to replace the Kyoto Protocol or the climate change Convention. So we say, all those forums—regional, bilateral or whatever—should be something to supplement the United Nations Framework Convention on Climate Change and the Kyoto Protocol, and not to replace them. So no matter what forum we are going to participate in, we will make that position clear.

Chairman: I am very conscious of the fact we have 12 minutes of your time left and five quite important questions we would like to ask. We will turn to emissions trading. Lord Whitty?

Q794 Lord Whitty: On trading what is the Chinese government's view on emissions trading? Do you foresee a position where China could join in maybe an expansion of the European trading scheme which we are now talking about extending to North America and Japan? Can you foresee a position where China would participate in that cap and trade emission system?

Dr Lu: Thank you for that. Your last words make this clear, these are kind of cap and trade! We say that legally an emissions trading system has not yet been established, that would be my observation, because it should be under article 17 of the Kyoto Protocol and there are a lot of conditions for participation in that system. I know that the European Emissions Trading Scheme actually follows all those requirements, but the EU Emissions Trading Scheme is a kind of internal trading. It is our view that all those to be traded within the EU Emission Trading Scheme should be those real emission reduction units, so I think that we have some concern on the expansion. We will work together to make sure that on emission trading we follow the international agreement. And we do believe that the emission trading scheme can really lower the implementation costs. It was assumed, but it is a fact. So we would like to see this further

developed. But for China, now we are not entitled to be part of this emission trading scheme, according to Article 17 of the Kyoto Protocol and also the Marrakesh Accord, but we would be happy to offer the emission reduction units from CDM projects from China to be traded in the scheme.

Q795 Mr Kidney: Good morning, Dr Lu. Could you say what value China places on the Clean Development Mechanism and how effectively and how effectively China is using it to reduce emissions?

Dr Lu: Actually, in the first place, it took us quite a long time to establish our own internal system and to make this system work well. Yes, CDM has really helped China a lot in addressing climate change and reducing emissions. Now, I guess China has more than 90 projects which have been registered by the United Nations, and the Chinese Government has approved more than 500 projects, so this year it has developed very fast. Why? Because actually it is something that shows the efforts that the Chinese Government has made in this field, I guess, more or less five years. Personally, I have made a contribution to this process, I can say, that CDM has really helped a lot, and I can give you two examples. One is the wind power development in China. And in recent years you can see many, many wind farms that have been developed in China. One company that got the commission to develop a wind power farm, but the company waited for two years and has not yet done anything, because the more the company will develop, the more deficit the company will face because of the high investment cost. With these projects to be developed as CDM projects, the company developed a lot of wind farms. So even though the CDM cannot cover all the incremental costs, the company is willing to pay part of that. So now you can see that the wind power farms have been developed in many areas. It is not very easy to get the wind power facility now because of the fast development in China. So this was one of the two examples. The second is that we have several biomass power generation plants because of the CDM incentives. Before you can never imagine that this would happen because of the high costs, but now this kind of biomass, similar to wind power generation, actually brings greater benefits. This addresses the air pollution and this helps the local poor people to get some benefit. If local poor people sell their straw and the residue to the power companies, they can get a certain amount of revenue, so this improves the living standards of the poor farmers, so, you see, this really helps a lot.

Q796 Mr Kidney: Those are very positive examples, but there are criticisms of the mechanism. One is that it is paying for emission reductions that should happen anyway and another one is that it is paying for emission reductions and they are not happening at all because of poor monitoring and enforcement. Where those criticisms are directed at schemes in China, how do you answer those criticisms?

Dr Lu: Personally, I have not yet heard that criticism, but I can assure you that all those projects from China have gone through a very strict

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assessment. We have a very strict system to guarantee and make sure that emission reduction will really take place. We have a national CDM Board and we have two chairs. And we have seven ministries to monitor this. For every project, we currently pay for two experts for two weeks to ask them to make a technical assessment against the relevant provisions of the Marrakesh Accord in order to assess if the project can go through this test or not, and this is organised by the Chinese Government. Then normally project would go through the validation by the third party, the DOE, we call it the designated operational entity, to check if the project can conform to the Marrakesh Accord. The final step is that the project will be scrutinised by the CDM Board. So all in all, it would be my belief that those projects from China have no problem in terms of additionality, the real emission reductions. I can also share with you the information. The CDM Board, they rejected 20 projects, none of them from China, and some of them from China were raised questions, but after the clarifications on issues raised they had the approval for registration. Of course we cannot make sure that in the future all projects can meet the requirements, but in terms of the system we have built up a very solid system to monitor this.

Q797 Lord Teverson: Dr Lu, one of our earlier witnesses stated that, when it came to the Clean Development Mechanism, China was taxing the income that came into China from this mechanism and that was used for, for instance, building dirtier power stations. Could you tell us, is this revenue taxed and, if it is, what is it used for?

Dr Lu: Part of it is true and part of it is not true.

Q798 Lord Teverson: That is often the case, yes.

Dr Lu: What is true is that the Chinese Government does tax the income from the transfer of CERs of CDM projects. We have three types, three classes of CER taxes. The first is two per cent for general projects, only two per cent, it is a symbolic type of tax. Then for nitrogen projects, it is 30 per cent, and for FHC projects it is 65 per cent. Why did we make that decision? It took us more than two years to analyse it, so that we could conclude that we could make this decision. We tax all of these to form what we call a CDM fund, and this was approved by the Cabinet. By setting this fund, we use this money, these financial resources, to support other activities that will protect the climate, other activities that will support the renewable energy development. It is not something that is used for the dirtier coal power generation. It may be for coal power generation, but it should be for the efficiency improvement, not to stimulate the development of low efficiency coal power generation. We finally made this differentiation in taxes, because for the general projects we see the tax as a kind of symbolic tax and we have a channel to monitor it. For those other two, the tax is very high because we do not want to encourage those projects developments. We use this economic means or levy to show this kind of attitude and to tell the world that the Chinese Government

does not like this kind of project, but we cannot prohibit it, so we use this means to collect a larger amount of the income for other activities that will protect the climate.

Q799 Lord Teverson: The projects that the Chinese Government then decide to put that taxable money into, are those projects scrutinised internationally at all or is it just purely a decision of the Chinese Government?

Dr Lu: It will be a decision by the Chinese Government, but the decision is very open because we now evaluate the scope of the financial use from the CDM fund and all the projects will be on public so that one can see very easily from the website what kind of projects the fund will support.

Q800 Earl of Caithness: Dr Lu, what would be the impact, if any, on CDM projects in China if the international community limited the amount of carbon credits that could be traded?

Dr Lu: Thank you for this question and it is a very crucial question, I believe. It depends if the demand is quite larger than the supply side. It depends on the demand side and the supply side. If the demand is more than the supply, then this limitation will not affect supply side too much, but if the supply side is much more than the demand side, then this will affect it greatly. I can see the very negative impact there would be if there was a limitation from the demand side. Say, from the developing country side, many companies invested a lot of money in these CDM projects, then the CDM projects will really have emission reductions. If I finally say that I am not going to fulfil those commitments or I will stop a few and I am not going to do any more, this will have a very significant and negative impact because from the developing world they will see that this is not something where the efforts are taken seriously from the other side, and if we made the efforts but then we lose our money and we pay back ourselves, then this will totally destroy the confidence from the developing side and then I guess you will need another maybe ten or 20 years to rebuild that confidence, so I see that this will be a very negative influence if that were to happen.

Q801 Chairman: Dr Lu, you have been, from my perspective certainly, an extremely impressive witness. We are being televised today and I would like to ask not so much a question, but whether maybe there is something you would like to say. You have made it very clear that climate change is a massive issue which is being taken very seriously by the Chinese Government. You have also been very generous in your approval of this Bill and the efforts which have been made by the UK Government. Our political challenge is that there are a number of people in this country who will continue to say, "What's the point? Why should Britain go through the behaviour changes and the economic problems that it might cause itself by taking this stand because if China doesn't or even if China does and India doesn't and Brazil doesn't, et cetera, why are we bothering?" Is there something you would like to say

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in support of the notion of this Bill to make it very clear to those people that it is worth the trouble and that in fact the example that Britain is prepared to take is important to the whole of the rest of the world?

Dr Lu: Thank you, Chairman. I am not sure if I can make that as clear as you wish, but I guess there is one thing I can say here. This is something that the planet is a village and all of us live in this village, or if you take it as a boat, all of us are in the same boat, so actually all should take efforts, no matter whether rich or poor, but of course the capability may be different. I guess everyone can make their own efforts from their own ground or stance and, with greater efforts, I think then we will see co-operation actions to protect climate and then we will be safe and we can save this planet, we can save the boat. Now, in terms of your bill, as you said, your emissions, the total amount of emissions is not as much as China's, but your bill, as I said before will have a very big influence not just on China but on the world. It means even if you have your bill to deal with small emissions, you will have a great influence on the world. Maybe my point is why not take that? Because you can show your leadership and you can do something and maybe in terms of the total scale,

it is small in UK, but you would see big actions late in other countries because of your bill, so it is a good bill and it is a good deal! And that would be my answer.

Q802 Chairman: Thank you very much indeed. You have been remarkable.

Dr Lu: Maybe a final word. And I appreciate this opportunity. If you have the opportunity to have a practical visit to China on the ground to talk with people and to talk with officials, I guess you will have a much better feeling on what we have done in China. I heard one story, that many of those who visited China. After they came back and said, "Oh, it's totally different from what I've heard and what I've seen on the TV and the media", and I said, "Yes, because the TV and the media may not tell the full story, they only tell you a part of the story or sometimes only the negative story", so the majority of stories you have not yet heard, you have not yet seen, so if you have the opportunity, you are welcome to do so. Also, I heard from a very close friend and he said, "Oh, my feeling is astonishing at what has been done by the Chinese Government on climate change", so I would welcome all of you, ladies and gentlemen, to China.

Chairman: Thank you very much indeed.

Written evidence

Memorandum by William Wilson¹ (CCB 04)

BACKGROUND

I am very grateful to the Joint Committee for this opportunity to discuss the Draft Climate Change Bill. I have been qualified as a barrister for 29 years, and have specialised in environmental law for 17 years. For nearly 10 years I worked on environmental laws at the Solicitors Office of the DoE/DETR/Defra, for example as the legal manager of the Environment Act 1995 and the Water Industry Act 1999, undertook negotiations on the Water Framework Directive and gave advice on air quality, radioactive substances, water, waste, environmental regulation and other aspects of environmental law.

Since 2001 I have worked part time as a Barrister at the Environmental Law Unit at Burges Salmon LLP, solicitors in Bristol on environmental and energy law; and have also been a Director of the environmental policy consultancy Cambrensis Ltd. At Cambrensis we advise companies and governments on issues of environmental policy and regulation, and have also held a series of workshops and seminars over the last four years on emerging environmental issues, for a mixed audience of representatives of industry, science, academia and government, including, in December 2006 one on “Communicating Climate Change”. This considered how best to communicate the issue to 11 to 18 year olds, who I believe deserve access to the best available scientific assessments, including all the uncertainties.

In 1996–97 I spent a year on secondment as a Harkness Fellow based in Portland, Oregon and visiting 25 U.S. States while writing “*Making Environmental Laws Work: Law and Policy in the UK and USA*”, in which I tried to compare approaches which made environmental laws effective or ineffective, with examples from the UK, USA and EU. Amongst my main conclusions were that building long term public support for environmental legislation was essential, and law making processes that got too far away from that (including the way that EU Directives were negotiated) risked the laws not being understood or defended by the public when they were challenged. I also admired the way in which those involved in making environmental laws in Oregon had to go out to discuss and explain them in town meetings across the State—something I never had to do when working on either UK or EU legislation. I would like to see the officials responsible for this Bill taking it out to public meetings in the regions across the UK.

COMMENTS ON THE DRAFT CLIMATE CHANGE BILL

The scientific consensus on climate change is very strong, assisted by the IPCC process, with its reliance on hundreds of lead authors, contributing authors and reviewers, as I witnessed as a reviewer on the IPCC Special Report on Carbon Capture and Storage. I think we need to find ways to screen out the “white noise” on climate change and to tune in to the scientific work that really matters—I visited the Scott Polar Research Institute this week and was told about outfall glacier melt in Greenland accelerating to 14 kilometres a year.

The political consensus, and even competition, on this issue in the UK is also strong. As a civil servant, I saw both Conservative and Labour Ministers and Secretaries of State become convinced by the science, and forceful advocates for addressing climate change. As a result, rapid progress is being made in some areas, for example in the speed in which a Royal Commission on Environmental Pollution target of 60% CO₂ reduction by 2050 has been translated into a proposed legislative goal.

I assume that the present contents of this Bill are something of a compromise, given the number of government departments involved and the “handover” period between Prime Ministers. I do not see that as any reason not to welcome the Bill overall. I would always rather welcome partial results, and go back for more.

I believe that the public in Britain broadly accept the scientific consensus on climate change, and want the issue to be addressed by government, but they need to understand and support the measures taken to address it. They also need to know what they as individuals can do about it—as my son pointed out to me when I showed some dramatic slides about sea level rise to illustrate a presentation at a hydrogen conference—and to receive some reassurance that whatever they do is not irrelevant, given what is happening in economies such as China and India.

There are three areas in which I suggest this Bill might be improved.

ROLE OF THE CLIMATE CHANGE COMMITTEE

I am not clear how this extremely important Committee is going to work. The draft Bill does not establish it as an independent body, like the Monetary Policy Committee, with prime responsibility for an important area of public policy, as the Secretary of State retains wide powers to give the Committee guidance and directions (Cl. 25 and 26).

¹ Director, Cambrensis Ltd; Barrister, Environmental Law Unit, Burges Salmon LLP, Bristol.

Another model, which I suggest is preferable, is the work of an expert scientific committee such as the Expert Panel on Air Quality Standards, the merit of which is that it keeps scientific advice separate from political decision making. The EPAQS gives Ministers its best advice on, for example, the maximum levels which should be achieved for an individual pollutant, and Ministers take the decisions on how much of that can be achieved and by when, weighing up all the other competing priorities that they have to deal with. The scientific advice does not therefore have to be qualified in order to accommodate all the political and economic considerations that governments have to take into account.

In this Draft Bill, the Climate Change Committee, with a membership of between 5 and 8, and a small secretariat of 20 to 25 people, would be under a statutory obligation (Cl. 5) to take into account science, technology, economics, fiscal circumstances, social circumstances, energy policy, and international factors. I think that is blurring the distinction between a very important advisory committee, which will have to carry scientific conviction, and the responsibilities which ought to be retained by government.

EUROPEAN UNION AND INTERNATIONAL AGREEMENTS

I welcome the obligations (Clauses 6, 7, 9 and 11) for the Secretary of State to make regular reports to Parliament on policies and proposals for meeting carbon budgets, on UK emissions, on the final figures for budgetary periods and with a response to each report on progress from the Committee on Climate Change. However, I suggest that the Secretary of State should have corresponding obligations to report to Parliament, in detail and on a timely basis, on negotiations being undertaken by the UK both at the international and European Union levels. Could there not be a website maintained by government on which it posted, within, say, 3 months, all UK negotiating positions on all EU and international treaties, conventions and agreements on climate change? Would that not improve both public and Parliamentary participation on an informed basis? Transparency needs to apply to international negotiations as well as national policies.

REGULATION MAKING POWERS

The Draft Bill takes a remarkable number of powers for the Secretary of State to make regulations which will deliver the substance of whole new emissions trading schemes and many aspects of the proposed “carbon budgets”. These will affect most of the economy. Some of these areas are subject to the affirmative resolution procedure, but it will be for Parliament to decide whether the balance is right, and whether it retains enough scrutiny of administrative action and regulations drafted by the Executive.

May 2007

Supplementary memorandum by Professor David Henderson² (CCB 09)

1. THE STERN REVIEW ON “THE ECONOMICS OF CLIMATE CHANGE”

It has been widely said—for instance, by the Prime Minister, the Chancellor of the Exchequer, the opposition parties and an array of top British business executives—that the Stern Review has shown us both the dimensions of the problem posed by global warming and the policies that are needed to deal with it. This is not so. The Stern Review does not “show” anything. It puts forward arguments, offers conclusions, and makes strong recommendations. Under all these headings, what it says is open to serious question.

The Review has given rise to a lively professional debate, in which there are wide differences which will not be easily resolved. It is a serious contribution to the debate, but far from being an authoritative guide.

2. THE CLIMATE CHANGE BILL

Past experience with failed long-term assessments, and of costly and unsuccessful “strategies” that were based on these, should make one wary of endorsing now a highly ambitious exercise of the same kind.

The Bill is based on an over-confident view about what is known today and what can be predicted with reasonable assurance about the future. It presumes too much. It gives too little weight to the pervasive uncertainties that still prevail in this area of policy—in both the scientific and the economic aspects.

Policies should be evolutionary and reactive, rather than presumptive. They should be based on the considered outcomes of continuing, open, balanced and unconstrained debate.

In relation to climate change, a clear present need is to build up a sounder basis than now exists for reviewing and assessing the issues. Governments should think again. Rather than pursuing as a matter of urgency ambitious and costly targets for further and drastic curbing of CO₂ emissions, they should take prompt steps to ensure that they and their citizens are more fully and more objectively informed and advised.

² Currently Visiting Professor at Westminster Business School.

A process of review and inquiry needs to be established which is more impartial, more representative and more balanced than that which the Intergovernmental Panel on Climate Change, and its controlling departments and agencies, have built up and shown themselves unwilling to change.

May 2007

Memorandum by the House of Lords Delegated Powers and Regulatory Reform Committee (CCB 19)

DRAFT CLIMATE CHANGE BILL: DELEGATED POWERS

1. This memorandum responds to your invitation of 1 May to the delegated Powers Committee to contribute to your Committee's scrutiny of the draft Climate Change Bill. We value the opportunity to contribute to the pre-legislative scrutiny of this draft bill and set out below an overview of our opinion on the proposed delegations. In making these observations, I stress that our opinion must not be taken to prejudge our position should a bill be introduced: we will report to the House at that stage on whether its provisions inappropriately delegate legislative power or whether they subject the exercise of legislative power to an inappropriate degree of parliamentary scrutiny.

2. We have been assisted by a memorandum by the Department for Environment, Food and Rural Affairs about the delegations in the bill.

ALTERATION OF CARBON BUDGETS—CLAUSE 13(4)

3. Clause 13 enables the Secretary of State, by order subject to the affirmative resolution procedure, to revoke or amend an order under clause 4 which sets a carbon budget for a budgetary period. Certain conditions must be satisfied (subsection (3)) if the budget is to be amended after the date on which it was required to be set has passed; and a further condition (subsection (4)) if it is to be amended after the beginning of the budgetary period. But it is clear from subsection (5) that it is envisaged that the budget might be amended more than a year after the end of the budgetary period. The memorandum does not explicitly refer to this although it does emphasise the significance that budget levels are likely to have for the economy and for society generally (paragraphs 46 and 70). In view of these implications, we consider that the case has not so far been made out for a power retrospectively to amend a carbon budget after the end of the budget period.

EMISSIONS FROM INTERNATIONAL AVIATION OR SHIPPING—CLAUSE 15(2)

4. Clause 15(1) provides that carbon dioxide emissions from international aviation or shipping do not count as emissions for the purposes of Part 1, except as provided by regulations under that section (which attract the affirmative procedure). But the Secretary of State also has power under subsection (2) to define by order (subject to the negative procedure) what is meant by "international aviation or shipping". While the exercise of the power is likely to be constrained by the United Kingdom's international obligations (paragraphs 61 and 62 of the memorandum) as well as ordinary public law principles, the order will determine the scope not only of clause 15 as a whole but also of the regulation-making power conferred by subsection (3). Moreover, the extent to which the regime of Part 1 should apply to international aviation may prove to be a controversial policy area. For these reasons, we note that, if a bill were introduced containing such an order-making power, we would suggest that the affirmative procedure was appropriate for its exercise.

CARBON CREDITS AND CARBON DEBITS—CLAUSES 16 & 17

5. Clauses 16 and 17 provide for "carbon credits" and "carbon debits", tradable under the Kyoto Protocol among countries which have set emissions limitation targets. Clauses 16(4) and (5) and 17(2) to (4) leave the entire provision for carbon credits and debits to regulations. The memorandum asserts that the provisions will be technical in character and will need to be flexible and responsive to changes in international agreements (paragraphs 88 and 96 to 99). We regard this as persuasive in terms of the delegation, but not necessarily the level of parliamentary control. Regulations under clause 16 modifying enactments would require affirmative resolution but all other regulations under clause 16 would be subject to the negative procedure. In view of the critical role to be played by carbon credits and debits in the calculation of the United Kingdom's performance against its 2050 target, and against its successive carbon budgets meanwhile, if a similar power were to be included in a bill, we would recommend that its first exercise should be subject to the affirmative procedure, so that the House may be assured that the basic framework for the credits and debits regime is satisfactory.

TRADING SCHEMES—PART 3 / CLAUSE 28

Appropriateness of the delegation and level of parliamentary scrutiny

6. The process by which the United Kingdom is to meet the budgets and the overall target set under Part 1 will be by way of “trading schemes” governing particular sectors of industry in their production or consumption of particular materials (predominantly fuels) in the course of their business. Provision for such schemes is to be left entirely to regulations, and paragraph 109 of the memorandum rightly describes this as the most significant delegated power in the bill.

7. The power conferred by clause 28(1) is in the most general terms imaginable, albeit that the overall purposes for which it may be exercised are set out in subsection (2)(a) and (b), and the characteristics which might enable economic activities to be included in a trading scheme are listed in clause 29(1). Those characteristics too are very widely drawn. In addition, Schedule 2 deals extensively with the kind of provision which the regulations must contain, and the further provision which they may contain.

8. In favour of the delegation, the department emphasises the extensive and technical nature of the provision which will be required (paragraph 112 of the memorandum), and the need to accommodate different kinds of scheme for different purposes (paragraphs 117 to 123 and 127) and for a flexible and responsive regime (paragraph 134). It also refers to comparable statutory regimes, in particular the Renewables Obligation imposed on electricity suppliers under sections 32 to 32C of the Electricity Act 1989, which is governed entirely by affirmative orders of the Secretary of State under extensive powers conferred by those sections. But the regime applies only to the electricity industry whereas the schemes in the bill could apply to virtually every sector of the economy and could significantly affect competition.

9. Despite the extreme breadth of this power, we acknowledge that the likely number and detailed content of trading schemes may make them unsuited to primary legislation, so that some delegation of powers for their provision may be not be inappropriate. We have yet to be persuaded however that even the affirmative procedure provides a sufficient level of parliamentary scrutiny and control over the exercise of such extensive powers, given the possible consequences of such a scheme for economic performance in the sector to be regulated. It may be desirable to consider whether these orders could somehow be subject to more thorough scrutiny than the current procedure provides.

“Significantly more onerous”—clause 31(3)(d)

10. Under clause 31(3), regulations which create a trading scheme are subject to affirmative resolution, as are regulations which extend the participants or activities to which a scheme applies or which extend the duration of the scheme. Subsection (3)(d) applies the affirmative resolution procedure to regulations which “make the overall requirements of a scheme significantly more onerous”. There will clearly be instances where it is beyond any doubt that revisions to a scheme make its requirements significantly more onerous, but there are likely to be other occasions where the significance of a new burden imposed by regulations is much more a matter of impression and debate. We do not at this stage wish to recommend the affirmative procedure for every exercise of powers under Part 3 of the bill, but we draw your Committee’s attention to the uncertainty of language in the current provision, and the risk it carries of challenge, by way of judicial review to regulations made under Part 3 using the negative procedure.

Enforcement provision—Schedule 2, paragraphs 22 to 25

11. Paragraphs 22 to 25 of Schedule 2 are about enforcement provision which may be made in regulations governing trading schemes. The memorandum contains no material which seeks to justify the extent of these significant powers or the level of parliamentary control attached to them. We would pay close attention to these powers if they were included in a bill, and in particular note that we would expect a strong case to be made in relation to the following: a power to provide for intrusive enforcement arrangements not subject to the affirmative procedure (paragraph 22); a power to impose financial penalties where the bill itself does not specify or contain a mechanism for determining the maximum amount (paragraph 23); and a power to create offences and specify penalties where the mode of trial and maximum sentence are not provided for in the bill (paragraph 24).

12. Paragraph 25 enables, but does not require, regulations to confer rights of appeal against decisions made, civil penalties imposed and enforcement action taken under a trading scheme. The provision for appeals to be made to the Secretary of State is, in our opinion, inappropriate because the Secretary of State has a clear interest in securing reduction in United Kingdom carbon emissions and has the right under clause 33 to give directions to those administering trading schemes. The Joint Committee on Human Rights will no doubt have a view on the compatibility of paragraph 25 with the Convention rights, in so far as it makes it optional rather than compulsory for regulations to provide for a right of appeal.

Memorandum by the Environmental Industries Commission (CCB 22)

ENVIRONMENTAL INDUSTRIES COMMISSION

EIC was launched in 1995 to give the UK's environmental technology and services industry a strong and effective voice with Government.

With over 320 Member companies, EIC has grown to be the largest trade association in Europe for the environmental technology and services industry. It enjoys the support of leading politicians from all three major parties, as well as industrialists, trade union leaders, environmentalists and academics.

EIC's Climate Change Working Group represents over 80 companies involved in providing advice and technology in the field of energy efficiency.

Furthermore, EIC have recently launched a working group specifically focused on Carbon Trading, which represents over 40 Member companies. These include international market leaders in the carbon-trading sector.

INTRODUCTION—AIMS AND PURPOSE OF THE BILL

Tackling climate change is crucial for the future of our planet. Without decisive and urgent action climate change has the potential to be both an economic disaster and an environmental catastrophe.

EIC believe that a key factor in getting international agreement to tackle this challenge is for some countries to take a lead in demonstrating it is possible to make the necessary reductions in emissions without damaging competitiveness. The UK is well placed to lead by example in tackling climate change.

EIC therefore greatly welcomes the establishment of a statutory framework to help us in the transition towards a low carbon economy.

TARGETS FOR OTHER GREENHOUSE GASES

The Climate Change Bill focuses only on targets for reducing carbon dioxide.

The 60% figure that the Government has adopted was a previously proposed target for reductions in ALL greenhouse gases.

EIC believe, therefore, that the Government should implement a 60% reduction target on all greenhouse gases at the earliest possible opportunity.

If the Government wishes to continue a carbon dioxide only approach it should increase the ambition of the target to compensate accordingly.

CARBON BUDGETS

EIC believe that it is appropriate for the UK to move to a system of carbon management based upon statutory carbon budgets set in secondary legislation. Carbon budgets must be set to provide a trajectory towards meeting the 2050 target.

EIC would support the introduction of annual targets in the Bill. Given the urgency of the situation we are concerned that the proposed five year period is too long—particularly as it is likely to finish in a new Parliament, meaning that the Government which sets the targets is unaccountable for meeting them.

However, it will be important that there is flexibility in the annual targets. Clearly emissions will fluctuate year on year depending on factors such as the weather and there may be circumstances in a particular year which mean emissions are higher than the trend. In this case the target for the next year would need to be adjusted to take account of the missed target.

The Government states that it is not realistic to predict conditions any more than 15 years in advance, therefore, in order to provide a degree of certainty for businesses, the Government is proposing to put into statute three five-year carbon budgets at a time.

However, EIC believe that this is at odds with the science of climate change whose whole rationale is based upon our ability to predict conditions a lot further than 15 years in advance.

EIC would, therefore, suggest that minimum targets are set out to 2050 with the clear understanding that they may become more demanding as fresh scientific evidence emerges.

BANKING

EIC believe that the banking of emissions reductions for use in the next budget period should be strictly limited.

Large scale banking has the potential to reverse trends away from a path that reduces emissions and towards one of stagnation or reversal that may not become apparent until after the banked units have been used.

BORROWING

EIC believe that the borrowing of carbon dioxide emission reductions from future budget periods should be limited to the proposed 1% of the subsequent budgeting period.

In the event that borrowing becomes necessary to meet the carbon budget, EIC believe that there should be a legally binding obligation on the Government to explain to Parliament why such borrowing was needed and what action has been taken to remedy the situation.

INTERIM TARGETS

In addition to putting into statute the UK's targets to reduce carbon dioxide emissions by 60% by 2050 the Bill also sets a target for reducing carbon dioxide emissions by 26–32% by 2020.

There is a significance difference between reducing carbon dioxide emissions by 32% compared to reducing emissions by 26%. In reality, if the interim target set in the Bill is not fixed and is instead set as a broad range of reductions, the Government will only be required by statute to reduce emissions by the lower figure in the range.

EIC believe that a fixed interim target should be set.

REPORTING

The Climate Change and Sustainable Energy Act 2006 already places a requirement on the Government to produce an annual assessment of its progress on greenhouse gas emissions reductions.

EIC believe that, given the proposed role of the independent Committee on Climate Change (see below), the Committee should become involved in this reporting process.

USE OF CREDITS FROM OVERSEAS

EIC fully endorses the analysis of the Stern review in that the use of international credits provides a significant opportunity to credibly and robustly achieve emissions reduction targets whilst at the same time minimising cost.

COMMITTEE ON CLIMATE CHANGE

EIC believe that decisions on targets for reducing greenhouse gas emissions should be removed from the traditional political process.

Therefore, EIC believe that it is appropriate for an independent Committee on Climate Change to set, monitor and enforce statutory targets for reducing greenhouse gas emissions, similar to the role of the Bank of England in setting interest rates.

Furthermore, EIC believe that the Committee should have both an advisory function regarding the pathway to meeting the 2050 targets and a strongly analytical role to ensure that the UK's emissions are reduced in the most economically efficient and sustainable manner.

EIC support the remit of the Committee as outlined in the consultation, namely that it will advise the Government on:

- The level of carbon budgets.
- Whether to make use of the banking or borrowing measures.
- The extent to which carbon budgets should be met by domestic emissions reductions versus emissions reductions purchased overseas.
- The respective contributions towards meeting the budgets of those sectors of already covered by emissions trading schemes.
- The contribution towards meeting the budget of those sectors not covered by emissions trading schemes.

If the Committee on Climate Change is to improve the institutional framework for managing carbon in the economy, it must be fully transparent, accountable, accessible to all stakeholders.

Furthermore, EIC recommend that all appointments to the committee are time limited, and that no individual may hold a post for a period of more than 2 years, to prevent special interests becoming entrenched.

CONSEQUENCES FOR FAILING TO MEET THE TARGETS

Whilst it is technically and economically feasible to achieve the emissions reductions outlined in the Bill it will require a high degree of consistent vigilance to ensure that the UK does achieve them.

Therefore, EIC believe that the Government should have a legal duty to stay within the limits of its carbon budgets.

This legal duty to remain within the budgets will also, to some extent, help to future proof the legislation against Governments that may for whatever reason be less engaged with climate change issues than the current one.

EIC would be concerned that, in the absence of a legal duty to remain within carbon budgets, the legally binding nature of the legislation lacks teeth, and as such runs the risk of simply being ignored.

DEVOLUTION

Environmental policy is, to varying degrees, devolved to each of the Devolved Administrations. It has not yet been determined how the functions of the Bill would be performed, whether by the Secretary of State, the Devolved Administrations or jointly.

EIC believe that it is crucial that the UK as a whole is committed to working in partnership to tackle climate change.

ENABLING POWERS IN THE BILL

As outlined in the Stern report, when properly implemented carbon trading has the potential to facilitate emissions reductions at the least cost. EIC, therefore, support the introduction of enabling powers to introduce trading schemes.

COMPATIBILITY WITH INTERNATIONAL TARGETS

It is crucial that the targets set in the Bill are compatible with the UK's commitments under the Kyoto Protocol and the EU Emissions Trading Scheme.

Furthermore, the targets set in the Bill must be compatible with the UK's contribution to meeting the EU's binding unilateral commitment to cut greenhouse gases by at least 20% by 2020.

AFFECT OF THE BILL ON INTERNATIONAL CLIMATE CHANGE ACTIVITY

The Climate Change Bill is the first of its kind in any country and EIC welcome the Government's decision to take a lead on setting statutory targets to reduce carbon dioxide emissions.

EIC hope that the Bill will be successful in encouraging other countries to take similar action.

May 2007

Memorandum by ClientEarth (CCB 23)

ClientEarth is an environmental law charity under the law of England and Wales. It aims to promote the health of people and their environment by advocating sound environmental laws and their just administration.

What the main aims and purposes of the Bill are and why it is needed

1. The main purpose of the Climate Change Bill is to supply a comprehensive regime to deal with all aspects of climate change and to provide an effective UK framework for reducing carbon dioxide emissions to safe levels in line with the latest scientific evidence.

To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed?

2. Given the grave and urgent need for action in relation to climate change and the UK's wish to set an international example, it is appropriate and necessary to legislate regarding carbon targets and budgeting, especially since setting non-binding targets has not been effective.

3. Voluntary agreements generally do not achieve actual reductions in carbon emissions (see comments of the IPCC Fourth Assessment Report Summary for Policymakers (at p. 29, para. 5). Urgent compulsory action is needed.

Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence.

4. Of all the greenhouse gases (GHGs), carbon dioxide is the main contributor to global warming. However, other GHG emissions also contribute substantially and must be included in target-setting. Otherwise, targets and results will be misleading.

5. The Government's 60% target is too low. According to latest scientific research (eg by the Tyndall Centre for Climate Change Research), total carbon concentrations in the atmosphere can only be stabilized at a safe level (no more than 2°C global rise in temperature) if emissions reductions of 80–90% take place by 2050.

6. Similarly the interim target of 26–32% is too low. The sooner total carbon emissions are reduced substantially, the cheaper and easier it will be to achieve safe levels of GHG concentrations and to reach the ultimate goal of “convergence”. Germany is setting a target of 40% reduction in GHG emissions by 2020. The UK should follow Germany's lead.

7. Similarly, the omission of carbon emissions from aviation and shipping from the ambit of the new Climate Change Bill is unacceptable. The current Bill gives the misleading impression that it embodies a thorough approach, while ignoring industry sectors that greatly contribute to the problem.

What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so.

8. Existing UK targets for carbon emission reductions of 20% on 1990 levels by 2010 will not be met. Therefore, to achieve the ambitious targets necessary to stabilize GHG concentrations at a safe level, will be a severe test of the UK's commitment to tackling climate change. It is precisely for this reason that binding targets and a robust regime are necessary.

9. Because of the nature of global warming and the cumulative effects of global carbon emissions over the years it makes sense to set carbon budgets over longer periods of time. However, it is crucial that GHG emission reductions take place at an ongoing and regular pace, with greater reductions earlier on. Therefore, simply having five year budget periods, without binding yearly targets, is not sufficient. Moreover, five year budget periods may span more than one Government legislature, providing scope for both Governments—unless there are binding yearly targets—to evade their obligations and make the “other” Government responsible for the failure to comply with climate change obligations.

The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from sources which should count towards that target.

10. Participating in international emissions trading is necessary to ensure international equity and fairness, and to provide a certain amount of flexibility and an additional instrument for achieving the Bill's ultimate goals. However, participation in trading schemes has to be made dependent on the quality of such schemes.

11. Trading schemes and sequestration should only ever be an additional tool to further reduce carbon emission and never be used instead of carrying out the necessary carbon reduction measures nationally. Specifying the maximum amount and type of carbon credits from sources to count towards that target will clarify the legal duties the Bill creates and thereby aid sound administration of the scheme.

Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments.

12. It is crucial that the Climate Change Committee should be completely independent from the Government. Appointments to the Committee must be based on expertise and knowledge. Similarly, the Committee should not be dependent on the forecasting and analytical activity within Government departments, but should rely on the evidence of respected independent experts (including its own experts on climate science). Currently, the Climate Change Committee as foreseen has an advisory and monitoring role, but the Committee, if it is truly independent, may be better placed to set targets than the Government.

13. The Climate Change Committee should consist of a wide range of experts, including experts on adaptation and international development. The focus must be on the best science available; financial and business expertise are relevant in finding the most efficient path to the targets, not in setting the targets.

The legal consequences of the Government failing to meet targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism.

14. As it stands, the Bill does not provide a valid enforcement mechanism. Judicial review will almost certainly be of no use, at least in its current form, as its preconditions (illegality, irrationality or unfairness) will be difficult to satisfy. Judicial review on the merits of a case is not possible. Moreover, significant barriers to access to justice for the public exist as regards rights of standing and costs.

15. In order to secure an effective enforcement mechanism, but also to comply with Article 9(2), (3) and (4) of the Aarhus Convention, changes need to be made to the law of judicial review and/or of statutory appeal, to make it possible for review proceedings to be brought on the merits of a case, to clarify rules of standing and to remove the obstacle of excessive costs in environmental public interest cases.

16. In addition, a much simpler and more straightforward mechanism is needed that introduces an automatic statutory penalty if targets are not met, enforced by a competent authority, eg the Climate Change Committee, the Environment Agency or another body. Sanctions need to be real and significant, in order to provide an additional incentive for the Government to do everything it can to meet its targets, and a sufficient deterrent not to want to incur them. Therefore, they would need to impose a significant additional cost or effort.

Whether the delegated powers contained within the Bill are appropriate and adequate?

17. Enabling powers to introduce new trading schemes are needed. However, enabling powers should also cover other relevant measures suggested by the Stern Review, ie tax, regulations, regulation/policies on the development of low-carbon and high-efficiency technologies and the removal of barriers to behavioural change, as appropriate.

May 2007

Memorandum by E.ON UK (CCB 44)

KEY POINTS

- E.ON UK supports the proposed statutory CO₂ reduction targets, although it would be helpful if the Government clarified the basis for the proposed 2020 target range. These targets will help the development of a stable, long term policy framework for low carbon investment and strengthen the UK's leadership position on climate change. The government must put in place the right long term policies to deliver the targets.
- The five year carbon budgetary periods strike the right balance between ensuring progress towards the overall CO₂ reduction goal, whilst providing the necessary flexibility to ensure that abatement occurs in the most efficient manner. We believe that annual targets would not enhance the environmental integrity of the Bill and are likely to result in reduced flexibility.
- Recognising that carbon dioxide represents 85% of the UK's greenhouse gas emissions we support the focus on CO₂. However, the emissions from other greenhouse gases must continue to be subject to downward pressure.
- Project credits from overseas investments, including JI/CDM credits available under the Kyoto flexible mechanisms, should be permitted to count against the UK targets. We do not think that a limit on project credits should be incorporated in the Bill but project credits should be subject to tight and rigorous accreditation and validation. Use of project credits would be consistent with the operation of the EU ETS.

- Purchase by Government of project credits to deliver the targets specified in the Climate Change Bill could have a significant impact on the carbon market and the stability of the EU ETS and could affect its reliability as a trading mechanism. We therefore believe that a decision by Government to purchase project credits should be transparent and signalled well in advance.
- While the proposed statutory carbon reduction targets will support a UK leadership position in international negotiations, implementing effective policies to achieve substantial cuts in emissions while maintaining a growing internationally competitive economy will be the most effective means of influencing other countries by example.

INTRODUCTION

1. E.ON UK is the UK's second largest retailer of electricity and gas, selling to residential and small business customers as Powergen and to larger industrial and commercial customers as E.ON Energy. We are also one of the UK's largest electricity generators by output and operate Central Networks, the distribution business covering the East and West Midlands. We are also a leading developer of renewable plant, including biomass generation. By 2012 we aim to achieve a 10% reduction in carbon intensity—the amount of carbon emitted per unit of electricity we produce—compared to 2005 levels.

2. We welcome the opportunity to contribute to this committee inquiry and our response to the questions posed in the call for evidence follow.

What the main aims and purposes of the Bill are and why it is needed.

3. The statutory CO₂ emission reduction targets set out in the Bill provide additional clarity about the long-term direction of domestic UK climate change policy and this will facilitate the development of a stable and long term policy framework to support the necessary investment in low carbon technologies. The Bill will also help ensure, through statutory reporting, more clarity in the Government's approach to adaptation. The adoption of robust targets will also strengthen the UK's leadership position on climate change. However, the government must put in place the long term policy framework to deliver the targets.

4. We believe that the proposed carbon budgetary periods strike the right balance between ensuring progress towards the reduction goal and measuring the effectiveness of long-term Government policies to achieve CO₂ emission reductions, whilst permitting reasonable flexibility in delivery. The flexibility provided by banking and borrowing provisions within budgetary periods along with limited banking and borrowing between budgetary periods will ensure that variables such as weather, global fuel prices and other economic factors can be taken into account and will avoid the need for short-term disruptive intervention to achieve more rigid targets.

To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed.

5. The UK is already subject to legally binding targets under the Kyoto Protocol and we believe legally binding targets are required on developed economies given the severe economic and environmental consequences of global warming. E.ON UK believes that this legislation provides an improved level of clarity with regard to the required level of domestic CO₂ emission reductions, particularly in the absence of an international agreement to succeed Kyoto. However the policy framework needed to deliver this should provide flexibility for companies, organisations and individuals to respond in different ways. The use of trading mechanisms such as the EU Emissions Trading Scheme incentivises reductions in emissions through a carbon price but enables companies to respond in the most economic way.

Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour.

6. The Draft Climate Change Bill will increase certainty for all organisations and for UK households with regard to the level of carbon emission reductions which will be necessary over the period to 2050. Local government have an important role in tackling climate change and this additional clarity will help them also.

7. We also note that the statutory reporting requirement relating to adaptation measures will facilitate the sharing of best practice whilst retaining flexibility to adapt in whichever way is deemed to be most appropriate. Local government should benefit from this.

8. We do not believe that the Bill should introduce specific climate change policy measures beyond the framework of statutory targets, associated carbon budgets and reporting to Parliament. Specific policy measures to secure changes in public behaviour are and should be consulted on separately and be the subject of separate legislation if required. The Bill contains enabling powers to introduce new carbon trading mechanisms. We are supportive of the proposed enabling powers and the Government's commitment to consult fully on any new schemes.

Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence.

9. CO₂ represents approximately 85% of the UK's emission of greenhouse gases (GHG). Given this fact and recognising the reductions that have already been achieved from the other GHG sources, we support the focus on CO₂. Nevertheless, such is the urgency of further reducing all sources of greenhouse gas, it is important that emissions from the other GHGs are subject to further downward pressure. Other GHGs could be included at a later date particularly if new gases are incorporated into the EU emissions trading scheme.

10. The 60% reduction target is consistent with the anticipated level of effort required by richer countries to avoid the worst effects of climate change, as noted within the Stern Review (60–80%). However, we also recognise that the Draft Climate Change Bill provides sufficient flexibility to amend this statutory target to the extent required by either new scientific consensus about climate change, or to facilitate the adoption of a new international climate change agreement post 2012.

What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so.

11. There are a range of difficulties which are likely to face the Government when seeking to set and adhere to a cost effective carbon reduction path. Variables include global fuel prices, the level of economic growth, the responsiveness of individual consumers and of course the weather.

12. Meeting these challenges will require flexibility. We concur with the Government that five year budgetary periods will provide sufficient flexibility to track the necessary carbon reduction trajectory, whilst achieving the reductions in the most efficient manner.

13. We do not believe that an annual target adequately recognises the need for flexibility. The above uncertainties are likely to either necessitate frequent borrowing from subsequent years, or will increase the likelihood of expensive interventionist measures within year. In reaching our position in support of the rationale for a five year budgetary cycle we note the following comments from the Stern Review; “from year to year, flexibility in what, where and when reductions are made will reduce the costs of meeting these stabilisation goals”.

14. In addition to the five year periods it is also important that there is a clear carbon trajectory leading to the achievement of the statutory targets. Such an approach will facilitate longer term investments. In this respect we fully support the operation of three consecutive budgetary periods at any point in time.

The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target.

15. If the worst effects of climate change are to be averted, addressing the issue of land use is important. If Government wish to use credits from this form of carbon sequestration it is vital that a number of issues are resolved. Firstly, credits from land-use and forestry must be developed by the UNFCCC as part of discussions on the second commitment period. Secondly, projects must be subject to an appropriate level of monitoring, reporting and verification. Finally, there need to be arrangements in place to deal with the issue of reversibility. There must be an assurance that land-use changes offer guaranteed emission reductions over a fixed timeframe. Additionally land-use changes will be vital for adaptation to climate change, providing protection for ecosystems through the development of wildlife corridors. This will permit the migration of species and the reconnection of fragmented populations.

16. Carbon capture and storage (CCS) has an important role in enabling the UK and other countries to continue to use fossil fuels while continuing to reduce radically their CO₂ emissions to the environment. This has major security of supply benefits. In this respect, the inclusion of CCS within the EU Emissions Trading Scheme is an important development. We see no reason why CO₂ emission reductions achieved through CCS within a proper framework of monitoring should not count toward the targets in the Bill.

17. Project credits available under Kyoto's flexible mechanisms should be permitted to count against the UK targets and this would be consistent with operation of the EU ETS. This should encourage technology transfer to developing nations and can help deliver global GHG emission reductions at least cost. It also acts as the vehicle to integrate high standards across international cap and trade schemes. We do not think that a limit on project credits should be incorporated in the Bill but project credits should be subject to tight and rigorous accreditation and validation.

18. There needs to be recognition that the purchase by Government of project credits to deliver the targets specified in the Climate Change Bill could have a significant impact on the stability of the carbon market established by the EU ETS and could affect its reliability as a trading mechanism. We therefore believe that the decision to purchase project credits should be transparent and signalled well in advance.

Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments.

19. We are content with the proposed remit and powers of the Committee on Climate Change. In terms of the constitution we would recommend a balance of practical and academic experience, covering economics, business management, environmental and social science.

20. We consider the independent nature of the Committee on Climate Change to be paramount. We agree with the wording within the Draft Bill that the analysis from this group must be clear, transparent and independent of Government.

The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism.

21. We believe the primary incentives on Government to comply are political, given the wide public and political support for effective action to tackle climate change. The annual reporting to Parliament, independent assessments by the Committee on Climate Change and the possibility of judicial review of relevant Government policy decisions will reinforce this.

How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations.

22. No comment.

Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets.

23. We understand that the Bill's CO₂ emission reduction targets should be compatible with the recent agreement of the European Council to a 20% reduction in GHG emissions by 2020 below 1990 levels and a 30% cut contingent on international agreement, although this may need to be reviewed in the light of allocation of this target amongst Member States. It would be helpful if the Government provided further analysis in particular to support the 2020 target range. The Bill contains sufficient flexibility to revise the statutory targets should they need to be amended in order to remain compatible with international obligations. It is important that implementation of the framework of carbon budgeting and monitoring introduced by the Bill is consistent with the operation of the EU ETS which is the primary EU wide policy mechanism for incentivising carbon reductions. At present there is nothing in the Bill to suggest that it will not be.

How the contents of the Bill will affect international climate change activity.

24. We believe the Bill will help the UK establish a leadership position on the issue of climate change. We hope this will support its international negotiating position, but it will need to retain sufficient negotiating flexibility to encourage other countries to take comparable action. Implementing effective policies to achieve substantial cuts in emissions while maintaining a growing internationally competitive economy will be the most effective means of influencing other countries.

Whether the delegated powers contained within the Bill are appropriate and adequate.

25. We believe that the delegated powers are adequate.

May 2007

Memorandum by The Royal Society for the Protection of Birds (CCB 49)

SUMMARY

The RSPB considers that human-induced climate change poses the biggest long-term threat to global biodiversity. We therefore work on the development of policies and measures that will allow both mitigation of and adaptation to climate change. The RSPB therefore welcomes the draft Climate Change Bill and congratulates the Government on bringing forward this innovative and important piece of legislation. However, for the Bill to work effectively we believe it could be improved in a number of ways.

- i. The Bill should include an 80% target for CO₂ reductions by 2050; and Government should explain its rationale in selecting a 26–32% range for its 2020 target.

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- ii. The role of local government in tackling climate change should not be managed through specific provisions in the draft Climate Change Bill. However, the Bill's enabling powers should allow for the introduction of new duties on local authorities in the future.
 - iii. National targets, delivered through a programme of trading schemes, incentives and regulation, are the most effective way of tackling climate change whilst rewarding innovation in business and communities. Trading schemes have the capacity to limit total UK emissions, if they are appropriately designed and limits are placed on international trading.
 - iv. The Committee on Climate Change should advise on future targets; should include environmental policy experts and adequate representation from devolved administrations; and should have the right to seek advice from independent experts.
 - v. The Committee and the Government under Clause 6 of the draft Bill should be obliged to ensure that their actions do not damage the wider environment.
 - vi. The UK Government should develop its targets in full consultation with devolved administrations and ensure adequate their representation on the Committee for Climate Change. Additional legislation at country level is likely to be required, where devolved administrations wish to set more ambitious targets, or make provision for specific mitigation measures policy.
 - vii. The adaptation provisions of the Bill should include an obligation on Government to secure the future of the UK's biodiversity under a changing climate; and address the impacts of UK emissions on communities and the environment overseas.

In this submission we comment on the 11 themes listed in the Committee's call for evidence, and in paragraphs 12.1 to 12.3 we address the need for the Bill to include strengthened measures on adaptation to climate change.

1. THE MAIN AIMS AND PURPOSES OF THE BILL

1.1 The main purposes of the Bill, in our view, are:

- To provide certainty to businesses, society and the international community about the UK's intention to de-carbonise its economy, by setting medium and long-term emission reduction targets in law.
- To ensure that the UK is committed to a maximum volume of emissions in any given budget period, and that the trajectory of emission reductions over time is appropriate to the achievement of our long and medium term goals.
- To ensure greater transparency around the Government's performance on climate change and to deliver more and improved opportunities for parliamentary and public scrutiny of Government action in this field.
- To hold Government accountable for its performance through law.
- To establish an expert body capable of giving non-partisan advice on budgets, trajectories, sectoral contributions, and the balance between UK and overseas effort.
- To oblige Government to produce and report against a programme of action on adaptation to climate change.

1.2 The failure of Government to achieve its emission reduction targets is the main argument in favour of the Bill. Despite overwhelming evidence that developed countries need to make rapid and substantial cuts in emissions to avoid dangerous climate change, UK emissions rose last year, and have shown no significant decreases since 1995. As a result, the UK will fail to meet its 2010 target for CO₂ reductions by some distance. Placing clear targets in law, creating a budget system to ensure we are on track to meet them, and increasing the level of public and political scrutiny of Government performance in this area, is an important step towards addressing this shortfall.

2. CARBON TARGETS AND BUDGETING

2.1 We believe that it is not only appropriate but also essential to legislate regarding carbon targets and budgeting. Voluntary action in this field, where it is not backed up with a robust framework of law and/or incentives,³ has a track record of failure. The draft Climate Change Bill plans to set clear, legally binding targets for emission reductions, based on a scientific understanding of environmental limits, and reflecting the UK's share of the responsibility for addressing the global climate problem. By allowing considerable flexibility within this framework, Government can then chose policy approaches which reward innovation and voluntary action, as well as setting minimum standards. So for example, setting a carbon budget will

³ One good example of this is the failure of the Voluntary Agreement with Car Manufacturers to deliver promised improvements in vehicle fleet efficiency in the EU. The agreement, made eleven years ago, was to achieve an average vehicle efficiency of no more than 140g CO₂ per km by 2008–09. By 2005–06, average vehicle efficiency in cars sold in the EU was still over 160 g CO₂ per km. In response, the EU intends to introduce mandatory standards for vehicle efficiency.

enable the Government to judge the right “cap” for emissions trading schemes; the level of tax or incentive required to change a particular behaviour; and/or the patterns of investment required to incentivise innovation in a particular sector.

3. THE ROLE OF LOCAL GOVERNMENT

3.1 Local government has the capacity to deliver substantial greenhouse gas savings, in particular through management of its estate; sustainable procurement policies; the implementation of planning policy; supporting public transport provision; and by shaping and leading community opinion and action. At present, however, performance in this sector is patchy, with many Councils falling way below established good practice. It is likely that this failure is indeed hindering public support for and engagement with climate change issues.

3.2 However, although we believe local government has a vital role to play in this area, we are not convinced that this should be managed through specific provisions in the draft Climate Change Bill at this time. The purpose of the Bill is to establish an emission reduction framework for central Government, and to hold Government to account for delivery on national targets, rather than to dictate specifically how these targets should be achieved.

3.3 Instead, if Government plans to meet its targets for any future budget period through measures that require local authority participation (for example in the fields of transport provision, the built environment, waste management, or community engagement), it should have the means to secure this via the Climate Change Bill. This could be done by the provision of an additional enabling power, allowing Government to place new duties on local authorities.⁴

4. REGULATING TOTAL UK EMISSIONS THROUGH THE USE OF EMISSIONS TRADING SCHEMES

4.1 Trading schemes do have the capacity to limit total emissions within the sectors they cover; but this depends on good design and requires limits on the ability of UK players to trade internationally.

4.2 Design rules can be relatively simple. Caps for new trading schemes should be based on appropriate proportions of national budget allocations; credits should be auctioned and not grandfathered; and any money accruing from these should be invested in emission reduction measures.

4.3 International trading is difficult but not impossible to control. At present, the only major overseas market, the EU ETS, is not capped tightly enough to drive emissions down at the scale or rate required, and is open to too great a volume of trades with uncapped players, through the purchase of Clean Development and Joint Implementation credits. Therefore, although the UK should continue to invest in and help develop the ETS, it should limit the amount of ETS credits which can be counted against the domestic emission reduction targets, or traded in new domestic schemes. We support the decision to charge the Climate Change Committee with determining the balance of effort between domestic and international effort, which we support.

4.4 The proposal to introduce a new domestic trading scheme covering large commercial enterprises is welcome. However, this will still leave some large sources of emissions outside the trading framework. We believe there is scope for the introduction of new trading schemes, for example covering surface transport. However, we are sceptical about the practicality of trading schemes in some sectors at present; notably agriculture, and individual emissions through personal carbon allowances. Schemes in these areas may, in time, be designed without undue administrative complexity, and in a way that guarantees real cuts in emissions; but until then, we would prefer the Government to consider other measures to complement trading schemes. These might include direct taxation of polluting activities; investment in new technology; or simple regulation. A policy mix of this kind, in our view, offers the greatest opportunity to control total UK emissions.

4.5 In our view, carbon budgets are the right way to secure the achievement of emission reductions across the UK. They establish an absolute limit on the amount of emissions allowable within a given period, whilst allowing Government to respond sensitively to any jumps in emissions resulting from extreme weather conditions or shifts in fuel prices. However, a five-year cycle may allow buck-passing between parliaments, and hence provide insufficient incentive for any one Government to meet its targets. Because of this, the RSPB believes that five-year budgets must be accompanied by clear annual milestones, enabling people to understand performance against a proposed trajectory within the budget period.

⁴ Recognising the desire of Government to increase the autonomy of local government, we would expect such a power to be employed only where action could not be secured effectively through the guidance or auditing functions of the Department for Communities and Local Government in England, or relevant devolved administrations in N.Ireland, Wales and Scotland.

5. THE TARGET OF 60% EMISSIONS REDUCTION BY 2050

5.1 The Government has committed itself repeatedly to help limit average global temperature rises to 2 degrees Celsius above pre-industrial levels. Evidence from the IPCC has demonstrated that to have a reasonable chance of achieving this, the concentration of CO₂ equivalent greenhouse gases in the atmosphere must rise no higher than 450ppmv. This requires developed countries to make cuts of no less than 80% in emissions of CO₂ equivalent by 2050. For this reason, the Bill should establish an 80% target by 2050 at once. In future, the Committee on Climate Change should be responsible for ensuring that the UK's targets continue to represent an equitable share of the cuts required globally to stay within the 2 degree safety limit.

5.2 To achieve an 80% reduction by 2050 along a relatively smooth trajectory from 2010, requires something closer to a 40% cut by 2020, than the 26–32% medium term target proposed by the Government. Government should therefore provide the analysis that led it to opt for the 26–32% range, and if necessary, change this target to reflect an appropriate trajectory towards an 80% emission reduction at 2050.

6. THE PROPOSED COMMITTEE ON CLIMATE CHANGE

6.1 We welcome the establishment of the Committee, and are broadly supportive of the proposals for its composition and role. However, we believe it should also have responsibility for advising on any future changes to mid and long-term targets, as noted above. Appointments to the Committee should be scrutinised by an independent body, for example an appropriate Parliamentary Select Committee. The Committee should also include members with expertise in environmental policy, and appropriate representation from the devolved administrations.

6.2 We are also concerned that environmental sustainability has not been included as one of the factors the Committee must consider when making its decisions. The Committee's advice could have significant implications for biodiversity, for example, by recommending a particular trajectory for reductions that relies heavily on biofuels or onshore/offshore wind. These implications must be considered alongside issues such as competitiveness and fuel poverty. We will be proposing that the Committee, and Government when bringing forward proposals under Clause 6 of the Bill, is given a duty to safeguard the wider environment.

6.3 We are concerned about the possible dependence of the Committee for Climate Change on existing Government tools and analysis. A recent EAC enquiry into emission highlighted the optimism bias of most Government forecasts, and the partial nature of the cost effectiveness analysis applied to potential mitigation measures. This could be addressed in part by providing the Committee with a limited technical support staff, whose job would be to critique the analysis provided by Government. The Committee should also be allowed to secure additional analysis from non-Government sources, for example the Tyndall Centre for Climate Change.

7. FAILURE TO MEET THE TARGETS SET IN THE BILL

7.1 The current penalties for failing to meet targets in the Bill are inadequate. We support the use of Judicial Review, but believe that this would be a more effective if it was applied to the programme of action required under Clause 6 of the Bill, rather than retrospectively, to missed targets. Such a challenge would have the capacity to influence and change policy, rather than deliver censure after the event.

8. DEVOLVED PARLIAMENT AND ASSEMBLIES AND THEIR ADMINISTRATIONS

8.1 In our view, it is vital that we have a UK Climate Change Bill that establishes a framework for emission reductions and sets minimum targets at the UK level. However, to facilitate this, the UK Government must develop its targets and provisions in full consultation with devolved administrations, and also specify adequate representation from the devolved administrations on the Committee for Climate Change within the Bill itself.

8.2 Beyond this, there is also a clear role for further legislation at the devolved level, to help tackle climate change. Devolved Governments must have the freedom to set more ambitious emissions reduction targets should they chose to do so. They may also wish to go beyond the framework established at UK level, and introduce more specific mitigation measures at the country level. In designing the UK Bill therefore, care must be taken to ensure that it does not preclude or hamper the establishment of further, more ambitious or detailed legislation in NI, Scotland or Wales.

9. COMPATIBILITY WITHIN THE FRAMEWORK OF EUROPEAN UNION TARGETS

9.1 The European Union has established 20% emission reduction target by 2020 (rising to 30% following progress on international agreements). The Bill proposes a 26–32% reduction by 2020 and a 60% reduction by 2050. Broadly, therefore, the two positions are compatible, with the potential for a slightly increased level of ambition from the UK in the medium term. However, we have already argued for an 80% 2050 target, and questioned the ambition of the 2020 target because of it. If the 80% cut were accepted, it would mean

that UK targets would outstrip current EU targets by some way. We can see no problem with this position. There is no legal impediment to the UK having a more ambitious goal than the EU; and we would argue that it is right for the UK to demonstrate its continued leadership at the European and global scales on this vital issue.

10. IMPACT ON INTERNATIONAL CLIMATE CHANGE ACTIVITY

10.1 The Climate Change Bill is the first of its kind, and is attracting considerable interest from other countries looking to ensure the delivery of reductions in greenhouse gas emissions. In this sense, it is already having a useful and stimulating effect. However, the Bill would play a more positive role if it contained a target compatible with the UK's fair share of the cuts needed to keep global average temperature rises below 2 degrees from pre-industrial levels.

11. DELEGATED POWERS

11.1 We welcome the powers proposed for the Secretary of State to make provisions for emissions trading schemes. However, we are not convinced the powers should be restricted to this single mechanism. Whilst the Government already has the power to introduce fiscal measures through the budget and CSR, without the need for legislative support, we can see a case for facilitating the introduction of other measures, including, inter alia, duties upon public bodies and local authorities; modifications to the Building Regulations; new or updated regulations affecting vehicle efficiency and fuel standards; new or updated regulations affecting the energy efficiency of consumer goods.

12. ADAPTATION PROVISIONS

12.1 The world is already committed to a certain amount of climate change as a result of historical emissions, and we have an ever increasing body of evidence about the likely impacts of this on the natural environment⁵ and on the world's poorest people. Government needs to take a lead in ensuring that resources are available, and measures in place, to help the victims of climate change adapt; and to ensure that adaptation across all sectors does not further exacerbate environmental damage, or lock the world into unsustainable patterns of development.

12.2 We therefore propose that the draft Climate Change Bill include strengthened provisions on adaptation. The Bill should include an obligation on Government to conduct a three yearly analysis of the likely impacts of climate change on key sectors in the UK economy and on the world's vulnerable communities and ecosystems. This should be accompanied by a programme of adaptation measures to address these impacts. The programme should have the explicit aims of securing sustainable adaptation across all sectors of the economy; safeguarding the future of the UK's biodiversity in a changing climate; and ensuring that the UK plays its full part in tackling the impacts of greenhouse gas emissions on vulnerable communities and ecosystems abroad.

12.3 We also believe that the Government should include in the Bill an annual reporting requirement on adaptation, and a requirement to develop a set of indicators to measure progress. These should include progress towards UK Biodiversity Action Plan targets; and a clear indication of whether the Government has provided funds over and above its existing commitments, to address the impacts of climate change on vulnerable communities and ecosystems abroad.

May 2007

Memorandum by the Royal Academy of Engineering (CCB 50)

1. The Royal Academy of Engineering welcomes the opportunity to submit evidence to the Joint Committee on the Draft Climate Change Bill. The submission below has been formulated from the views of a number of Fellows of the Academy, with many years of experience working in the fields of energy and climate science. In addition to this submission, the Academy would be pleased to provide oral evidence to the Joint Committee in order to expand on any of the issues raised below.

2. The Academy supports both the intent to enshrine in law the long term target and also to set binding targets en route to the 2050 goal. This will create long term certainty in the minds of investors in industry and the public at large as to the legislative position in the UK for the foreseeable future.

3. The scale and timing of the intermediate targets need to be sufficient to stimulate both delivery of long term low carbon technologies on the supply side together with major adjustments on the demand side. On the supply side, the most important technologies include carbon capture and storage, nuclear power and

⁵ The RSPB is particularly concerned that a renewed investment will be required in wildlife protection and enhancement to prevent further declines in biodiversity, which is already under severe pressure from development, pollution, persecution and water shortages. Without intervention, leading scientists in the field of biodiversity conservation believe that over one third of land based species on earth could be committed to extinction by 2050.

longer term renewables such as tidal and offshore wind while action on the demand side must concentrate on reducing the fossil sourced component of these elements of UK energy use, particularly in the transport sector. Each intermediate target also needs to be realistic, bearing in mind that significant benefits may in fact flow in the 2020–30 period, although it must also be noted that the earlier the emissions reductions are implemented the more effective they will be.

4. Whilst the 5 year budget period has considerable merit for the reasons set out in the draft bill, it is important to recognise that the carbon emission profile is unlikely to have step changes year on year or to be a smooth predictable line. Care needs to be taken therefore to set targets which signal the desire and commitment to achieving the longer term 15, 30 and 50 year targets whilst not being liable for early failure.

5. The challenge in delivering the 26–32% reduction in carbon dioxide emissions by 2020, when the most recent figures indicate a rise relative to 2005 levels, is enormous. Notwithstanding policy and market mechanisms, which may in themselves represent significant deployment barriers, this challenge is significant in terms of delivery of the necessary engineered assets for both supply and demand side reductions of CO₂.

6. Recent evidence would also suggest that the target of a 60% reduction relative to 1990 levels by 2050 may not be sufficient to mitigate against catastrophic effects of climate change. This target, which originated from the Royal Commission on Environmental Pollution's report *Energy, the Changing Climate* and was itself derived from the perceived need to stabilise the concentration of CO₂ in the atmosphere at 550ppm has, since 2000, become controversial and many experts have revised their estimates of the required target downwards to between 450 and 500ppm. It is therefore important that the targets are reassessed in the light of the most current scientific research available into the concentration of greenhouse gases in the atmosphere, the global temperature and its effect on both local and global climates.

7. Mitigating climate change in terms of global as well as local consequences and ensuring security of energy supply are fundamental to the prosperity of the UK and the well being of its citizens. The timescales and responsibilities involved cut across a number of administrations. It is right therefore that short term political imperatives should not interfere with the long term objectives outlined in the Climate Change Bill and in the previous two Energy Reviews. A new non-departmental public body appropriately mandated and resourced could be a way to assess, monitor and highlight progress and issues.

8. We would strongly advocate the inclusion of, or as a minimum guaranteed access to, suitably qualified and experienced engineering resources to ensure scenarios and options are appropriately scoped and costed and assessed for practicality of delivery. The Academy, with a membership drawn from all technologies relevant to the climate change challenge, would be pleased to assist Government in the detailed studies and analysis which will be required.

9. Given the depth and breadth of expertise needed, appointing a Committee on Climate Change of only 5–8 members capable of addressing all the relevant issues would be most difficult. Such is the complexity of the sector that access to experts in all the technology options will be an essential prerequisite. Here the Academy and the major engineering institutions can offer assistance through the nomination of appropriate experts.

10. Also, experience in recent years indicates the importance of stakeholder engagement and the engagement of science and engineering with society at large at the earliest opportunity. We would therefore encourage the Government to ensure that the Committee on Climate Change gives adequate attention to the public acceptability of measures introduced to tackle climate change and has access to experts in the fields of psychology and sociology. The Committee on Climate Change must also operate fully in the public domain and its procedures should be completely transparent. Also, it must be prepared to debate fully contentious issues and criticisms whenever they arise.

11. Whilst the draft Bill indicates a Government would be open to Judicial Review in failing to meet targets or stay within budget, it is difficult to see what this would actually mean and what meaningful sanction could be applied in the event of serious failure.

12. In global terms, it is right that the UK should take a lead in tackling emissions of greenhouse gases and this Bill will send a clear signal of the UK's commitment to achieving significant emissions reductions. It is, however, important that the price of energy is not driven up to a point where it adversely affects our economy relative to the rest of the world. Thus, achieving a world consensus remains a priority, particularly in countries such as USA, China and India and securing a successor to the Kyoto Protocol once the first commitment period runs out in 2012.

Memorandum by the Office of Gas and Electricity Markets (Ofgem) (CCB 51)**INTRODUCTION**

1. Ofgem is the regulator of the gas and electricity industries in Britain. Our principal objective is to protect the interests of present and future gas and electricity consumers.

We do this by promoting competition, wherever appropriate, and regulating the monopoly companies which run the gas and electricity networks. Other priorities include helping to secure Britain's energy supplies and contributing to the drive to curb climate change. Our work on sustainability includes helping the gas and electricity sectors to achieve environmental improvements as efficiently as possible, and taking account of the needs of vulnerable customers: particularly older people, those with disabilities and those on low incomes.

2. Ofgem welcomes the publication of the draft Climate Change Bill and the pre-legislative scrutiny being conducted by the Joint Committee. Our focus in this submission is on the questions of most relevance to the gas and electricity sectors, which together account for 46% of greenhouse gas emissions in Britain.⁶ In particular, we have addressed the Committee's questions on the appropriate arrangements for carbon budgeting and emissions trading schemes and the work of the Committee on Climate Change.

CARBON BUDGETING

3. We note that the Government proposes to establish carbon budgets over five-year periods. Some flexibility within the five year period is particularly important for the energy sector. For example, if there is a major unplanned incident that requires the use of higher emitting generation to maintain security of supply, companies should be permitted to do so as long as they subsequently "catch up" and the aggregate remains within the overall budget limit. This would also be sufficiently flexible to accommodate the inevitable annual variations in factors such as fuel prices and weather conditions that directly affect carbon emissions.

EMISSIONS TRADING SCHEMES

4. We note that the draft Bill contains an enabling power to introduce new emissions trading schemes. We support a single price mechanism and we believe that climate change policies should help the movement towards a single price of carbon. Our view, therefore, is that the European Emissions Trading Scheme (EU ETS) should be the principal scheme for carbon trading and that the powers contained in the draft Bill on trading schemes should only be used to support and coordinate with the EU ETS. For example, depending on the outcome of the Phase III discussions about which sectors are covered by the scheme, the Government may wish to use the powers to help ensure emissions trading has the broadest possible coverage so that abatement occurs at the lowest possible cost across the economy as whole.

5. We therefore hope that the Government will be clear about its intentions in terms of how it expects to use this power to avoid unnecessary regulatory uncertainty. Although the schemes permitted under the draft Bill would not require primary legislation, we trust that Government will consult widely on any new schemes. For our part, we would expect to be particularly closely involved in the design of any scheme that the Government was considering appointing us to administer.

6. It appears to us that the power to introduce new trading schemes could technically be used to introduce individual carbon allowances. Our understanding is that the Government has no intention of using the power in this way and that it recognises such a far-reaching change—with major consumer and distributional implications—would need to be introduced through primary legislation allowing a full opportunity for public consultation and debate. It would be helpful if the Government could make this clear as the Bill is introduced.

7. At the same time, it is important that the enabling power is sufficiently flexible that the Government is not constrained in the design of any future scheme. For example, on a point of detail, we would welcome confirmation that the powers in the Bill are flexible enough to deal with the entry and exit of market participants and the impacts this has on trading schemes.

COMMITTEE ON CLIMATE CHANGE

8. More significantly, as noted above, any environmental trading scheme is likely to increase costs to end users, thus raising distributional issues and potentially exacerbating the problems of fuel poverty. We welcome the statement in the draft Bill that the Committee on Climate Change will be expected to have expertise on social issues and that it will be required to take into account the impact on fuel poverty. However it is not clear from the terms of reference for the Committee that it will be able to advise properly on the ways that the environmental and social dimensions should be balanced. Furthermore, the draft Bill states that any decision on the auctioning of allowances would be considered under separate powers through

⁶ NAEI 2006, Digest of Environmental Statistics—DEFRA 2006, DUKES-DTI 2005.

the Finance Act. Auctioning allowances, as well as being economically efficient, provides a revenue stream that can be recycled to mitigate the social consequences of the higher prices necessary on environmental grounds. This is a point that Ofgem made in its response to the Energy Review in relation to auctioning of EU ETS allowances. It is important that there is a route for schemes to be considered holistically in this way, and for auctioning not to be seen purely as a “finance” issue.

9. More generally it is clearly important that the Committee on Climate Change provides robust and transparent analysis given the potential high costs and wider impacts of environmental schemes.

10. The Bill states that the Committee on Climate Change (in providing advice on carbon budgets) and the Secretary of State (in coming to any decision on carbon budgets) must take into account the competitiveness of particular sectors of the economy. Energy is especially important in this regard because of its status as a primary input to all businesses. We therefore fully support the need to reduce carbon emissions whilst also considering the impact on the competitiveness of the UK economy if measures to reduce emissions in Britain move considerably beyond those in other countries.

11. Finally, we are very happy to provide any further information that the Committee would find helpful.

May 2007

Memorandum by the Country Land & Business Association (CLA) (CCB 52)

1. *What the main aims and purposes of the Bill are and why it is needed.*

The Bill is intended to give greater credibility to UK climate policy. Growth in transport emissions, and the recent rise in overall EU emissions, are among the reasons why a more effective policy is needed.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed.*

The concept of legislation for carbon targets is a logical development from agreeing binding national targets in international negotiations. The State of California, despite the failure of the US to ratify Kyoto, passed a Global Warming Solutions Act in 2006, with a view to reducing the state’s GHG emissions to their 1990 level by 2020 and making further reductions thereafter. The UK bill, which is more ambitious in setting targets, should essentially function as a policy and awareness driver.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour.*

Many local authorities are already very interested in this field. Their role could be enhanced by making them a source of grants and advice, and by the integration of climate and planning objectives.

4. *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence.*

CO₂ is that it is by far the most abundant GHG, and the one whose management is most essential to climate policy. Application of a target to CH₄ and N₂O, which are more powerful GHGs, is currently problematic, in that the scope for new technology and the margins for greater efficiency in agricultural production are not very clear, but probably relatively small, and consequently a target might simply serve to shift production, and the associated emissions, overseas. On the other hand, it is widely accepted that there are major opportunities to cut CO₂ emissions through greater efficiency and new technology. A target of a 60% reduction on 1990 levels for emissions by 2050 is arguably adequate in the present state of the science. If agriculture land use and forestry were to have a target for all GHGs, it would need an integrated target net of sequestration, and to meet a target significantly over about 50% it would require a set-off for production of renewables.

5. *What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of 5 year carbon budgets and interim targets represents the most appropriate way of doing so.*

The energy and transport sectors represent the biggest challenge, together with the internalisation of the environmental costs of fossil fuel use by appropriate instruments, (eg renewables obligations and differential fiscal measures). There is also a need to disseminate practical advice on carbon accounting. Five-year periods match the existing first commitment period under Kyoto, which is presumed to be followed by future internationally-agreed targets, (see also article 12).

6. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target.*

The role of carbon trading is to help equalise the marginal cost of achieving a given emissions reduction target. Carbon sequestration by net new afforestation within the UK since 1990 should be encouraged in line with Article 3.3 of Kyoto. Subject to proper validation, which will require the development of forest inventories by land managers similar to those which are normal in central and northern Europe, it should be included within trading schemes on the basis of renewable certificates but otherwise without limit.

There is also a great potential to store carbon in soils, especially peaty soils. With increased research it could be envisaged that land managers would gain carbon credits by undertaking certain soil management practices to preserve or enhance the organic carbon in soils.

The use of carbon offsets in third world countries through the CDM to meet UK targets should be capped.

7. *Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments.*

It is essential that the Committee on Climate Change should be required to have expertise on land management and on water resources. It should also have a stakeholder group which can allow sector groups to provide expertise to the Committee.

The Bill will be backed up by policy documents focused on delivering the targets in the Bill, in particular the Energy White Paper, the Waste Strategy, and the Planning White Paper. However there is nowhere in the draft Bill which specifically deals with the integration of these climate change policies, to ensure that they are joined up and not generating opposing outcomes—we think there should be.

8. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism.*

Under Kyoto non-compliance incurs in principle a penalty of 1.3 tonnes for every tonne of non-compliance, together with suspension of carbon trading rights. Mutatis mutandis, one would add the shortfall to the next carbon budget, (this is not obligatory under section 8 (3) as drafted), and suspend the government's right to count offsets from abroad, including through the CDM. Alternatively, the government might be required to increase its own, or an independent body's, financial budget for climate change mitigation schemes if it missed targets.

9. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations.*

No comment

10. *Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets.*

The important thing is that the targets should take into account international and European targets. The former is envisaged by articles 4 and 12 of the bill as drafted.

11. *How the contents of the Bill will affect international climate change activity.*

Having targets for three five-year periods offers a more credible trajectory, and will hopefully encourage a similar perspective in international policy.

12. *Whether the delegated powers contained within the Bill are appropriate and adequate.*

No comment

May 2007

Memorandum by the Sustainable Development Commission (CCB 55)

1. The Joint Committee on the Draft Climate Change Bill (the Committee) issued a call for evidence on 1 May 2007. The call for evidence was scoped around 11 questions.

2. This note is the Sustainable Development Commission's (SDC) submission to the inquiry. It does not cover all of the questions raised by the Committee's call for evidence. Instead, we make some general observations about the bill and focus on two of the questions posed by the Committee.

GENERAL COMMENTS

3. Current methods of dealing with climate change are incompatible with the scale of the task at hand. Climate change is a cross-departmental issues with huge implications for all areas of public policy.

4. The SCD is very supportive of the Secretary of State's vision on climate change. This puts the UK in a global leadership role and creates a lead that other Governments must now follow.

5. We also support the formation of the proposed Committee on Climate Change (CCC) and would hope to see this take on some executive functions after an initial transitional period.

RESPONSE TO SPECIFIC QUESTIONS

6. The Committee asked "Whether it is possible for the Government to regulate total UK emissions through the use of emissions trading schemes and other policy instruments, and whether carbon budgets over five years are the most effective way of doing so" (Q4).

7. We are supportive of the Government's intention to create five-year carbon budgets. This is the most sensible approach as it is consistent with the timing of both the Kyoto Protocol and the EU Emissions Trading Scheme (EU ETS), although this should be adjusted if international conditions change. Five-yearly budgets also allow for annual fluctuations due to factors outside the Government's control (for example, extreme weather patterns or changes in relative fuel prices).

8. The need for a long-term policy framework for reducing carbon emissions is clear and this would create the certainty required by business to make long-term investments in low carbon technologies and industries. The SDC has previously recommended (for example, in our response to the 2006 Energy Review) that economy-wide emissions trading should be the policy framework within which action on climate change takes place. Our view is that this is the only way that the necessary certainty can be achieve through all parts of the economy.

9. The EU ETS is a step towards a broader emissions trading scheme and we strongly support the introduction of the Carbon Reduction Commitment (previously called the Energy Performance Commitment) as another move towards economy-wide emissions trading. We are also interested in the role that "personal carbon trading" could play as part of this framework in the longer term.

10. The Committee also asked "Whether the target of 60% emissions reduction by 2050 set in the Bill is adequate, based on the most recent appropriate evidence" (Q5).

11. There is increasing recognition that the long-term target for a 60% cut in carbon emissions by 2050 will not be sufficient to avoid "dangerous climate change". It is also clear that climate change is not a "long-term" problem that can be deferred for future generations to deal with. Climate change impacts are already being observed and the threat to global populations and ecosystems is real and immediate. We recognise that this target may have to increase but are satisfied with the measures the Government has taken to link this process to the wider international context.

12. As noted above, climate change impacts are already being observed and action is needed in the short-term to set us on the path to achieving the longer-term targets. We would welcome the inclusion of shorter term targets, which should be designed to achieve ambitious cuts in emissions over the next 15 or so years, consistent with a precautionary approach and designed to exemplify the UK's leadership role on this issue.

May 2007

Memorandum by The Carbon Trust (CCB 56)

The Carbon Trust is pleased to contribute to the Joint Committee's inquiry into the Draft Climate Change Bill. We welcome the Bill's approach to carbon reduction of combining rigid targets to 2050 with a series of five year, interim carbon budgets that together will define a clear emissions reduction trajectory for the UK. Such clear targets and a stable policy environment will increase business confidence and allow companies to make the required low carbon investment decisions.

We have set out in more detail below the Carbon Trust's views on some of the major themes under consideration by the Committee.

THEME 3

The role of local government

Local government has a considerable contribution to make in cutting the UK's carbon emissions. Not only do local authorities provide crucial environmental services to the populations they serve but they are also responsible for a vast number of buildings in the public estate. Local authorities in the UK are already beginning to take action to address climate change in a range of ways.

The Carbon Trust is helping Local Authorities to reduce their carbon emissions via the Local Authority Carbon Management Programme (LACM). LACM provides councils with technical and change management support and guidance to help them realise carbon emissions savings. The primary focus of the work is to reduce emissions under the control of the local authority such as buildings, vehicle fleets, street lighting and landfill sites. So far, 90 authorities throughout the UK have benefited from Carbon Management, and this month a further 30 authorities joined. I have enclosed a copy of our brochure "Introducing Local Authority Carbon Management", for a detailed explanation of the programme.

THEME 4

Statutory 60% targets

The Draft Climate Change Bill is the first legislation anywhere in the world that sets statutory carbon reduction targets and the Carbon Trust welcomes this approach.

The Bill sets long term targets for a 60% reduction in carbon dioxide emissions by 2050 and a 26–32% reduction by 2020. These goals are considerably lower targets than those called for by non-governmental organisations (NGOs) and the emerging science is indicating that more rapid and greater progress may be required. However the Committee on Climate Change will be able to review these targets in the light of available evidence and the latest science, and the Government should be open to act on its advice.

The long term challenge to reduce carbon emissions is considerable and government, business and consumers will all need to take action to achieve the reductions required. New and renewable technologies will play a large part in ensuring that energy demand is met and that the Government's emission reduction targets are realised. The Carbon Trust is working to accelerate the transition to a low carbon economy both by helping organisations reduce their carbon emissions and develop commercial low carbon technologies.

Other Greenhouse Gases (GHGs)

One potential omission from the Bill is the exclusion of other greenhouse gases in the target and budget setting process. Because CO₂ comprises 85% of the UK's total GHGs it makes sense for the Government to first focus efforts and discussion in this area. There has been a significant reduction in other GHGs since 1990 with no consensus on further achievable cuts; this should be reviewed in due course.

THEME 5

Five year carbon budgets

The Bill is designed to deliver certainty of required emissions reductions and increase the accountability of Government. We support the Bill's proposal for five year carbon budgets. When combined with an independent annual review of performance and long-term targets, we believe that five year budgets will achieve these goals in a more flexible way than annual targets, and in addition this approach will also assist business delivery of these goals, for two reasons:

(a) Stability of policy and investment decisions:

Five year budgets give firms a clear signal to inform investment decisions over the short and medium term. However, since the Government has time to react if it starts to under-perform over a five year budget cycle, it is more likely to make the right kind of long-term policy decisions to stimulate business investment to address these goals, than in an annual cycle where there could be an incentive to make more short-term sub-optimal policy decisions. Clear targets and stable policy will increase business confidence and allow them to make the required low carbon investment decisions.

(b) Flexibility and accountability:

Five year cycles mean that fluctuating circumstances (such as weather and energy prices) will have less effect on Government's performance versus these targets. The Bill also proposes other flexible features in the five year budget process, including banking, which allows in any given budgetary period the facility to "borrow" emissions rights from a subsequent period, or to "bank" any "surplus" emissions reductions for

use in the next budgetary period. Banking will allow Government to develop stable policy responses and creates an incentive for it to go beyond a given budget target. In addition, the independent review process will still ensure that Government is held to account on an annual basis for its performance.

The concept of banking ensures that there is always an incentive for the Government to over achieve against a current carbon budget, instead of waiting to take further action in a subsequent period. From an emissions perspective, it implies that there will still be certainty over the aggregate absolute amount of CO₂ that will be emitted over a series of cycles, so we are supportive of this feature.

We also caution against assuming that the establishment of carbon budgets and the requirement to set these three cycles ahead solves the problem of investment security for companies, for two reasons. First is that for some investments, even fifteen years may be insufficient to support strategic investments. More seriously, it is unrealistic to expect most investors to be able to translate goals expressed in terms of national quantity targets, covering all sectors, into financially relevant indicators (notably, carbon prices) for their particular product. The Draft Climate Change Bill, as it stands, thus does not in itself solve the business problem of investor confidence.

THEME 6

Credits from overseas investment projects

The appropriate level of domestic action versus international purchase of carbon credits to meet domestic targets is another feature on which the Government will be given independent advice from the proposed Committee on Climate Change. The Committee will take due account of both the need for action based on climate change science as well as the potential impacts on the UK economy and the competitiveness of UK firms. We believe that stimulation of international abatement through Joint Implementation and Clean Development Mechanism has a role but needs to be balanced by true domestic action.

I have enclosed a copy of our recent report, "Allocation and competitiveness in the EU Emissions Trading: Options for Phase II and beyond" for your information. This outlines key issues and specific decisions required to ensure that the EU ETS provides an effective, efficient framework that protects the competitiveness of business in the UK and Europe, while providing clear and stable incentives to support low carbon investment, and generally addresses number 7 of the issues the Committee's inquiry is exploring.⁷

THEME 7

Committee on Climate Change

The introduction of a Committee on Climate Change to advise on targets and budgets while taking due account of a wide range of factors including environmental goals, competitiveness and impacts on the economy, creates a new level of independent objectivity in the process. The new enabling powers will also increase the Government's ability to introduce new policy instruments such as cap and trade and traded-obligation schemes and as such we see this as a very positive inclusion in the Bill. I have also enclosed a copy of our publication, "The UK Climate Change Programme: Potential evolution for business and the public sector", which makes the case for a new mandatory trading scheme for large, less energy intensive organisations that fall outside the EU ETS.

The Government have taken this option forward in the form of the proposed commitment on carbon reduction, which we would support as an example of an instrument that could be pushed forward using the new enabling powers.

May 2007

Memorandum by Friends of the Earth (CCB 58)

1. INTRODUCTION

1.1 Friends of the Earth welcomes the establishment of the Joint Committee and the opportunity to submit evidence. Should the Committee wish, we are also happy to provide oral evidence.

1.2 Friends of the Earth has been calling for a legal framework to tackle climate change for a number of years now for three main reasons:

- Existing targets for cutting carbon have not led to emissions falling on a trajectory necessary to meet them. The long term nature of these targets has meant inadequate efforts being made to meet them

⁷ Not printed. See www.carbontrust.co.uk for documents referred to in this submission.

- Long term targets alone are not sufficient to control the cumulative level of emissions which will ultimately determine the severity of climate change. This depends as much on the trajectory to the target as the target itself.
- Defining a trajectory in law also provides additional confidence to investors and companies to invest in and develop low carbon technologies and services.

1.3 Friends of the Earth therefore warmly welcome the Government's decision to introduce a draft Climate Change Bill. However there are weaknesses in the current Bill that need to be addressed if it is to meet the challenge of climate change. These are primarily that the level of carbon reductions in the Bill are insufficient and not based on a comprehensive inventory of UK carbon emissions and that weaknesses in the framework could lead to buck-passing between Governments. There are also concerns about how allowing international trading could undermine the effect of the Bill.

1.4 The remainder of this submissions focuses on these concerns in greater detail.

2. THE TARGETS FOR CUTTING CARBON DIOXIDE

2.1 Friends of the Earth broadly agree with the Government's position that the Bill should initially focus on carbon dioxide. It is of course the case that climate change is also driven by other greenhouse gases, and ultimately it will be necessary to account for all of these. But carbon dioxide remains the bulk of the problem, is most intrinsically linked to our economic system, and is what we have had the greatest difficulty in reducing. As a result, carbon is where our efforts should be most concentrated in the coming years.

2.2 However, while agreeing that carbon dioxide emissions should be the focus, we cannot agree with the level of reductions proposed in the draft Bill. The targets for 2020 and 2050 in the draft Bill simply do not correlate with the Government's stated aims of preventing dangerous climate change by keeping global temperature rise below 2 degrees Celsius.

2.3 This inconsistency has been most clearly set out by the Tyndall Centre, who have already told the Joint Committee that the Bill is instead consistent with a temperature rise of 4 or 5 degrees Celsius. Friends of the Earth fully support these conclusions.

2.4 Friends of the Earth believe that the Bill should set out clearly the overall aim—which should be to deliver the UK's share of the global cuts needed to give us a realistic chance of avoiding a 2 degree Celsius rise in global temperature. The requirement for budgets or targets to be consistent with equitable international action to avoid breaching this limit should be on the face of the Bill.

2.5 There is little point pretending that determining the precise level of cuts is easy. Scientists cannot associate atmospheric concentrations to precise temperature increases—instead they offer risk analysis of what a particular concentration would lead to. On top of the judgement as to what constitutes a reasonable level of risk, decisions must be made on the apportionment of global emissions to individual countries. These are matters that must be resolved in international agreements if a global agreement is to be reached.

2.6 That said, in order to arrive at its 60% target by 2050, this Government has made assumptions on a reasonable apportionment regime and a "safe" atmospheric concentration for greenhouse gases by accepting the advice of the Royal Commission on Environmental Pollution's report of 2000, which recommended the 60% target. While this was without doubt a groundbreaking report at the time, it is now widely accepted to be outdated, most particularly in its assumption that a stabilisation goal of 550 ppm was broadly equivalent to a 2 degree Celsius temperature rise. This is not a contentious point—indeed it is fully accepted by Government in its climate policy: "Climate Change—The UK's programme 2006", which says:

"in the mid-1990s the EU proposed that the aim should be to limit global temperature rise to no more than 2°C to avoid dangerous climate change . . . At that time, it was thought that this equated to atmospheric carbon dioxide levels below approximately 550 ppm. The more recent work of the IPCC suggests that a limit closer to 450 ppm or even lower, might be more appropriate to meet a 2°C stabilisation limit."

2.7 There may be some logic in sticking with the 60% target if the Government had recognised the shift in scientific understanding, but had also changed its view on apportionment of emissions in a way that compensated. But this has not happened. Instead we are simply left with a target that no longer matches the stated aim.

2.8 A possible explanation this is a fear of getting too far ahead of competitors and so affecting our international competitiveness. Yet OECD figures show that half of the eight OECD countries judged more competitive than the UK by the World Economic Forum emit less carbon per unit of GDP than the UK (which was judged to be the 10th most competitive).⁸ The most competitive country in the table, Switzerland, emits barely half as much carbon per unit of GDP as the UK.

⁸ <http://ocde.p4.siteinternet.com/publications/doifiles/012005061T023.xls> gives energy intensity of OECD countries; <http://www.weforum.org/en/media/Latest%20Press%20Releases/GCRpressrelease06> gives WEF competitiveness table.

2.9 Furthermore, while the UK's 60% target was once world leading, other countries are now being bolder. France has its aim of annual cuts in greenhouse gas emissions of 3% and its belief that developed nations must cut emissions by 75–80% by 2050 in legislation.⁹ The German Government has announced targets for a 40% cut in emissions by 2020 and 80% by 2050. Even in the US more ambitious targets than that in the draft Bill are gaining ground. California already has a target for an 80% cut in greenhouse gases by 2050. The same target is backed at federal level by two Senators tipped as future presidents—Senators Clinton and Obama—who have backed the Global Warming Pollution Prevention Bill. With such movement the chances of the UK ending up miles ahead of its competitors seems unlikely.

2.10 Ultimately it is not the 2050 target that matters: it is the cumulative emissions to 2050, or the area under the curve on an emissions graph. This means that we cannot simply focus on the 2050 target, but must also have serious regard to the 2020 target. Substantial early cuts much more effectively reduce the total emissions (much as early repayments reduce the total cost of a loan) so it is the interplay of these two targets that will determine whether the Bill succeeds. But Friends of the Earth cannot support the 60% target because it is not possible to draw a sensible line to that point which adequately restricts cumulative emissions.¹⁰

2.11 All of the above arguments are compounded by the fact that the Bill will (initially at least) exclude emissions from international aviation and shipping, which could add as much as 10% to the UK's emissions each year. Not counting these emissions is equivalent to someone weight watching deciding not to count the calories from chocolate while on a diet—it undermines the whole purpose of counting in the first place. It is not the case that we cannot allocate these international emissions to the UK—the Government already report these emissions as a “memo item” under the Kyoto protocol (that is to say they are reported but are not counted against the targets). This methodology should be used to include the UK's share of international aviation and shipping emissions from the first carbon budget period.

2.12 Finally, given that one aim of the Bill is to provide certainty to business and investors about the future direction of policy, we should get the targets as close to being right as we can with current knowledge. Having to change them within a couple of years of passing the Bill does not provide the certainty the business sector needs.

3. BUDGETS AND FLEXIBILITY

3.1 As well as having sufficiently robust targets and budgets, it is of course crucial that the framework to keep Government to those targets is robust enough that they are actually met. There are good points about the framework in the Bill—but there are also significant weaknesses to address.

3.2 The first of these is the fact that the five-year budgets will almost always span two Parliaments. If the period is roughly equally divided between two Parliaments, there is real scope for each to blame each other for failing to meet the budget. Friends of the Earth believe that this scope would be much reduced if as well as setting a budget, the Government was also required to set out indicative milestones for each year of the budget. These would make it much clearer whether policies were delivering the cuts expected and allow the Committee and Parliament to put pressure on Ministers to amend policies accordingly.

3.3 The second weakness could arise from the allowance of international trading to meet the budgets. The difficulty here is that it is hard to be certain that a tonne of carbon saving purchased from another part of the world truly is equivalent to saving a tonne in the UK. For example, it may be assumed the installation of a wind turbine may provide carbon free electricity to a village in the developing world. But it cannot really have saved carbon emissions unless it has replaced fossil fuel electricity generation there. If it is providing additional electricity, or providing electricity for the first time then no carbon is saved. (It should go without saying that the turbine may well have significant development benefits that are to be welcomed—but to be traded in a climate change programme it has to actually deliver climate benefits)

3.4 Under the Kyoto protocol it is possible to trade with companies that have no caps at all. Other schemes, like the EU ETS, have a cap but the rate at which it is has declined so far is far slower even than the Government's targets in the draft Bill, never mind those that are actually required.

3.5 This can completely undermine progress. It can be hard to envisage the whole EU trading system—but if we simplify the system to a trading scheme with one other country with equal emissions to the UK the problems become clearer. Let us assume that over a particular period, total emissions need to reduce by 10% to successfully tackle climate change. The UK may therefore reduce its cap by 10%, but the other country could decide not to reduce its cap at all. Despite no reduction in their cap, the other country may make 5% cuts in emissions so it can sell those permits to the UK, who will also make a 5% cut. However, the cut in the total emissions of the two countries is now just 5%—half of what was required. Should two other countries of equal size be involved with the UK and do the same thing, the total cut is only 3.3%.

⁹ Article 2, Stratégie Énergétique Nationale, www.legifrance.gouv.fr/WAspad/UnTexteDeJorf?numjo=ECO0400059L

¹⁰ Technically such a line can be drawn, but it requires an unrealistically steep cut in the next few years, or a cut of more than 60% and then a rise to that point in 2050

3.6 Friends of the Earth therefore believe the Bill should not allow trading to meet carbon budgets unless the frameworks for such trading are sufficiently robust to deliver the global carbon cuts needed. Until that time the use of trading as a mechanism to meet the budgets should be restricted, perhaps by

- Specifying the amount of effort to be made to meet budgets domestically, and the amount that can be “bought in”.
- Establishing an “exchange rate” where an independent assessment determines the equivalent number of credits that need to be purchased in a particular trading scheme to be equivalent to a tonne of carbon saved domestically. Robust schemes may allow a credit for one tonne to count as one tonne saved in the budget—but a less robust trading scheme may require credits for two or three tonnes to be bought to have the same effect on the budget.
- Restricting trading to only robust schemes.

3.7 Finally Friends of the Earth also believe that the provision to “borrow” 1% of a future budget period could be made less generous. The consultation paper says that the need for this is to take account of unavoidable variation in emissions in the final stages of the budget period as a result of inclement weather or other such factors. Borrowing 1% of the next five year budget to allow a “blip” in the final year of a period would allow almost a 5% overshoot in that final year. Yet the annual change (up or down) in carbon emissions in recent years has not exceeded 3%.

4. CONSEQUENCES AND ENFORCEMENT

4.1 Friends of the Earth does have concerns that Judicial Review is not likely to prove a very effective way to challenge the Government and that no other measures are currently provided to keep Ministers on track.

4.2 Judicial Review of the Government after they have missed the target could—even if it successful—be too late. It would be impossible for a court to mandate action to remove that carbon from the atmosphere once it was emitted, though conceivably it could insist future targets or policies were adjusted to make up for the excess. It is hard to judge the likelihood of this however.

4.3 More helpful would be mechanisms to bring the Government back into line as emissions started to drift off track. Obviously the transparency of publishing annual reports on progress reports will help here—but Friends of the Earth would like to see guaranteed annual debates and votes in Parliament so the report must be approved by MPs rather than simply lying on the table and perhaps being ignored. These requirements could be made more onerous in cases where the Government were falling behind their planned trajectory, and less onerous if they were on track. For example, the Bill could place duties on Ministers to submit additional policies to Parliament if emissions were falling behind. It would not be possible to specify exactly what those policies were—but the Bill should require that they were in the Government’s opinion sufficient to make up any shortfall. Parliament could then judge whether or not they were sufficient and vote on them.

May 2007

Memorandum by the Association of British Insurers (CCB 59)

SUMMARY

1. The Association of British Insurers welcomes the international leadership and strategic vision embodied in the draft Climate Change Bill which sets out a coherent and robust structure for the quantification of emissions reduction targets and assessment of performance against these. This approach should make a significant contribution to reducing the risk of irreversible climate change after the middle of this century, both directly and through the lead given to others. We wish to see some strengthening of the proposals, in particular reduction in the uncertainties introduced by target revision, banking and borrowing, but are broadly content with the approach proposed.

2. However, the draft Bill does not address adequately the climate risks that are already emerging, and which will continue to increase over the next 30–40 years irrespective of how successfully emissions are reduced. Adaptation measures are the only possible response to these escalating risks, and will continue to play an important role in reducing further climate change impacts resulting from today’s emissions. The UK’s strategy for adaptation, therefore, needs to be given equal weighting within the Bill and should be integral to all the processes outlined. The draft Bill is significantly flawed in its failure to treat climate impacts and adaptation measures as intrinsic to all climate change policies.

3. The costs of mitigation need to be assessed alongside those of adaptation measures consequent on a failure to reduce emissions. As a result, short-term budgetary pressures will be less likely to stand in the way of long-term sustainable solutions. Some mitigation choices may reduce the scope for adaptation or even lead to greater vulnerability to damage. It is essential that these impacts are considered as part of a single process, with the aim of improving the resilience of the UK economy and the wellbeing of society, both now and in the period up to 2050.

4. The current approach could give rise to unsustainable solutions, unnecessary costs and reduced competitiveness by failing to take a holistic view.

5. The Committee on Climate Change should consider and make recommendations on all aspects of climate change policy, including climate impacts and adaptation needs. Its composition and resourcing should reflect this. It should have independent, expert advisory status with the expectation that the Government will, in all but exceptional circumstances, accept its advice.

INTRODUCTION

6. 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. We represent insurance companies to Government, regulatory and other institutions and are an influential voice on public policy and financial service issues. ABI member companies hold, on behalf of savers and pensioners, around one fifth of all the investments traded on the London Stock Exchange.

7. The insurance industry has played a major role in recent years in promoting understanding and debate about the effects of climate change in the UK and across the world. We support the consensus that tough targets should be set to reduce carbon emissions. We want to see further action to encourage businesses and every individual to play a more active role in tackling this threat. But we also know that some climate change is inevitable: it is already built into our world. Action is needed now to adapt and prepare for its impact.

8. We are concerned that adaptation measures, essential to tackle the already evident impacts of climate change, are not given sufficient prominence in the Government's programme on climate change or in international discussions. Mitigation and adaptation are two sides of the same coin and cannot be considered separately. Neither are they substitutes for one another. The draft Climate Change Bill is a world-leading initiative with the potential to generate concerted international action to tackle the causes and consequences of climate change. It will only achieve this potential if it couples the identification and monitoring of targets for emissions reduction with similar activity on risk reduction.

9. We would draw the Joint Committee's particular attention to the section of our submission on Adaptation as the issue requiring significant changes to the Bill. We broadly support the Government's approach in many other areas.

TARGETS

10. It is important to make early progress towards realistic targets for emissions reductions. These targets should reflect the contributions to climate change made by all greenhouse gases (GHGs), not solely CO₂, and the need to address these, with targets for 2020 and 2050. Technological advances may offer opportunities that are unforeseeable at present. It will be important to give equal emphasis to short-term and long-term objectives, in order to encourage innovation and investment necessary to deliver continuous improvement. This balance has not been achieved adequately in the draft Bill.

11. Some of the more recent science suggests that a 60% reduction of CO₂ by 2050 does not go far enough but there is provision in the Bill to revise this target should new scientific knowledge establish the need to do so. We believe it is important to make a start as soon as possible towards this, already ambitious, target and to make any further adjustments with sufficient long term signals to enable new technologies and investments to deliver the revised reduction.

12. The proposed target of 26–32% of CO₂ emissions by 2020 is broadly consistent with discussions in the EU and as such will enable the UK to remain competitive with our closest trading partners, whilst making real progress on reducing climate impacts. This close alignment should be maintained.

13. Budgeting over five year periods allows realistic management of implementation, particularly since performance against targets in any one year will be subject to external shocks and since some flexibility will be needed around the overall trajectory of reducing emissions. However, these periods should not be seen as stepped changes in emissions targets but periods over which there is a single target for the average level of emissions against an indicative trajectory for individual years. Monitoring annual performance against this trajectory would give an early warning of failure to meet the five-year target. Enforcement and sanctions would need to be built into the mechanisms adopted to deliver the targets, including those applying to the public estate.

14. Long-term targets are particularly valuable in offering certainty to investors and encouraging technological innovation. The opportunities to revise targets should, therefore, be limited, available only in clearly defined circumstances, well signalled, and exercised sparingly. Clearly some flexibility is essential, but the proposed approaches re-introduce too many uncertainties. A simple, transparent approach should provide the necessary safety valve without undermining the statutory targets.

CARBON BUDGETING

15. The ability to “bank” reductions beyond the target for a single year will encourage early action and so should be available to individuals and businesses within the delivery mechanisms. Cap and trade mechanisms allow business to realise benefits from this approach. The ability to “borrow” against future periods should be limited to excessive emissions caused by external shocks (such as severe weather). Banking and borrowing should be limited to a rolling five-year period with the year in question as the central point. This would enable smoothing where there is genuine need, without opening up the danger of constant deferment but encouraging investment and early action in anticipation of subsequent shocks.

16. As emphasised in the Stern Review, wider and deeper carbon markets will deliver the greatest benefits at least cost. It is, therefore, essential to encourage the trading of carbon credits internationally and cross-sectorally. It should be noted, however, that this could result in the net export of credits and not just open up the possibility of imports of credits.

17. The Bill sets out seven factors which should be taken into account when setting carbon budgets. We support the inclusion of the scientific knowledge of climate change, likely impact and availability of technological advances including non-carbon sources of energy, social and economic circumstances, and international circumstances as factors that the independent Committee on Climate Change will need to take into account. The Committee should also consider the scientific knowledge of climate change impacts, their social and economic costs and the availability of technology and other responses to reduce these risks.

18. However, we do not consider that the Committee should take account of fiscal or public spending pressures in setting targets. These are issues that the Government must consider in making its response to the Committee’s recommendations, ie on how the targets are to be implemented, and for which the Government should be accountable to Parliament in annual responses and quinquennial reports.

ADAPTATION

19. We welcome the recognition within the draft Bill of the need to assess the risks of climate change and to monitor progress in ensuring that the UK is better able to adapt to these risks. However, the approach taken is wholly inadequate.

20. Understanding climate risks and the consequent investment in adaptation should not be a separate activity but should be integral to the consideration and delivery of emissions reductions. The cost of impacts and adaptation measures will soar in the second half of the century if inadequate action is taken to reduce emissions now. The two strands are complementary and additive—only rarely substitutable.

21. At the same time, some measures to reduce emissions could actually increase the effect of climate impacts in the immediate future and reduce the scope for adaptation. For example, the more compact towns and high density developments needed to reduce transport and housing emissions lead to higher risk of flash flooding and heat island effects. Cavity wall insulation to improve energy efficiency results in much more costly and lengthy flood repairs. Solutions, which will often entail the same policy and regulatory instruments, need to find synergies between mitigation and adaptation measures, avoiding conflicts.

22. Failure to address impacts and adaptation needs as a central part of the Government’s climate change programme also risks the credibility of emissions reduction activity over the medium-term, with the potential for losing public support. Climate risk, in particular the frequency and severity of extreme weather events, will continue to increase over the next 30–40 years, irrespective of action to reduce emissions. This inevitable climate change results from historic emissions and could only be reversed by taking carbon back out of the atmosphere and oceans. However, the current generation has justifiable expectations that the effects they are already experiencing and will increasingly experience from inevitable climate change should be reduced even while they are bearing the costs of avoiding further climate change that will affect future generations.

23. The climate change targets should include reduction in climate impacts through adaptation measures as well as reductions in emissions. The nature of the delivery mechanisms should be left to government (central and local) to decide and reported to Parliament alongside annual progress on emissions, informing fiscal and other measures to encourage individual action by households and business. Periodic reviews of impacts and adaptation should occur on a cycle compatible with the Government’s spending reviews, providing an evidence base for decisions on departmental programmes and spending needs, rather than a fixed five-year cycle.

24. The adaptation measures that should be adopted now and over the medium term include:
- Risk avoidance—moving people and assets out of areas likely to suffer heavy climate impacts through strategic, risk-based land use policies including those on housing, regeneration and critical infrastructure;
 - Risk reduction—addressing vulnerabilities to weather damage and heat effects by strengthening building codes, flood and coastal defences, infrastructure performance, technological resilience and healthcare regimes;
 - Risk management—taking pro-active measures to ensure the most vulnerable people and social and economic functions are given additional protection, and providing more assured responses to events by improving contingency planning by government, business and communities for floods, heat-waves and storms.

COMMITTEE ON CLIMATE CHANGE

25. We support the establishment of an independent, credible, expert body to assess the level of future targets and progress on their delivery. The remit of this Committee should be extended to cover climate impacts and adaptation issues and its composition should reflect this. Its status should be similar to certain expert committees advising Government on health issues, commissioning research as needed to support its analytical work, publishing reports independent of ministers and adopting a transparent approach in its deliberations. The Committee should have independent advisory status, ensuring democratic accountability through the usual means, with the expectation that Government will adopt its recommendations on national targets unaltered, in all but exceptional circumstances, and take account of its analysis of sectoral impacts and capacity to respond. Parliament will have an important role in ensuring the Committee on Climate Change does not become a toothless quango whose advice is regularly put aside.

26. We consider that the Committee should be composed of experts in climate science and climate change impacts, climate change policy and its economic and social impacts, economic analysis and forecasting, business competitiveness and key economic sectors including energy, technology development and diffusion, financial investment and market based emissions reduction and adaptation measures. These experts should be drawn from a wide range of backgrounds, not solely academic. This expertise should be supplemented by an independent secretariat able to undertake the necessary analytical work, together with a requirement to seek and consider evidence from stakeholders including those representing environmental, economic and social interests.

27. The Committee should comment on all policy areas affecting the achievement of its recommended targets. There are clear linkages between the targets and technology, regeneration and agricultural policies, for example, as well as the obvious links to energy and environmental policies.

ENABLING POWERS

28. We agree that the proposed Bill should take enabling powers so that future needs can be met by secondary legislation.

INTERNATIONAL IMPLICATIONS

29. We consider that the initiative taken by the Government in bringing forward this proposed legislation shows considerable leadership, whilst balancing social and economic concerns. As such the Bill will maximise its impact if replicated elsewhere, in particular in addressing the urgent need and limited capacity to address climate change risks through adaptation measures in many developing countries. The Government should seek to achieve this wider impact through its foreign and development aid policies.

May 2007

Memorandum by British Energy (CCB 60)

British Energy welcomes the opportunity to contribute its views to the Joint Committee's inquiry into the Draft Climate Change Bill. The issues in question are of great significance not only to UK business sectors but also the public, both today and in the long term.

British Energy is the UK's largest electricity generator. We own and operate the country's eight most modern nuclear power stations, one coal-fired power station, four small gas plants and we also hope to develop two large wind generation projects. Our fleet of nuclear stations make the largest single contribution to tackling climate change in the UK. Carbon emissions from our coal plant are subject to the constraints of the EU Emissions Trading scheme.

We have been engaged fully in the climate change policy debate and have responded to many significant consultations and inquiries recently, including the Stern Review, Energy Review and the EAC's inquiries into nuclear, renewables and Climate Change, and Beyond Stern. (Our Submissions to these can be found on our website (www.british-energy.com)).

SUMMARY KEY POINTS

- The UK needs to take strong domestic action to reduce carbon dioxide emissions if it is to meet its declared long-term objective of meeting a 60% reduction by 2050, with an interim target at 2020 the right approach.
- The draft Bill gives Government considerable scope to review the targets it sets but it also needs to take care to ensure it does not undermine investment decisions based on the initial targets.
- The electricity sector is one of the main carbon emitters and it is appropriate then that it is also one of the main focal points for delivering carbon emission savings going forward. The need for compulsory action to achieve this in the sector is widely recognised.
- Whilst establishing the framework and setting targets is important, it is the underlying deployment of instruments that must deliver emission reductions.
- To date the UK has made good progress in reducing its greenhouse gas emissions rather than carbon dioxide. To make real progress towards the proposed 2020 and 2050 targets, it is right the UK should focus on carbon dioxide.
- The 5 year carbon budgets and interim targets are both sensible ways of bringing a near term focus to what is a long-term target and provide the opportunity for regular checks to ensure the UK is on track.
- Potential investors in the electricity sector need certainty and transparency about the required level of carbon emission reduction over a significant period. As investment in generating plant may span more than a 40 year period, it is important that additional interim targets are set at 2030 and 2040.

RESPONSES TO THEMES FOR THE COMMITTEE'S INQUIRY

What are the main aims and purposes of the Bill and why is it needed?

1. Climate change poses an unprecedented global threat and the Stern Review suggests that delaying action to reduce emissions will lead to an increase in the cost and difficulty of achieving the same level of reductions at a future date.
2. Against this background, the aim of the Bill is to establish a long-term legal framework that will, over time, see the UK become a low carbon economy.
3. We believe the UK needs to take strong domestic action to reduce carbon dioxide (CO₂) emissions and to do so effectively, it is right for Government to set a long-term objective with an interim target. However, the Bill needs to create the necessary certainty and confidence required to stimulate long-term investment decisions. In this regard the Bill should set further interim targets at 2030 and 2040.
4. The approach set out in the Bill also provides a statement of intent which will be essential in preparing both business and the public for the changing world that lies ahead.

To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed?

5. By taking this approach, the Government will demonstrate its commitment to addressing the issue of Climate Change. However, we note that the draft Bill proposes giving Government considerable scope to review the targets on various grounds including the "risks of acting unilaterally". It is suggested that the 5 yearly budgets may be amended to ensure environmental goals are being achieved in a "proportionate way". These caveats would appear to undermine the initial target somewhat.
6. Compulsory targets are required to achieve a precise outcome. The requirement for compulsory action provides sharp focus within a sector and sends a strong signal to investors. The electricity sector is one of the main carbon emitters and it is appropriate it is a key focal point for delivering carbon emission savings over the short to medium term through compulsory action.
7. In some cases it may not be appropriate to impose compulsory measures. If, for example, Government were to place an annual carbon allowance on individuals, perhaps with a trading element, this would lead to inequities because it does not take into account differing needs and it may not seem fair that individuals could pollute according to their ability to pay. In this area, voluntary action should be encouraged to achieve improvement wherever possible.

Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour.

8. Initially the task must be to establish the top level legal framework, setting out the long-term targets and establishing the carbon budget. Communicating the significance of Climate Change and the need for action is probably best done at national level.

9. However, whilst establishing the framework and setting targets is important, it is essential to remember that it is not targets but the underlying deployment of instruments that must deliver emission reductions. We would expect that local government will have a role in due course as initiatives are brought forward for achieving savings.

Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence.

10. To date the UK has made good progress in reducing the greenhouse gases (GHGs) other than CO₂. However, to a large extent these reductions could be described as the low-hanging fruit: CO₂ currently represents c. 85% of GHGs in the UK and unless we now address CO₂ specifically we will only be the minor part of the problem. To make real progress towards the proposed 2020 target, we therefore believe the UK should establish a CO₂ target.

11. However, if Government were to opt for a GHG target then this should be broken down clearly by individual gases to provide practical data and guidance to those responsible for the emissions.

12. Recent analysis suggest the target for reducing carbon emissions by 60% by 2050 may not go far enough to avoid a rise in global temperature by the 2 degrees C that is thought may bring on the more dangerous consequences of global warming. However, given the need to achieve political sign-on, in the first instance we believe it is important to establish the legal framework. The draft Bill acknowledges that there may be a need to change the target on the basis of developments in scientific understanding.

What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of 5 year carbon budgets and interim targets represents the most appropriate way of doing so.

13. The 5 year carbon budgets and interim targets are both sensible ways of bringing a near term focus to what is a very long term target and provide the opportunity for regular checks to ensure the UK is on track.

14. It is important that there is a limited degree of variability within the carbon budget period to accommodate unexpected external events without allowing too much “slack”. However, it is important to understand the budget does not in itself constitute a system of carbon management. This will only be established when the instruments needed to deliver the carbon reductions have been put into place.

15. This is a critical issue for business. It is vital for potential investors in the electricity sector to have certainty and transparency about the required level of carbon emission reduction over a very significant period as this is likely to be critical to the viability of low-carbon plant. Given that investment in generating plant may span more than a 40 year period, it is important in terms of investor confidence that additional interim targets are set at 2030 and 2040.

16. One of the key challenges for Government will be how it approaches the various carbon emitting sectors and deals with the differing potential for reductions in each.

17. In practice a variety of mechanisms will be needed to address emissions from different sectors, some compulsory, some voluntary. It will be important to ensure the chosen mechanism is the right one; these mechanisms will need to be applied over the long term to provide clarity and certainty to the actors in each sector. If mechanisms or targets need to be changed quickly, this could lead to stranded assets with severe impacts on business. In the case of the latter, consideration should be given to establishing an appropriate method of compensation.

The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target.

18. Allowing some level of credit for overseas projects would appear to be a practical option—however, we are concerned about the possible impact on momentum to reduce emissions domestically. If the focus over the next 5–10 years were predominantly on overseas credits, there could be serious implications not least in terms of lock-in domestically. If the UK wishes to demonstrate leadership on this issue and to do so with credibility it will need to maintain a strong focus on domestic action—which would imply the need for a cap.

Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments.

CONSTITUTION

19. Members of the Committee should be technical experts rather than representatives of stakeholder groups—however it is important that the Committee feels able to draw upon the extensive expertise within stakeholder groups as and when appropriate.

20. The Committee will need to develop a collegiate approach. It is important that the appointed experts should have sufficient breadth of experience to enable them to take a view on relevant issues outwith their particular specialism.

REMIT

21. We do not believe there is a case for establishing the Committee with a remit to “drill down” into the detail of policy. This approach would simply encourage duplication of work, some confusion and additional bureaucracy. We would favour a small high-prestige “Board” scrutinising Government policy rather than the creation of an unwieldy office which duplicated work undertaken elsewhere.

Powers

22. It is important to have an independent expert body providing advice and continuity to span the changes of Government on the road to 2050. The Committee on Climate Change can play an important role in achieving broad political and public support.

23. The proposed range of factors for consideration by the Committee implies an overly large structure and breadth of policy involvement—science, engineering, social policy, fiscal, environmental, foreign. It is difficult to imagine a process whereby such a wide-ranging and diverse group could reach satisfactory collective conclusions.

RESOURCES

24. It is essential for the Committee to have good access to current scientific and economic research and analysis to maintain an understanding of the pathway to 2050 and the changing capabilities and barriers along the way. However, it is also essential that Government has strong internal expertise within Whitehall to ensure informed interaction with the Committee and it should be for Government officials to underpin progress at the detailed level going forward.

The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism.

25. We believe the approach set out in the Bill is intended as a demonstration of Government’s commitment.

How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations.

26. One of the issues politicians should be looking to resolve is how to achieve a framework for target-setting between Westminster and the devolved administrations which is mutually consistent both in terms of ambition and timescales.

Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets.

27. The Bill acknowledges the need to take account of international agreements.

28. This is an opportunity for UK Government to show leadership and to send a powerful political message to others about the need for urgency on the issue of reducing carbon emissions.

How the contents of the Bill will affect international climate change activity.

29. Scientific advice tells us that Climate Change is an issue requiring urgent action and that delay will make action far more expensive and far more difficult. If the UK Government is prepared to take a lead role, this should be welcomed.

30. Looking beyond the UK, it is clearly important that other countries are encouraged to set ambitious targets of their own and there is a pressing need for a framework to establish targets beyond the boundaries of the EU. However, by taking action unilaterally, UK Government has the opportunity to send a strong political message both domestically and overseas about its conviction on the urgency and importance of the issue. Such a demonstration of leadership may be helpful in galvanising international co-operation.

Whether the delegated powers contained within the Bill are appropriate and adequate

31. Enabling powers should be limited and they should only be used on the basis of a robust justification of the need to set aside normal procedures.

32. The powers appear to be more than adequate to introduce new policies via secondary legislation.

May 2007

Memorandum by EDF Energy (CCB 62)

EXECUTIVE SUMMARY

1. EDF Energy is one of the UK's largest energy companies with activities throughout the energy chain. Our interests include coal and gas-fired electricity generation, combined heat and power plants, electricity networks and energy supply to end users. We have over 5 million electricity and gas customer accounts in the UK, including both residential and business users.

2. Currently there is no long-term certainty for any sector on the level of carbon abatement required from it. This is a barrier preventing major investment in low carbon technology. The framework introduced by the Bill should create greater certainty for UK businesses on the level of effort required. EDF Energy therefore supports the introduction of the Climate Change Bill. We do however have a number of concerns.

These include:

- the ability to adjust targets and budgets creates a risk that investments in low carbon technology will be stranded if the targets are not defined robustly or if they are relaxed—additional safeguards are required to minimise this risk;
- it is unclear that a 15 year time horizon (three 5-year budget periods) provides sufficient visibility of future carbon constraints when many assets will have lives of 25–60 years and may take up to 10 years to develop;
- to deliver the required investments from UK businesses the framework must provide clarity on the balance between domestic emissions reduction in the UK and emissions reductions purchased from within Europe (eg via the EU Emissions Trading Scheme) and internationally.
- It is difficult to understand how conflicting advice from the Committee on Climate Change and from the European Commission, particularly with respect to the EU ETS, will be resolved. For example, what would happen if the European Commission using a harmonised approach across Europe dictates a different level of abatement than that proposed by the Committee for UK industries within EU ETS traded sectors?

3. The Bill creates enabling powers to introduce trading schemes. The scope of these powers must be sufficiently broad to allow the introduction of schemes to auction carbon reduction contracts. EDF Energy has developed detailed proposals for a “carbon hedge” mechanism (please see Appendix A) that could be used to bring forward early investment in low carbon technologies and we believe that provisions in the Bill to enable the implementation of such instruments are fundamental to the UK successfully achieving its aspirations for a low carbon economy. We consider these instruments to be essential to mitigate risks associated with the still developing EU ETS and those identified above in the Climate Change Bill framework. They provide a way of enabling investment in low carbon technologies to happen now.

4. The apparent intent to limit the scope to cap and trade schemes and obligations appears to pre-judge the outcome of the first report from the Committee for Climate Change on the most appropriate policy instruments to deliver the UK emission reduction pathway.

5. The real test of the effectiveness of the framework created by the Bill will be the first report by the Committee on Climate Change and the Government's response. If as a result there is little change from the status quo, ie uncertainty remains for sectors on the level of abatement required from them, the Bill will have been ineffective.

What the main aims and purposes of the Bill are and why it is needed

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 GHG emissions to the required level.

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. The UK framework as it currently stands:

- requires different levels of effort from different sectors; and
- is already complex with multiple instruments targeting the same emissions.

Currently there is no long-term certainty for any sector on the level of carbon abatement required from it in the UK. The policy timescales do not match the investment life cycles of the sector and investors are unwilling to accept the regulatory uncertainty surrounding future carbon dioxide abatement targets. This is a major barrier preventing investment in low carbon technology.

The framework introduced by the Bill has the potential to create greater certainty for UK businesses on the level of effort required. EDF Energy therefore supports the introduction of the Climate Change Bill. However we have a number of remaining concerns that we believe could undermine the Bill.

To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed.

EDF Energy believes that long term targets and budgets for the reduction of CO₂ emissions should be backed by legislation. This proposed legal framework of targets and budgets provides the opportunity to create a greater level of certainty for UK businesses on the level of effort required and has the potential to improve the current situation in which there is no long-term certainty for any sector. We support a "net UK carbon account" approach and purchased European Union Allowance (EUA), Clean Development Mechanism (CDM) and Joint Implementation (JI) credits all have a role in reducing emissions at least cost and allow the carbon market to operate efficiently. However, the ability to adjust targets and budgets creates a risk that investments in low carbon technology will be stranded if the targets are not defined robustly or if they are relaxed—additional safeguards are required to minimise this risk.

We support a balance between compulsory and voluntary measures to achieve the targets. This will require a robust policy framework targeting all sectors of the economy. The effectiveness of those policies should be reviewed by the Committee on Climate Change and refined as appropriate.

We do not support, for example, new legislation restricting new coal plant build without carbon capture and storage. The long term CO₂ price signal should stimulate, or not, investments in low carbon and carbon free technologies. Support for CCS is best delivered by a well-designed, transparent market that gives long-term visibility on allowance prices.

Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour.

We recognise that local government has an important role to play, and that public engagement and behaviour change is vital for achieving carbon abatement targets. The Bill is setting a framework for achieving these targets and the policy options developed in response will need to include action by local authorities and many different approaches to achieving behaviour change in the different sectors of society.

Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence.

The 2050 60% CO₂ emissions reduction target may need to be made more stretching as confidence in the outputs of climate models increase and international burden sharing agreements are negotiated. It is sufficient at this stage that a 60% target has been established. The Bill provides for revision of the 2050 target if necessary—something that we support provided sufficient notice is given for the change.

We believe Government should maintain the focus of the targets and budgets on CO₂ emissions at this stage. In the UK, CO₂ emissions account for around 85% of the greenhouse gas emissions and is the primary area of emissions growth.

We support the government's desire to review the need to move towards a broader system of greenhouse gas targets, budgets and review instruments that are suitable for other greenhouse gases. Any move to include greenhouse gases at a later date should be done in a way that doesn't impact or compromise on existing CO₂ targets and budgets.

What difficulties fact the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of 5 year carbon targets and interim targets represents the most appropriate way of doing so.

In principle, EDF Energy believes that all sectors of the economy should contribute to the overall reductions of emissions. We believe it is possible for Government to regulate total UK emissions (net carbon basis) through a range of policy instruments. Around 50% of UK emissions are already covered by the EU ETS, and the Climate Change Programme is already targeting a number of other sectors.

We support the Government's proposed system of five year carbon budgets. Five year budget periods are robust to short term emissions volatility and smooth annual variations arising from weather, fuel price movements, etc. They are also consistent with the current international agreements (ie the Kyoto compliance periods), EU ETS timeframes and European targets. Annual CO₂ targets would create an environment in which Government and stakeholders focus on short-term reduction objectives rather than on long term drivers that will deliver a low carbon economy. A short-term, reactive approach will create investor uncertainty and potentially increase the costs of mitigation.

A 15-year time horizon (three 5-year budget periods) does not however provide sufficient visibility of future carbon constraints when many assets will have lives of 25–60 years and may take up to 10 years to develop.

However, to be effective government must not restrict the instruments available to it. We believe the enabling powers to introduce trading schemes must be sufficiently broad to allow the introduction of schemes to auction carbon reduction contracts. EDF Energy has developed detailed proposals for a "carbon hedge" mechanism (Appendix A) that could be used to bring forward early investment in low carbon technologies and we believe that provisions in the Bill to enable the implementation of such instruments are fundamental to the UK successfully achieving its aspirations for a low carbon economy. We consider these instruments to be essential to mitigate risks associated with the still developing EU ETS and those identified above in the Climate Change Bill framework. They provide a way of enabling investment in low carbon technologies to happen now. The apparent intent to limit the scope to cap and trade schemes and obligations appears to pre-judge the outcome of the first report from the Committee for Climate Change on the most appropriate policy instruments to deliver the UK emission reduction pathway.

The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted, and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target.

We support the proposal to adopt a target based on the "net UK carbon account" principle. Purchased EUA, CDM and JI credits all have a role in reducing emissions at least cost and allow the carbon market to operate efficiently.

However it is also essential that the Climate Change Bill provides a UK Government view on the level of "supplementarity" that it deems acceptable (and therefore establishes a minimum level of domestic abatement required). Without this clarity there is a risk that industry will simply adopt a strategy of purchasing carbon credits from overseas rather than making physical CO₂ abatement investments in the UK.

In determining its view on the level of purchases of allowances from other countries it will allow, the UK Government must consider the financial risks that this creates. We have seen a significant divergence between actual CO₂ emissions and targets for the UK sectors that participate in the EU ETS. In Phase 2 of the EU ETS the UK electricity sector could be required to purchase 70 million allowances per annum to comply with its targets. The costs for compliance will eventually feed into the UK economy and will expose the UK to carbon price shocks driven by volatility in carbon markets in much the same way that it is exposed to sudden oil and gas price movements.

Furthermore, being too dependent on emissions reductions in other countries and failure to reduce emissions domestically will undermine the UK Government's credibility and its ability to become a leader on climate change action and policy development.

We support the use of carbon sequestration as a valid means of abating CO₂ emissions.

Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate, and the extent to which its functions may overlap with, and be partially dependent on, forecasting and analytical activity within departments.

EDF Energy believes that establishing an independent body to provide independent expert analysis is critically important to the wider task of identifying, and assessing the balance of priority between the cost-effectiveness and impact of different policy measures so that the UK can optimally achieve its emission reduction goals. It is equally important that the Government is seen to be committed to accepting the Committee's advice and reports except in the most exceptional circumstances.

Perhaps the best current model of a genuinely independent public body, within the UK, is the Monetary Policy Committee. However, it is important to remember that the MPC has an executive function, to set interest rates, whereas the Committee on Climate Change will have only advisory functions. Because of this distinction, the hurdle for rejecting this Committee's advice should be set quite high. In particular, any decision by a government to reject or materially depart from advice contained in a Committee report should have to be explained in a statement laid before Parliament for debate, leading to a vote.

The Committee should be resourced adequately to ensure that it will not be reliant upon departmental forecasts.

The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism.

The Government should have a legal duty to comply with its carbon budgets and stay within the limits imposed by them. However, we do not agree that imposing this legal duty means that a government which fails to meet its targets or stay within budget would be open to judicial review, as suggested by the DEFRA consultation document.

Judicial review is essentially a mechanism by which the courts supervise the exercise of public administrative law functions. It enables the decisions of public authorities, including government departments, to be reviewed and overturned if the decision in question took irrelevant factors into account, or failed to take account of relevant factors, or did not comply with relevant procedural requirements, or was a decision that no reasonable authority could, in all the circumstances, have made.

It is difficult to see how this supervisory jurisdiction of the courts could ever be applied to a failure by the Government to stay within the limits of its carbon budgets. A continuing and transparent framework of accountability to the public and Parliament for actions and activities undertaken with the aim of meeting targets and keeping to budget is the appropriate weapon for ensuring that the Government stays on course under the climate change legislation.

How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations.

No comment

Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets.

To deliver the required investments from UK businesses the framework introduced by the Bill must deliver clarity on the balance between domestic emissions reduction in the UK and emissions reductions purchased from within Europe (eg via the EU ETS) and internationally.

It is difficult to understand how conflicting advice from the Committee on Climate Change and from the European Commission, particularly with respect to the EU ETS, will be resolved. For example, what would happen if the European Commission using a harmonised approach across Europe dictates a different level of abatement than that proposed by the Committee from UK industries within EU ETS traded sectors?

The result may be that the Committee will be restricted to focussing on how residual emission reductions from those sectors not explicitly regulated by European trading schemes and instruments can be delivered unless it wishes to impose more stringent domestic commitment on sectors already subject to European regulation. This latter option may create competitiveness issues.

How the contents of the Bill will impact on international climate change activity.

No comment.

Whether the delegated powers contained within the Bill are appropriate and adequate.

The enabling powers currently proposed cover an impressive range of design elements, including compliance mechanisms, appropriate penalties, and appeals mechanisms, and should be sufficient to introduce effective new policies. Because of the likely substantial and possibly novel implications of new trading schemes for British industry, and the energy sector in particular, it would be desirable to ensure that the secondary legislation to implement such schemes is in all cases subject to no less than the affirmative resolution procedure.

The intent of the “trading schemes” that the legislation will enable to be introduced from the consultation document appears to be restricted to obligations and cap-and-trade schemes [Box 6, page 39 of the DEFRA consultation document]. The ability to introduce schemes for the auctioning of carbon abatement measures and contracts for difference (eg the carbon hedge as proposed by EDF Energy) must also be provided for in the legislation. It is essential to provide for the introduction of all types of measures that cannot be provided for via other routes (eg the annual Finance Bill) to provide the full-range of options to the Government. To exclude any types of measures would be to pre-empt the findings of the first report by the Committee for Climate Change and may delay or prevent the introduction of the optimal set of carbon abatement reduction measures.

May 2007

Appendix A: The Carbon Hedge

LONG TERM FINANCIAL INSTRUMENTS TO SECURE INVESTMENT IN LOW CARBON TECHNOLOGIES IN THE ELECTRICITY SECTOR

Introduction

The EU ETS as currently structured is not capable of underwriting the investment needed to reduce CO₂ emissions in the electricity sector and move the UK to a low carbon economy. The primary reason for this is that the policy timescales of the EU ETS do not match the investment life cycles of the sector and investors are unwilling to accept the regulatory uncertainty surrounding future CO₂ abatement targets. Furthermore, the timescales of policy development must recognise the need to achieve significant carbon dioxide reductions in the next capacity replacement cycle in the electricity sector to deliver the carbon dioxide reductions that Government aspires to.

Although considerable efforts are being made to agree long term abatement targets across the EU (Phase 3 and beyond) and internationally, these are unlikely to be agreed in the near future. The challenge we face is to find a mechanism capable of bridging this gap in regulatory certainty to galvanise early investment in low carbon technologies.

The EU ETS also currently excludes carbon free technologies such as carbon sequestration and nuclear from the scheme. Although these technologies can benefit from higher electricity prices driven by CO₂ prices in the EU ETS, the timescales of the EU ETS and the visibility and certainty of future prices do not match the investment life cycles of these assets. The potential risks faced by investors investing in low carbon or carbon free technologies are:

- the EU ETS being discontinued leading to a collapse in CO₂ prices
- EU or individual member state governments implementing or influencing policy in a manner that leads to a low or non significant price for CO₂
- Governments providing assistance to carbon emitting technologies by allocating free carbon allowances to new entrants under the EU ETS.

EDF Energy believes that commercial market based instruments, such as the “carbon hedge” explained below, can be used to underpin the significant capital investment required to lower the carbon intensity of the electricity sector without exposing the UK Government to unacceptable financial risks.

Proposed Mechanism for the carbon hedge

The Carbon Hedge has the capability of hedging the risk for “low carbon technology” investors related to low carbon prices and can be designed to be consistent with existing policy mechanisms. The hedge has the further advantage of allowing Government “to bite off as much as it wants to chew” by allowing it to control the volume of abatement it is willing to underwrite using this mechanism. Government can further limit any liabilities by influencing wider policy development and retaining the carbon price within a reasonable range that minimises its financial exposure. The carbon hedge is also attractive because:

- It can be designed to allocate the regulatory risk associated with carbon markets more evenly/fairly
- It can provide certainty on delivering known CO₂ reductions

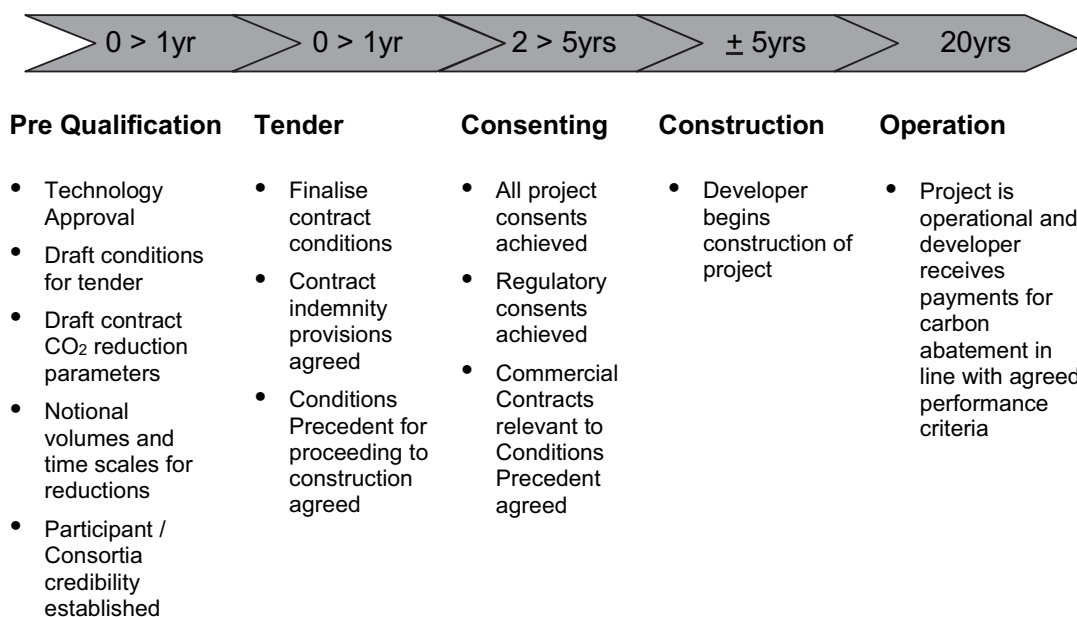
The following section sets out a framework for this mechanism and examines some of the commercial and regulatory features of the carbon hedge.

HOW DOES THE HEDGE WORK?

- Electricity companies would bid in to supply a fixed volume of carbon free electricity from a certain date in the future for a number of years based on an assumption that each unit of carbon free electricity would displace the need for a unit of electricity from other forms of generation
- The bid price submitted to secure the hedge would determine a guaranteed floor price for CO₂
- If the market price for CO₂ fell below the agreed floor price during the term of the hedge then the investor would be compensated for the difference between the floor price in the hedge and the actual market price of CO₂
- Any payments to investors that did arise in the event that the carbon market price fell below the contract price could be recovered from customers through a top-up carbon levy on electricity prices
- The investor would not receive any payment if the market price remained above the floor price agreed in the hedge
- The carbon hedge is designed purely to mitigate the political risk associated with the uncertainty of future CO₂ emission reduction targets and does not seek to mitigate any other risk, such as fossil fuel price or electricity market risks.
- The hedge would be a transitional instrument designed to reinforce the functioning of the EU ETS and enable it to galvanise the early investment in low carbon technologies.
- Once the EU ETS and global carbon market are put on a sufficiently long term basis, it may no longer be necessary for the government to offer any further carbon hedge contracts.

Life cycle of the carbon hedge

The timeline for developing and delivering low carbon investments using the carbon hedge and the key activities in each phase are illustrated below.



TERMS OF DELIVERY AND FAILURE TO DELIVER

The Government will have a legitimate expectation that as a policy measure the carbon hedge will deliver specific carbon reductions. The contracted reductions are likely to inform future Government targets for emissions reductions. The hedge is therefore likely to include expectations of minimum and maximum performance levels and associated penalty or bonus payments based on actual performance levels.

SUMMARY

In summary:

- Commercial market based instruments in the form of a carbon hedge have the capability of underwriting long term capital intensive investments required to move the UK to a low carbon economy

- the form of the hedge should be adapted if the Government policy is to continue with allocating free allowances to new entrants under the EU ETS
 - There are some policy issues and some of detailed design that will have to be addressed in finalising the form of the carbon hedge.
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Memorandum by WWF-UK (CCB 63)

SUMMARY

Publication of the Climate Change Draft Bill is a considerable achievement, for which the Government should be congratulated. However, WWF is concerned that despite its merits, the Bill does not go far enough towards delivering the key objective of preventing an increase in average global temperatures of more than 2°C above pre-industrial levels. Above this 2°C threshold—which is a key objective agreed by EU Heads of State and the UK Government—the risk of catastrophic climate change impacts escalates rapidly.

In order to ensure that the UK makes a fair contribution towards the international effort to stay below 2°C warming, the Bill needs to commit to:

- Reducing UK carbon emissions by at least 3% each year up to 2050—delivering a reduction of at least 80% by 2050;
- Setting binding carbon budgets with annual milestones;
- Including the UK's share of international aviation and shipping in the carbon budgets;
- Annual reporting against those carbon budgets and milestones, scrutinised by an independent committee with the power to advise on corrective action to be taken if carbon emissions go over budget;
- Obliging every government, including devolved governments, to publish a strategy for reducing emissions in line with the carbon budgets, which specify the emissions reductions by sector, and the instruments by which the government will ensure that each sector stays within its carbon budget.

RESPONSES TO THE COMMITTEE'S QUESTIONS:

1. *What the main aims and purposes of the Bill are and why it is needed.*

The threat posed by climate change does not need rehearsing in great depths here. This year's reports by the Intergovernmental Panel on Climate Change, along with last year's Stern Review, clearly demonstrate that urgent action is needed globally and in the UK—and is amply justified even on simple economic grounds alone. In the UK, there is strong cross-party consensus on the need for strong action—what is now needed is a vehicle to translate that commitment into a robust framework. The Bill, provided it is well-designed in the detail, fulfils this need.

In order to have a reasonable chance of staying below 2°C warming, it is widely recognised that global greenhouse gas emissions need to peak and start to decline by 2015. The UK government itself accepts this. In the run-up to this year's G8 Summit, the UK supported the German Presidency's calls for global emissions to peak within ten years, and to fall by 50% by 2050. Clearly, such a global reduction can only be delivered if the developed countries—which have historical responsibility for most of the problem along with a practical and moral obligation to act first—take on the largest share of the total reduction effort. In doing so, they would encourage India, China and other rapidly developing economies to develop along low-carbon pathways.

The Government is increasingly relying on the claim that the UK will beat its Kyoto target to demonstrate its international leadership on climate change. However, the UK's Kyoto target was actually remarkably easy to achieve—and the UK's emissions have been below that level in every year since 1998, when it was agreed. A much more important indicator of the Government's failure to deliver adequate domestic policies on climate change is its failure to deliver the domestic target to cut CO₂ emissions by 20% between 1990 and 2010. This failure is seriously undermining the Government's welcome efforts to demonstrate leadership on the international stage.

The 20% reduction target was first pledged in 1997 and repeated in Labour's 2005 manifesto. The Climate Change Programme, set up in 2000, simply has not delivered the policies or sustained focus needed to deliver the promised reductions. The review of the Programme, eventually published in 2006, all but admitted failure. The Government now admits that CO₂ emissions are set to fall by at best 16%—and by perhaps only

10–12% within the UK, once allowance is made for emissions trading. Much of the reduction stems from the so-called “dash for gas” in the 1990s. For the last few years, CO₂ emissions have been creeping back up—clearly, current policies are not delivering.

Overall, the lack of a clear mechanism to report annual progress towards medium-term targets has clearly allowed slippage, lack of sustained focus and effort and repeated over-optimism on the effectiveness of policies. Given the overwhelming and urgent need to reduce emissions, there is a need for a much more robust approach in future.

Against that backdrop, the Climate Change Draft Bill is a hugely welcome development and the Government is to be congratulated for bringing forward this flagship policy. If we get the detail right, it promises a framework which will provide certainty and confidence to business and investors, ensure the UK hits its domestic and future international climate change targets, and perhaps most importantly of all, will show international leadership by providing a blueprint for an effective emissions reduction framework.

2. To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed.

The need to tackle climate change is a multi-faceted, cross-sectoral and international challenge like no other. New policy responses are needed to face this new challenge. Although it is important that individuals take personal action to minimise their carbon emissions, and that companies strive to demonstrate best practice, there is only so much that even the most committed of citizens or businesses can achieve in the absence of a wider supportive framework. Such a framework is also needed to ensure that every part of the economy delivers its fair contribution to the overall objective.

It is entirely appropriate that Government legislates to ensure that carbon targets are hit. Clearly targets alone will not be sufficient. There will of course be an ongoing need for a sophisticated package of strong, effective measures—a range of regulation, fiscal interventions, market-based policies, investment frameworks, and action to incentivise good practice and behaviour change. However, targets enshrined in law will be crucial in ensuring that when taken together, the policies in this package are all sufficiently well-designed and implemented to deliver the overall objective. Clear reporting against targets will be essential to highlight the need for corrective action or new approaches if policies prove to be ineffective.

It is also worth stressing that a clear, long-term trajectory is vital in order to give strong signals to investors to ensure that they factor in carbon constraints in their decisions. The carbon budget approach enshrined in the Bill should begin to deliver the “long, loud and legal” signal that is needed.

3. Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour.

WWF believes that local authorities have a crucial role to play in moving towards a low carbon economy, as a purchaser, an employer, a provider of services and an agent of behavioural change. However, while WWF encourages central government to work closely with local government on this we have no view on the inclusion of measures in this Bill.

4. Whether it is possible for the Government to regulate total UK emissions through the use of emissions trading schemes and other policy instruments, and whether carbon budgets over five years are the most effective way of doing so.

This is a complex area, and critical to the success and credibility of the Bill.

EU Emissions Trading Scheme and the principle of importing credits:

Firstly, it is important to recognise that the EU Emissions Trading Scheme already covers nearly half of the UK’s CO₂ emissions. This means that emissions reductions achieved outside the UK can already contribute towards the UK’s emissions targets. These reductions can occur elsewhere in the EU, through purchase of EU allowances, (EUAs), or in developing countries as a result of emission reduction credits generated under the Kyoto Protocol’s Clean Development Mechanism (CDM). Beyond 2012 the shape of

the EU ETS, and of the international Kyoto-Plus framework, remain uncertain—but there may well be increasing linkages between the UK and other emissions trading schemes around the world. The Bill needs to reflect, and manage, this reality.

At present, the Government is proposing essentially unlimited use of EUAs and CDM credits in meeting the targets under the framework of the bill. From one perspective, this might not matter—provided we believe that those allowances or credits represent real, robust emission reductions. However, in its first phase at least, the EU ETS has been badly undermined by widespread over-allocation across Europe. More importantly, there are strong and growing fears that the CDM is dominated by many projects which are not truly additional, and which have little or no wider sustainable development benefits.¹¹ If non-additional projects are allowed to sell credits to the UK, the net result is an increase in global emissions.

Another key concern is that if imported credits appear cheaper in the short term, then the UK will become “locked-in” to high carbon investments and infrastructure which may take many decades to reverse. Such investments may impose very significant costs on the UK economy in future years once more stringent emissions targets bite.

As a result, WWF recommends a form of dual reporting of emissions net of trading and gross of trading. A significant and sustained difference between the two figures could indicate that the UK is not moving towards a low carbon economy but may simply be buying its way out of the problem in the short term, while locking us into a high carbon infrastructure for the future. The Committee on Climate Change should not allow excessive reliance on imported credits or allowances, either through the EU ETS or the CDM, expressed as a percentage of the total UK carbon budget for that year. This is relevant not just for the emissions covered by the EU ETS, but any other future schemes (see below) that would allow similar “buy-out” mechanisms.

WWF also recommends that the Committee on Climate Change should be charged with setting tough limits on the use of imported credits. This would give real teeth to the principle that we have a moral obligation to make our own fair share of emissions cuts within the UK, rather than relying on buying emissions reductions from poor countries. It is important that the UK respects the principle of “supplementarity” set out in the Kyoto Protocol and EU ETS Directives. This requires that the use of imported credits should be “supplemental” to domestic action—this means that the considerable majority of the abatement effort must be achieved within the UK. Our initial view is that quantitative limits on the use of trading mechanisms should be informed by a regular assessment by the Committee on Climate Change of the robustness and environmental integrity of the various carbon markets which the UK and EU are linked to. The more robust and credible the schemes, the greater could be the reliance on imported credits.

Other UK-specific trading schemes:

The bill sets enabling powers for the government to introduce, through secondary legislation, policy instruments that could include other forms of trading schemes such as the Energy Performance Commitment, a cap-and-trade scheme for energy supply, and domestic tradable quotas.

WWF is very supportive of the Energy Performance Commitment, as outlined by DEFRA in a consultation document earlier this year. These proposals would see the scheme cover about 10% of the UK’s emissions and therefore form a key policy lever to enable targets set under the Bill to be met. However, WWF believes the scheme should be based on more ambitious reduction targets than currently proposed by the Government, given that the sector’s emissions are rising and that the targets currently proposed are massively cost-effective for the businesses affected even before a cost for carbon is applied.

DEFRA estimates that the EPC would unlock net savings of £965 million in the organisations and companies included—clearly demonstrating the potential to go further.

WWF is also very supportive of the concept of placing a cap on household energy supply. We believe that a “supplier obligation”, based on a compulsory cap-and-trade mechanism, would trigger a radical and much-needed change in the energy utilities market. It would encourage companies to shift towards provision of energy services—in other words, instead of selling as many units of electricity and gas as possible, they would be driven to sell light and heat as efficiently as possible to as large a number of people as possible. This is a concept that has gathered support in recent years, and is a current focus of work for WWF. Cap-setting in such a scenario would be a key part of the carbon-budget setting process.

In contrast, the concept of a domestic scheme for trading personal carbon allowances is less attractive to WWF. Although in principle this concept has attractions, in terms of equity and effectiveness in addressing behavioural change, the practical difficulties in introducing such a scheme are substantial.

¹¹ WWF will shortly produce a report on the use of CDM credits under the EU ETS. We will forward it to the Committee as soon as it is available.

Carbon Budgets:

The Bill rightly adopts carbon budgeting as the basis for achieving emissions reductions. Climate change is driven by the total amount of carbon we put into the atmosphere, not just the annual emissions in 2020 or 2050. However, WWF believe it is critical to the success of the bill that the budget framework includes strong and transparent annual milestones. This would enable effective monitoring of progress throughout the budget period, and in the event of a change of government in the middle of a budget period, would help to ensure that any failure to meet the budget is not simply blamed on previous administrations.

If in any one year the annual milestone is not met, the Secretary of State would have a duty to implement proportionate contingency measures to ensure that the excess emissions are eliminated over the course of the following year. WWF has always agreed that the government needs some flexibility to deal with factors (like cold winters) that fluctuate from year to year. Annual milestones within a longer carbon budget achieve this.

5. Whether the target of 60% emissions reduction by 2050 set in the Bill is adequate, based on the most recent appropriate evidence.

It is worth noting that the target to cut the UK's emissions by 60% by 2050 originates from the Royal Commission on Environmental Pollution's report on Energy and the Environment, published in 2000. This report used the best available science at the time to conclude that in order to stay below 2°C warming, atmospheric concentrations of CO₂ needed to be stabilised at 550 parts per million (ppm). Once other greenhouse gases are included, this concentration is equivalent to over 600ppm CO₂ equivalent.

However, climate change science has advanced considerably. It is now widely recognised, including by the Stern review and the IPCC, that stabilising at 550ppm CO₂ equivalent would give a 50% chance of exceeding 3°C warming—and a significant risk of exceeding 4°C. Warming of this magnitude would impose unacceptable impacts on people, on nature, and on the world's economies. It is also totally incompatible with the UK Government's own commitment, restated in its recent support for Germany's G8 Presidency, to stay below 2°C.

To have a 50% chance of staying below 2°C, atmospheric concentrations of greenhouse gases need to be stabilised at 450ppm CO₂ equivalent. Stabilisation at 400ppm CO₂ equivalent is needed to give a reasonable degree of confidence that the 2°C threshold will not be exceeded.

The latest IPCC report concludes that to stay below 2°C we must ensure that global emissions start to decline before 2015, and are cut by 50 to 85% by the middle of this century. The UK Government is also backing a global emissions reduction cut of at least 50% by 2050 in the context of the G8 debate. Clearly, a 60% target for the UK is deeply incompatible with the Government's other stated policy goals.

The UK, as a rich, industrialised nation, should commit to reducing its emissions by at least 3% every year from 2010 to 2050. This would lead to an overall emissions reduction of at least 80% over this period. The Bill should make this target explicit. Having the option to increase the level of ambition at a future date dependent on the science, as currently stated in the Draft Bill, is simply not good enough. The science is clear and the case is overwhelming for an 80% target to be on the face of the Bill immediately.

The Stern Report shows that postponing emissions cuts will carry far greater economic costs than facing up to them now. The recent IPCC report also demonstrates that climate change can be contained at a cost of just 0.1% of the world's Gross Domestic Product per year. In contrast, doing nothing costs up to 20 times more according to the most recent science—and human suffering would be greater than purely monetary indicators show.

The Government's own figures confirm that the 60% target is insufficiently ambitious. In the regulatory impact assessment for the Bill, the Government estimates that achieving a 60% target (without any use of imported carbon credits) would reduce GDP by 0.7% in 2050. This also takes a relatively optimistic view of fossil fuel prices. Under a higher fossil fuel price future, the cost falls to an almost insignificant 0.3% reduction in GDP in 2050. In contrast, the Stern Review concluded that it was worth spending 1% or more of global GDP to avoid dangerous climate change—especially when set against the huge damage costs of 5–20% of GDP.

WWF is commissioning modelling work from respected independent consultants to explore how the UK could deliver a more ambitious 80% target (without resorting to nuclear power), and to set out the GDP costs of doing so. Early results confirm that the 80% target is achievable, and while it would clearly be more costly to meet than the 60% target the impact on GDP in 2050 would be well within the global range cited by Stern. WWF hopes to publish the results of this modelling work in July, but should be able to share the findings with the Committee in late June.

In light of our earlier comments on the use of trading mechanisms and imported credits, it is also worth noting that the regulatory impact assessment offers another illustrative scenario in which the UK's own emissions are reduced by just 40% by 2050. Imported credits are used to make up the 20% shortfall. The Government claims that this would reduce the impact on GDP in 2050 from 0.7% to 0.5%. However, we regard such a low level of domestic abatement as completely unacceptable and totally inconsistent with the 2°C objective.

Again, the issue of trading cannot be divorced from the setting of targets. The Norwegian government recently announced Norway would become carbon neutral by 2050, and would use the purchase of carbon credits to help achieve this. This reinforces our view that the higher the level of ambition in the targets, the more acceptable it is that trading should be a valid part of the compliance strategy. But the Bill as currently drafted seeks maximum flexibility (through imported credits) to hit a target that the science says is not sufficiently ambitious.

The Climate Change Bill must set a robust framework for years to come, and be flexible enough to fit the changing international context, which is likely to include the linking of separate trading schemes. Therefore key principles must be established—in particular dual reporting of both actual UK emissions, and the emissions reductions as calculated through the addition of imported credits. The Carbon Committee must set a quantitative limit of trading.

6. Whether the proposed Committee on Climate Change will be able to provide truly independent advice on budgets and cost-effectiveness, given the designated resources at its disposal and the extent to which it may find itself dependent on departmental forecasts and analyses (eg the DTI energy model).

We support the establishment of a Committee on Climate Change as proposed in the bill. However it must be genuinely independent and have real power not only to monitor progress, but also to advise on any corrective action that may be necessary. It should be free to make decisions guided by the latest climate science, without being subject to short-term political pressures.

The current proposals need to be improved to ensure the decisions of the Committee are based on genuine sustainable development criteria. For example, it is conceivable that the UK could meet the targets in the Bill by relying extensively on the use of imported biofuels from unsustainable sources. This would be bad for global greenhouse gas emissions, and for wider biodiversity impacts. The social and economic criteria for decision-making, currently listed, should be joined by wider impacts on the environment.

7. The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism.

WWF believes that a strong, independent and properly resourced Climate Change Committee, alongside the transparent benchmarks we have suggested, in particular with regard to net and gross reporting of emissions is sufficient, to hold the Secretary of State to account. WWF recommends however that the Secretary of State should not be able to extend his/her response period to the Climate Change Committee by negative instrument, but that this should have had the express approval of Parliament through the affirmative procedure.

8. How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations.

It is clear that the Scottish Parliament will develop its own Climate Change Bill, with the stated ambition of an 80% cut by 2050 and legally binding 3% per annum reductions. The political situation in Wales is unclear at the time of writing but a similar annual reduction target is possible in a Welsh Bill. The Northern Ireland Assembly may develop its own Bill and some parties in the recent election were also committed to 3% annual reductions.

Whether a devolved nation has its own Bill and targets or relies on the UK Bill there needs to be a clear public record of the relative responsibilities of UK and devolved Ministers in delivering reductions, and the legal systems under which their performance might be challenged. Where UK and devolved country targets are different, or include different emission sources, it will be particularly important to publicly document who will be responsible for delivering what reductions.

It is possible that the Committee on Climate Change will be duplicated in some devolved countries. This seems likely in Scotland with its Nationalist government. Nevertheless the UK Committee must ensure proper devolved representation, perhaps along the lines of the UK Sustainable Development Commission model, to deal with reserved matters as they relate to devolved countries and to deal with devolved matters where that responsibility is with the UK Committee. Where separate devolved Committees exist it makes sense to ensure some cross-over of membership with the UK Committee.

9. Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets.

In March, EU Heads of State agreed to reduce greenhouse gases by 30% from 1990 levels by 2020, subject to a satisfactory international agreement. This was underpinned by a unilateral commitment to cut emissions by 20% by 2020. The Government has proposed a range for 2020 of a 26–32% reduction in CO₂ emissions. Our understanding is that the top end of this range is roughly compatible with the EU's 30% greenhouse gas target, depending on which burden-sharing methodology is adopted in Europe. The EU target itself is just about compatible with a pathway to limit global warming to 2°C but again the level of

use of imported credits is crucial. The UK must also be prepared for the eventuality that a new approach to burden-sharing in Europe could require the UK to take on greater responsibility for hitting the EU target for 2020.

Moreover, it is vital to ensure that the UK and EU targets include the fair share from international aviation. This sector is currently excluded from the UK's domestic and Kyoto targets—a bizarre anomaly which means that the rapid and unsustainable growth in aviation emissions is being allowed to continue in direct contradiction to wider climate change objectives. Only if these emissions are brought within the scope of the Bill's targets will Governments recognise that all emissions attributable to the UK economy need to be managed, and suitable trade-offs sought between sectors as necessary. In other words, if decision makers persist in supporting unconstrained aviation growth they would need to find other, potentially costly, abatement options elsewhere in the economy.

10. *How the contents of the Bill will impact on international climate change activity.*

The publication of the Draft Climate Change Bill has made headlines around the world. A strong and successful Climate Change Bill will strengthen the hand of the UK, particularly if similar moves were made by EU partners, on the international negotiating stage.

However, in order to genuinely strengthen the negotiating hand of the UK, the Bill must set out to achieve the UK's fair share of a global effort to stay below 2°C warming. The UK supports the German Presidency's call for a 50% reduction in CO₂ by 2050. On any realistic and equitable approach to apportionment of effort, rich developed countries like the UK will need to deliver a reduction of at least 80% reduction by 2050.

11. *Whether the delegated powers contained within the Bill are appropriate and adequate.*

WWF believes that there is a strong case to amend the Bill to introduce a new enabling power to require mandatory corporate disclosure of carbon emissions. Existing reporting of carbon emissions is limited as it does not enable a full picture of carbon impact of UK companies. In order for the UK to be successful in reducing its emissions and meeting its targets on addressing climate change, it is essential that we have a full clarity on the source of these emissions both from an industry sector and an individual company perspective.

With a standardised comparability of carbon emissions, investors will be able to make more accurate decisions on where they place capital and society will be able to recognize and reward those companies that are reducing their carbon footprint. The current system, which is a combination of voluntary and some mandatory reporting for certain sectors, does not provide a consistent and comparable framework. Voluntary reporting through initiatives such as the Carbon Disclosure Project has been a good start, but the time is right to shift reporting onto a standardised, mandatory footing.

WWF believes that such mandatory carbon disclosure for UK companies is essential in order to expedite the shift to a low carbon economy. We recognise that carbon disclosure should be practical as well as meaningful. In this regard we suggest that:

- (1) FTSE 250 listed companies to report on Greenhouse Gas Protocol (GHG) Scope 1 (emissions) & 2 (electricity supply).
- (2) Certain sectors of this FTSE 250 group to report on GHG Scope 3 (products and services).
- (3) This reporting to be included as a legal requirement in annual statement of accounts.
- (4) A governing body or organisation to be assigned to develop reporting standards and to improve, monitor and verify progress and implementation.

Clearly, detailed evaluation of the thresholds for and scope of reporting, and detailed work on developing widely recognised common reporting standards, would be needed. However, the Bill provides an excellent opportunity to bring in enabling powers, backed by a firm timetable for secondary implementing legislation, to provide the platform for this work.

As referred to above WWF also believe that any decision by the Secretary of State to extend his/her response period to the report of the Climate Change Committee should be the subject of an affirmative order.

Memorandum by the Environment Agency (CCB 69)

OVERVIEW AND SUMMARY

The Environment Agency warmly welcomes the draft Bill. By introducing its duties, the Government is sending a powerful and permanent signal that reducing greenhouse gases is, and will remain, a priority for this country. It also acknowledges the growing recognition that we will have to address some of the risks associated with unavoidable climate change in the next 30–40 years. The Environment Agency will continue to play an important role in the delivery of these two objectives. The Bill will undoubtedly strengthen our ability to carry out this work

In the context of this overall support for the Bill and its targets, we have focused our detailed response on the two areas where the Agency has greatest expertise as a regulator and operator: compliance and climate change adaptation. The relevant question in the Committee's terms of reference is noted in each section of our evidence. Our main points are:

COMPLIANCE AND ENFORCEMENT:

- The main flexibility in the carbon budgeting process should be banking and borrowing;
- No five year carbon budget should be reviewed once it is under way, apart from the most extreme of circumstances;
- Government should set a specific limit on the proportion of overseas carbon reduction that could count towards the UK carbon budget;
- Government should provide greater clarity and evidence behind its proposals for compliance and enforcement of the statutory targets and budgets;
- To strengthen the compliance mechanism, the Bill should place a legal commitment for the Government to make up any shortfall in the carbon budget should it miss by more than the borrowing limit of 1%, a “carbon overdraft facility”;
- The Government should establish a Parliamentary convention that the Prime Minister makes the response to the House on the Committee on Climate Change annual progress report.

ADAPTATION:

- The duty to report every five years on adaptation risk should be strengthened to require implementation of adaptation policies, creating a legislative driver for a Climate Change Adaptation Programme;
- The timing of the five yearly report should be co-ordinated to help provide impetus for future decisions on carbon budgets;
- The governance of the Adaptation Programme should be able to set targets and timetables for implementation, with provision in the Bill for independent scrutiny and annual progress reports.

BACKGROUND AND ENVIRONMENT AGENCY ROLE IN CLIMATE CHANGE

The Environment Agency is the leading public body for protecting and improving the environment in England and Wales. Climate Change is a priority theme in our Corporate Strategy. We play a major role in managing climate change, and regulate around 45% of greenhouse gas emissions in England and Wales. We are the UK Scheme Administrator and competent authority for England and Wales for the EU Emissions Trading Scheme. On adaptation, we are in the frontline with statutory responsibilities for managing flood risk, and protecting the water environment in terms of water resources, quality and biodiversity.

CARBON BUDGETS AND FLEXIBILITIES (Joint Committee Qs 2 & 6)

The Environment Agency supports the two legally binding CO₂ reduction targets in the Bill itself, as well as the commitment to adopt a five year carbon budget, based on the recommendations of the Committee on Climate Change. Within the budget setting process, there appear to be three significant flexibilities built into the system:

- Banking and borrowing;
- The ability to review the budget at any point if there were significant changes in circumstances, for example major energy price fluctuations; and
- The ability to stay within the budget by achieving carbon reductions overseas, through the Kyoto Protocol flexible mechanisms of Clean Development Mechanism (CDM) and Joint Implementation (JI).

The Environment Agency believes strongly that some degree of flexibility should be available in the delivery of carbon budgets. Whilst all of the proposals above could only be made on the advice of the Committee on Climate Change and approval of Parliament, we are concerned that too much flexibility could undermine the credibility of the targets, both for investors and the international leadership the Climate Change Bill targets are designed to underpin. Consequently we recommend that banking and borrowing of up to 1% should be used as the main flexibility for the current five year carbon budget.

No five year carbon budget should be reviewed once it is under way, apart from the most extreme of circumstances. However, the subsequent cycles could be adjusted at the time when the next five year carbon budgets are fixed. So once the 2008–2012 budget is fixed, it should not be changed. But in 2011, as well as recommending the carbon budget for 2023–2028, the Committee on Climate Change could recommend adjustments to the 2013–18, or 2018–22 budgets, if significant changes had occurred since the original recommendations, as long as they were still consistent with the overall 2050 trajectory.

On the use of overseas carbon reductions, the Government should provide very clear guidance to the Committee on Climate Change on the interpretation of the supplementarity principle by setting a specific limit on the proportion of the UK carbon budget that could be delivered by the use of overseas effort.

The Kyoto Protocol's definition of supplementarity is generally taken to mean that countries should meet at least half of their emissions target through domestic action. For the period 2008–12, installations covered by the EU Emissions Trading Scheme (EU ETS) can use CDM and JI credits of up to 8% of their free allocation for compliance. This figure equates to approximately two-thirds of the "effort" required by UK installations. Therefore in extending the limit on the use of CDM and JI credits to the whole economy, non-EU ETS sectors will need to take more domestic action in the first carbon budget period compared to ETS sectors in order for the UK to comply with the supplementarity principle. Assuming that the EU ETS covers half of the economy and is carrying half the burden of emission reductions, non-ETS sectors would only be able to meet a third of its "effort" through CDM and JI credits. Beyond 2012, we recommend that domestic action continues to constitute the major part of the carbon budget delivery to drive UK investment in energy and other infrastructure necessary for sustained carbon reductions to 2050 and beyond.

COMPLIANCE AND ENFORCEMENT (Joint Committee Q8)

The Environment Agency welcomes the fact that the Bill is to include provisions for ensuring compliance with the carbon targets. As a regulator, we recognise that reporting, compliance assessment and enforcement measures are essential elements in building confidence in any legislative requirements. The failure of the first UK Climate Change Programme to deliver on domestic carbon targets was due, in part, to the absence of an adequate system for scrutinising and enforcing the implementation of the Programme. This has only been partially rectified by the revised Programme published last year. Actual emissions are beginning to diverge from agreed targets and a robust compliance mechanism is an essential tool, not only for correcting this divergence, but also ensuring credibility in the carbon budgeting process and Climate Change Bill itself.

Compliance systems need to be designed with clear principles and objectives in mind. In this case we think they should be to:

- (i) Provide confidence to the public and investors that the carbon targets will be met. This will be fundamental to creating an expectation of a "carbon price" over the budget period and beyond, which will be critical for achieving the level of investment necessary to deliver the Bill's objectives.
- (ii) Create real accountability of the Government administration in power during the five-year budget period, as well as a mechanism for opposition parties to demonstrate a shared responsibility for targets, which they may become responsible for in the future.

The consultation paper suggests that a legal duty on Government to stay within its carbon budget, and the recourse to Judicial Review should budgets be missed, will provide a "clear incentive" for compliance. The Regulatory Impact Assessment (RIA) sets out the reasons for this as three-fold. First that failure to miss a target would result in "a high degree of political pressure to respond in the appropriate way." Secondly that any Judicial Review (JR) would mean the Government being required to take remedial action by order of court. Finally, that annual reporting of progress to Parliament would provide a means by which the Government of the day is held accountable to Parliament.

The Environment Agency is concerned that the Government proposals, as currently described, do not provide a clear enough incentive for compliance. More explanation and evidence needs to be forthcoming during the scrutiny and passage of the Bill, for the Government to justify the assertions in the rather short sections on compliance in the consultation paper and RIA.

The Government's manifesto commitment to reduce CO₂ emissions by 20% has been subject to a high degree of political pressure already. More explanation is required as to why a legal duty would result in any more political pressure.

The argument that the threat of a JR is sufficient sanction to guarantee meeting targets, is not borne out by recent evidence. Last year alone, we saw a successful case taken against Government over inadequate public consultation on nuclear power, which resulted in little more than a Government statement of intention and a few days of headlines. There is also a danger that taking the incumbent Government through a JR will be an unnecessarily legalistic and drawn out process that ends up focussed on demonstrating “guilt”, rather than agreeing restorative action to get the UK back on track to meeting its 2050 target.

With all this in mind, we are not yet convinced that the threat of a JR will be perceived as a solid enough sanction by all Government departments, the public or the carbon market, in establishing confidence in the achievement of domestic targets. It would be useful for the Committee to press those giving evidence for their views on the issue.

Finally, whilst the annual progress report to Parliament will be very important in terms of monitoring performance and providing evidence of the need for any additional measures, we cannot see how it would function as any form of enforcement, if the Government of the day had a sizeable majority.

To make the carbon budgets more credible, we believe that the Climate Change Bill should put in place a legal commitment for the incumbent Government to make up the shortfall in the carbon budget, should it miss by more than the 1% borrowing limit. To pursue the financial analogy, Government would have incurred a “carbon overdraft” that would have to be paid back. This could be done by:

- Purchasing emission allowances on the international carbon market,
- Investing in a domestic “carbon reduction fund” at an agreed price per tonne of carbon; or
- Triggering a package of policy measures such as increases in the Climate Change Levy or fuel duty, reducing the National Allocation Plan, or increasing the Energy Efficiency Commitment.

The advantage of the first option is that the shortfall is filled at the lowest possible cost, uses an established system and supports international action. However, questions around complementarity and the quality of the credits would need to be addressed. The Government would also have to stay within its own imposed limit on proportion of overseas credits used to meet the carbon budget.

The second option of establishing a domestic carbon reduction fund may be a more transparent mechanism in that public expenditure used to pay off the carbon “overdraft” would be recycled as investment in the UK to support future emission reductions. The Committee on Climate Change could advise Government at the start of the budget period what price the incumbent Government should pay into the fund for each tonne of carbon in any “overdraft” at the end of the period. This could be based on the price of international credits, EU ETS allowances and the average abatement cost of making up the shortfall in represented by the “overdraft”. Options for how the fund could be used include the purchase and retirement of EU ETS allowances, or funding schemes for domestic and public sector energy efficiency.

The third option would be more complex and entail placing the cost of “failure” on specific sectors, rather than the public purse more widely. We consider that an appropriate mixture of the first two options discussed above should be considered in more detail.

PARLIAMENTARY REPORTING

The Environment Agency welcomes the proposal that the Committee on Climate Change produces an annual report on progress and that the Government is expected to respond to this report in Parliament. The RIA only sets out that such reports should be laid before Parliament by certain dates in the year, but it would be expected that the Secretary of State for the Environment would make a statement to the House and lead a debate on progress.

However, as is already recognised by the Public Service Agreement (PSA) on climate change, delivery of emission reduction is shared across Government. The existing PSA is between Defra, DTI and DfT, but DCLG, HMT and other Departments all have an important role to play. To address this, and as a procedural means of increasing the political pressure to deliver beyond what is currently felt, we recommend the Government establish a Parliamentary convention that the Prime Minister makes the response to the House on the Committee on Climate Change annual progress report. This would be a personal demonstration by the Prime Minister of the long term priority of carbon reduction, and create a piece of political theatre, akin to the financial budget, on which to focus public debate on climate change, and further demonstrate international leadership.

CLIMATE CHANGE ADAPTATION (JOINT COMMITTEE Q1 ON AIMS OF THE BILL)

We strongly welcome a duty on Government to report every five years on climate change adaptation. Climate science is clear that even if we stop emitting greenhouse gases now, the carbon emissions already accumulated in the atmosphere will cause some unavoidable climate change. It will be an increasingly important duty of Government to anticipate and handle those risks for the economy, society and environment.

We believe that this duty should be the legislative driver to create an ongoing Climate Change Adaptation Programme for the UK. This programme should not only assess the risks, but implement the policies necessary to reduce them. To achieve this:

- The duty in the Bill should be strengthened;
- The timing of the five yearly report should be co-ordinated to help provide impetus for future decisions on carbon budgets; and
- The governance of the adaptation programme should be able to set targets and timetables for implementation, with provision in the Bill for independent scrutiny.

THE ADAPTATION DUTY

As it stands the duty is simply to produce a risk assessment and report on policies and proposals. The consultation paper describes this as a review of historic policy rather than a programme of future policy. There is a risk that future administrations may treat this as a static exercise that happens once every five years, rather than a regular progress report of an ongoing programme.

The duty should be strengthened to require the Secretary of State to report on the risks, the policy proposals to address those risks, and then to implement those proposals. The five-year report would then be more forward looking and Government would be committed to implementation in a way that the current draft does not.

Under such a duty, Government would be able to construct an Adaptation Programme, built on the foundations of the Adaptation Policy Framework (APF) which is due for publication at the end of this year.

Without a strengthened duty and greater leadership from Government, action on adaptation could easily be too slow and fail to deliver change across all sectors. Even if the legal duty is not strengthened as we propose, there is still a strong case to build up the governance of the adaptation programme as it moves from an assessment to delivery phase. It is currently not possible to set specific outcome based targets for adaptation due to the issue/site specific nature of the challenge. However the Bill should offer the framework for Government to set requirements for specific levels of progress to be made in terms of assessing sectoral climate change vulnerabilities. Once Government departments have this information they will then be in a position to develop adaptation policies to ensure their approaches are more robust. It would also enable Government to provide annual progress reports to Parliament, in the same way it will be for carbon reduction policies.

In developing our own Organisational Strategy for adapting to climate change, it has been helpful to set priority functions a series of milestones on the path to taking on specific changes in policy and delivery. If such a process is part of a wider Government Adaptation Programme, on a five year timescale, then it would enhance the co-ordination and priority given to such activities.

The European Commission's Green Paper on adaptation is likely to identify the need for more formal requirements on member states to have structured approaches to tackling adaptation. The timing of the Bill should enable it to fully incorporate the ideas in the Green Paper but, if the UK wishes to continue to lead this debate, the APF and the requirements set out within the Bill would be the minimum required.

ROLE FOR INDEPENDENT ADVICE ON ADAPTATION

As part of the strengthened governance, we feel that there is considerable merit in Government having some independent advice on climate change adaptation. This function could either be performed by the Committee on Climate Change or another standing Adaptation Committee to scrutinise the Government's adaptation response. Either would be extremely valuable in the process of prioritising the risks and translating that assessment into meaningful targets for taking adaptive action, provided that their role is fully recognised within the Bill.

SEQUENCING OF ADAPTATION AND CARBON BUDGET REPORTS

As the Climate Change Bill is setting up a political rhythm for climate change policy and debate, it is very important that impacts analysis and adaptation are properly integrated to facilitate the best decision making in Government.

The five yearly Adaptation Report should be published in advance of decisions by Government and the Committee on Climate Change on the next round of carbon budgets. This would mirror the way the IPCC publishes, and formally tie in the UK impacts and adaptation aspects of climate change to those of mitigation. Publishing an authoritative report on the impacts of climate change in the UK and adaptation responses required should set the context for public and Parliamentary debate over future carbon budgets, and reinforce the case for urgency.

According to the draft Bill, carbon budgets would be set by 31st December 2008, June 30th 2011, June 30th 2016 etc. The Committee on Climate Change would have to publish its advice by 1st September 2008, 1st May 2011, 1st May 2016 etc. Therefore the Bill should state that the Adaptation Reports should be published in April 2011, April 2016 etc, with a further commitment that the final Adaptation Policy Framework will come out by Summer 2008 at the latest.

CONCLUSION

The long term framework being provided by the Climate Change Bill will be a genuine watershed for policy to tackle climate change. It also places the role of adaptation firmly on the agenda of this and future governments. We hope that its provisions will be long lasting and, it is in that light that we have made the detailed suggestions in this response.

May 2007

Memorandum by the Trade Union Congress (TUC) (CCB 78)

1. INTRODUCTION

The TUC and its 67 affiliated unions warmly welcome the central aim of the Climate Change Bill of establishing a credible emissions reduction pathway to 2050, by putting into statute medium and long-term targets for CO₂ reductions. These targets, combined with the innovation of five-year carbon budgets, an independent expert committee, new powers and annual Parliamentary scrutiny, will help secure a firm long term framework for climate change and energy policy.

2. CLIMATE CHANGE AND ENERGY ISSUES FOR THE TUC

The General Council's work on energy and climate change has been guided by a succession of motions and debates at its annual Congress. The TUC fully acknowledges that action is urgently needed at the highest levels, nationally and internationally, both to meet the UK's domestic targets to cut greenhouse gas emissions, consistent with our Kyoto obligations, and to ensure security of our energy supplies.

Policy priorities for the TUC include:

- A clear long-term policy framework that would incentivise investment in all forms of low carbon energy technologies including renewables, nuclear, clean coal allied to carbon capture and storage, and microgeneration.
- A "green" industrial, employment and skills strategy to support this framework.
- Support for clean coal and carbon sequestration technologies, allied to securing a future for UK-mined coal.
- Workplace-based initiatives to cut energy demand and resources through greening the workplace initiatives.
- The adverse impact of fuel price increases on industrial employment and output, especially among energy intensive users, and on domestic fuel poverty targets.
- To put the world of work, workplaces and decent employment at the heart of international negotiations on climate change policy, notably through the UNFCCC.

The core interests of the trade union movement and the 6.7 million employees it represent depend on future sustainable economic prosperity. A rapid shift towards a low carbon economy will directly impact on future investment, employment and skills requirements. A study by the European Trade Union Confederation¹² on the impact of climate change policies on employment in Europe demonstrates that ahead lie both risks and opportunities to employment, due to differential sectoral and occupational impacts of climate change initiatives. For the TUC, the key issue is to secure a "just transition" to a low carbon economy. Just transition is the notion that any shift to a low carbon economy must be done in a way that either protects or promotes equality and social justice.

The TUC anticipates that 2007 will mark a step change in the detailed development and implementation of major climate change policy in the UK and globally. This will need to be analysed to assess the extent to which it promotes or damages affiliates' concerns and interests. The current public debate over climate change policy is focusing increasingly firmly on cutting CO₂ emissions with little understanding or sometimes concern for the social and employment costs of such policy. The notion of "just transition", which has considerable currency in the USA, has yet to enter public debate and policy making in the UK.

¹² Study on Climate Change and Employment ETUC 2007.

For this reason, the TUC believes that the Climate Change Bill presents a unique opportunity to create not only a long term policy framework, but a matching participative framework to ensure the full engagement of all relevant stakeholders in the challenge of climate change: Government, organisations in the public and private sectors, trade unions, NGOs and citizens' organisations. There are powerful climate change "counter-currents" in society, ranging from concerns over new environmental taxes (road pricing, waste collection, air passenger duty) to major strategic planning issues, notably new energy installations. In this submission, we call on Government to take steps to coordinate stakeholder engagement for the long-term haul that is involved in meeting the challenge of climate change.

3. SCOPE OF THE COMMITTEE'S INQUIRY: TUC COMMENTS

The TUC would wish to comment in particular on the following issues flagged up by the Committee.

3.1 *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed?*

The TUC fully supports the principle of legislating to help the Government secure targets for both CO₂ reductions and the five-year carbon budgets that will underpin progress towards these targets. We note that the Stern Review called for "strong, deliberate policy action" to motivate the take-up of "increased energy efficiency, changes in demand and the adoption of clean power, heat and transport technologies".

The targets are:

- 60% cut in CO₂ by 2050 against a 1990 baseline; and
- 26–32% cut by 2020. This will mean a cut in all greenhouse gases of about one-third by 2020.

To help secure progress towards the targets, carbon budgeting is also proposed for successive five-year periods from 2008–12, in line with Kyoto Treaty time frames, imposing a limit on total UK carbon dioxide emissions. In proposing that carbon budget be set for at least three periods (ie for 15 years) ahead, the Bill provides for both long-term certainty, with some flexibility, for a trajectory towards 2050.

However, we share the IPCC's scepticism on the effectiveness of voluntary measures. "Voluntary agreements between industry and governments are politically attractive, raise awareness among stakeholders and have played a role in the evolution of many national policies. The majority of agreements have not achieved significant emissions reductions beyond business as usual. However, some recent agreements, in a few countries, have accelerated the application of best available technology and led to measurable emissions reductions".¹³

The Bill will provide high-level legislative underpinning for a wide range of statutory and voluntary measures, both existing and proposed, as for example, the mandatory Carbon Reduction Commitment in the Energy White Paper 2007.

Of course, the danger is that delayed emissions reductions lead to investments that lock in more emission-intensive infrastructure and development pathways. This in turn constrains the possibility of achieving lower GHG stabilisation levels, while increasing the risk of more severe climate change impacts.

3.2 *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence?*

There is a strong case for setting comprehensive targets covering all six greenhouse gases:

- CO₂ emissions comprise the majority (77%) of GHG emissions. It would be consistent to set a combined target for the remaining gases.
- Currently, both aviation and shipping CO₂ emissions are not covered by the Kyoto Treaty, nor the UK's carbon budget or targets. As emissions from each of these sectors are set to increase, it would be consistent to include them in the CO₂ target and budget now, rather than lock in a higher emissions reduction challenge for future generations.¹⁴

In October 2006 the General Council endorsed the general principle behind the Bill of time-limited targets to cut CO₂ emissions. The TUC supported "statutorily binding annual reductions, averaged over a three or five-year rolling period. The actual length of this period would be determined through policy consultation and parliamentary debate".

¹³ IPCC Fourth Assessment Report, Working Group 3, para 23.

¹⁴ *A sustainable energy policy for the UK*, TUC submission to the Energy Review, 2006, p 42.

However, is the 60% target now too low, in the light of new evidence? The target stems from the 2003 Energy White Paper, which in turn is based on earlier recommendations from the Royal Commission on Environmental Pollution,¹⁵ to “adopt a strategy which puts the UK on a path to reducing CO₂ emissions by some 60% from current levels from 2050. This would be in line with a global agreement based on contraction and convergence which set an upper limit for the CO₂ concentration in the atmosphere of some 550 parts per million by volume (550 ppmv), and a convergence date of 2050”.

This concentration level (550 ppmv), roughly double pre-industrial levels, was then thought at the time of the RCEP report to be consistent with limiting global average temperature increases to below 2 degrees centigrade.

But today’s concentrations have already reached 383 ppmv. More recent evidence from the Tyndall Centre¹⁶ points to an accelerating rate of climate change. “Most recent research at the Hadley centre and elsewhere has suggested that a “safe” CO₂ concentration may be 450 ppmv or lower”, the difference being mainly due to a better understanding of the feedback impacts of global warming on the biosphere, for example, warming oceans releasing trapped CO₂. “The corresponding CO₂ emissions reductions for a 450 ppmv concentration is some 80% to 90% lower than 1990 levels,” Tyndall concludes.

The decarbonisation challenge for the UK, and many other industrialised countries, is even greater than is assumed in the 2003 White Paper, and in the current Climate Change Bill consultation. The TUC would support a more challenging CO₂ reduction target.

3.3 Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments?

The TUC has previously called for “a new institutional arrangement, such as an Energy Commission, tasked with directing and coordinating energy policy,” (TUC response to Energy Review, 2006).

While the Government may have concerns about establishing an independent stakeholder body to both secure public engagement and monitor progress towards climate change objectives, the Bill presents an opportunity for the Government to legislate for such a body.

The Committee on Climate Change will advise Government on the level of carbon budgets appropriate to meet its legislated targets, and the respective contributions of sectors covered by emissions trading schemes, sectors not covered by trading schemes, and the balance of reductions achieved by domestic action and through international carbon credits.

We note that the Committee, as a non-departmental public body will be tasked with “providing [Government with] an assessment of the optimum abatement pathway which is consistent with the 2020 and 2050 targets and the UK’s international obligations”. Factors it will take into account include scientific, technological and socio-economic considerations—impact on the economy, competitiveness, fuel poverty and fiscal policy (consultation document, para. 5.55). The Government envisages that businesses, the public and other stakeholders will also have access to its independent analyses.

As proposed, we are concerned that the Committee on Climate Change (appointed by the SoS) will not have sufficient expertise and authority to engage stakeholders (unions, employers, NGOs) in the challenge of meeting tough CO₂ targets?

These are major concerns for the TUC. Given the industrial, skills and workplace priorities for the TUC noted in our introduction, and the key issue of securing a “just transition” for working people to a low carbon economy, the TUC would prefer a Committee combining both expertise and representatives able to articulate stakeholder interests. The UK is setting a unique example in legislating for CO₂ reductions. Policies to promote analysis, discussion and engagement of trade unions and other stakeholders are of central concern to trade unions globally. Emerging examples of good practice were included in the ITUC’s statement to the UNFCCC in 2006,¹⁷ which we urge the Government to emulate. Examples include the new national framework of social partnership bodies connected with Spain’s climate change “National Allocation Plan” under the EU Emissions Trading Scheme; and the Belgium Government’s consultation with unions and employers over its CDM and Joint Implementation projects.

¹⁵ *Energy—The Changing Climate*, Royal Commission on Environmental Pollution, 22nd report, 2000, para 4.32.

¹⁶ *Decarbonising the UK: Energy for a climate conscious future*, Tyndall Centre, 2005, p.11.

¹⁷ *Trade union climate change strategies: the trade union statement to the UNFCCC*, Nairobi, November 2006.

3.4 *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target.*

A supplement to the Kyoto Treaty, the Marrakech Accords, states that “the use of the [Kyoto project] mechanisms shall be supplemental to domestic action and . . . domestic action shall thus constitute a significant element of the effort made by each Part”.

The TUC believes that the Government should ensure that the balance of its emissions reductions derive predominantly from the UK’s own efforts, rather than from allowances and credits purchased through investments overseas.

Buying up emissions reductions undermines the leadership role described in section 3 of the consultation paper. It conveys a message that developing countries are expected to deal with the consequences of behaviour by developed countries; reductions may not be real eg closure of obsolete plant; and the exporting of low carbon + activities biases the allocation of reductions to places where the cost of labour is low ie developing countries. Careful auditing and policing would also be necessary to avoid fraudulent activity.

3.5 *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour.*

A key question for the TUC is, How does the Bill relate to people at work? How will it encourage trade unions through their influence at work to drive forward energy efficiency initiatives, such as the proposed carbon reduction commitments for the UK’s 5,000 largest private and public service sector organisations?

Greening the workplace initiatives are a high priority for the TUC. Joint energy and resource saving projects are taking effect across business and services in the public and private sectors, at Scottish Power, Corus, the British Museum, Friends Provident, Defra and the TUC and elsewhere. These focussed initiatives have been accompanied by a burgeoning role for environmental reps and a significant uptake in TUC environmental education courses.

These union-led developments have also revealed the huge potential for joint employee/employer initiatives. A Labour Research Department¹⁸ study of nearly 700 workplace environmental reps found that three in five employers (61%) have apparently done nothing to promote green travel plans; 57% have not supported water conservation, green purchasing (52%) or energy efficiency (23%).

The TUC has called for stronger rights to support consultation and training for workplace environmental reps, as part of the DTI review of facility time. We believe that the Climate Change Bill, with its new enabling powers, would be an appropriate vehicle to provide swift improvements to support environmental champions in the workplace.

CONCLUSION

Clearly, the TUC welcomes the Bill and the opportunities it presents to greatly strengthen the UK’s stance towards climate change, and the potential to engage not only experts and Parliament, but the many stakeholders in this country now willing to take on the fundamental challenge of shifting to a low carbon economy. We remain concerned, however, to ensure that a just and intelligent transition takes place, and would welcome the opportunity to further expand on these views to the Committee.

June 2007

Memorandum by the UK Business Council for Sustainable Energy (CCB 80)

INTRODUCTION

1. The UK Business Council for Sustainable Energy was established in 2002 to support the fastest transition feasible to a sustainable energy economy consistent with the delivery of a secure, reliable and affordable energy infrastructure.

2. Members of the Council include Centrica, EDF Energy, E.ON UK, National Grid, RWE npower, Scottish and Southern Energy, Scottish Power, and United Utilities.

3. The Council welcomes the opportunity to provide written evidence to the Joint Committee on the Draft Climate Change Bill.

¹⁸ *Trade unions and the environment*, Labour Research Department, 2007.

KEY POINTS

4. A clear, stable and long-term policy framework is necessary to support the transition to a low carbon economy.
5. The Council welcomes the proposed introduction of a Climate Change Bill to provide a practical framework for tackling climate change in the UK.
6. This framework needs to be supported by a coherent set of policies to deliver sustained reduction in energy demand, and to drive investment in existing and emerging sustainable energy technologies.
7. The UK framework for reducing greenhouse gas emissions should as far as is possible, be consistent with and complement other greenhouse gas abatement activity, such as the EU Emissions Trading Scheme.

Targets

8. The Council has long supported the establishment of long-term, legally binding targets for greenhouse gas abatement.
9. The Council also supports the introduction of five-year carbon budgets, provided these are locked in far enough in advance to influence investment decisions. Clarifying budgets for a 15-year period would align with investment timescales, and the Council supports the proposal to have a rolling programme of three budget periods in statute at any one time.
10. The Council supports the principles of unlimited banking, and limited borrowing between budgets as a way of encouraging early action.
11. To maintain investor confidence, targets should only be amended to reflect clear changes in the available evidence about climate change. The Council supports the clear articulation of those factors that would enable a review of budgets and targets in advance.
12. The Council supports the use of international mechanisms to support achievement of the greenhouse gas abatement targets. However, the extent to which international mechanisms can be used needs to be clarified in advance to ensure greater clarity about the expected levels of domestic action needed to meet the targets.

Committee on Climate Change

13. The Council supports the establishment of an independent Committee on Climate Change.
14. It is important that the Committee on Climate Change can access existing monitoring and reporting functions within Government to avoid duplication of effort and resources.

Reporting

15. The Council supports a process of reporting annually on progress against targets. Where possible, the annual reporting process should build on existing processes and systems, such as those established through the EU ETS and UNFCCC.
16. While reporting on progress on adaptation is important, this needs to be underpinned by the development of a national framework for action on adaptation.

CONCLUSION

17. The Council welcomes the Government's commitment to delivering real and significant greenhouse gas abatement across the UK economy.
 18. The Council has long called for a long, loud and legal framework to deliver the UK's carbon reductions: long enough to affect business investment; loud enough for markets to hear the message and react; and within a legal framework to help build market confidence.
 19. The proposed Climate Change Bill would ideally deliver such a framework for tackling climate change.
 20. It is important that this framework is underpinned by a cohesive energy policy framework that will deliver a sustained reduction in energy demand, and drive investment in clean energy technologies.
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Memorandum by the British Chamber of Shipping (CCB 81)

In the climate change debate shipping should be regarded as the best available solution to the global need for transportation. Shipping is the most energy efficient mode of transport and the backbone of global trade. Seen in light of the enormous volume of goods carried by ships, the CO₂ emission from shipping is small. The reason for this is that shipping for many decades—even without regulation—has had a strong market driven incentive to focus on reduction of fuel consumption.

However the Chamber of Shipping fully acknowledges the need for further reduction of air emissions from shipping and believes that the way to achieve environmental protection must be found in a holistic manner. To be successful, such an approach should take into consideration the availability of technology to reduce emissions, the need to encourage innovation and the economics of world trade. It must also be remembered that other initiatives to reduce pollutants such as SO_x and NO_x may have a negative effect on simultaneous efforts to reduce CO₂ emissions. Net environmental benefit for the long term must therefore be the objective of any future initiatives.

AN EXCELLENT CO₂ PERFORMANCE

Global Warming is, by definition, a global problem and shipping is the most global of industries. Various independent sources estimate that shipping is responsible for approximately 2 % of global greenhouse gas emissions. The Stern Report¹⁹ acknowledges that transport in 2000 accounted for 14% of global greenhouse gas emissions, a share which is expected to remain constant at least until 2050. The majority, or 76% of the emissions, is from road transport, 12% is from aviation, and 10% is from shipping corresponding to 1.4% of the total global greenhouse gas emission. IEA²⁰ estimates that the share of CO₂ emission from international marine bunkers will remain approximately 2% at least until 2030. This emission share is relatively limited when one considers that shipping carries 95% of the world's trade by volume. Shipping delivers fundamentals such as heating and food and provides huge economic and social benefits to both developed and developing economies including lower consumer prices, a wider variety of products and larger market potential. It has been said that without shipping half the world would freeze and the other half would starve. As such, for comparisons with aviation or other transport modes to be valid, the transport work performed and other societal benefits must also be considered.

Shipping in general produces less greenhouse gases per tonne kilometre than any other form of transportation and technological advances and the use of larger ships are constantly improving that efficiency. This is illustrated by the tables in Appendix 1. Against this background, further use of waterborne transport would reduce the CO₂ emission associated with transport and should be encouraged. This is a policy which goes hand in hand with the EU policy to address the issue of excessively congested roads. It must be remembered that regulation with the aim to achieve marginal greenhouse gas savings from shipping at considerable cost may well lead to a modal shift to other less environmentally credible forms of transport. The result would be an overall environmental loss. Furthermore—and more fundamentally—additional burdens for shipping in the UK could have a negative effect on economic growth and reduce the UK's role in a globalised world.

The need for improvement—options for the shipping industry

Although there are practical difficulties that surround further reducing carbon emissions from shipping, the need to improve on performance remains. The following alternative options have been looked at by the shipping industry, identifying pros and cons on each. These are:

- Increased efficiency of the power plant—Over the last decades continuous developments of more efficient engines have been made. It is nevertheless believed that marginal improvements are still possible, but they may conflict with other objectives, such as reducing NO_x emissions.
- Optimisation of hull and propeller design—Also in these areas, extensive R&D has resulted in ever more efficient hull and propeller systems. It is therefore believed that the remaining potential is diminishing.
- Energy optimal fleet operation—Significant reductions of fuel consumption, and thus CO₂ emissions, in relation to the transport work produced, can in theory be achieved by maximising the utilization of the cargo carrying capacity on all voyages and improving logistics.
- Modal shift—Shifting more transportation from other modes to sea will in general provide an overall benefit on CO₂ emissions.

¹⁹ Stern Review on the Economics of Climate Change, October 2006.

²⁰ International Energy Agency, World Energy Outlook 2006.

- Reduction of ship speeds could improve fuel efficiency without costly additional equipment. However, it would require the consent of major customers as they would in general have to wait longer to receive their goods. Shippers seek to maintain supply continuity and time of delivery is an essential competitive parameter. Furthermore, very little can be achieved on traditional slow-steaming bulk carriers. For ferries, travelling time for the passenger is a key issue in the extensive competition with other transport modes; they should also be considered as a bridge between areas forming essential and reliable infrastructure. Regarding faster ship types such as containerships, a large reduction in speed may have a negative impact because more ships will be needed to carry the same cargo. Further analysis will be needed on the pros and cons of this option.

Legislative options

- Requirements to meet a unitary CO₂ index limit value—IMO is in the process of developing an index to measure the CO₂ efficiency for an individual ship depending on fuel consumption, and performed transport work. This index can in theory be calculated for a specific ship under standard conditions from more or less the day the ship leaves the yard. Setting a limit for such an index could have an impact on the specification and performance of new buildings.

EMISSION TRADING SCHEMES

Alternative 1:

- Inclusion of maritime transport in the EU Emission Trading Scheme for selling and buying carbon credits. In this category, there are many different options which should be analysed. For some ships in some trades, emissions trading schemes can play a positive role in reducing air emissions. Any trading system will have to be clearly defined and evaluated to avoid distorting competition. In case the EU decides to include shipping in the EU ETS it should be flag neutral.

Alternative 2:

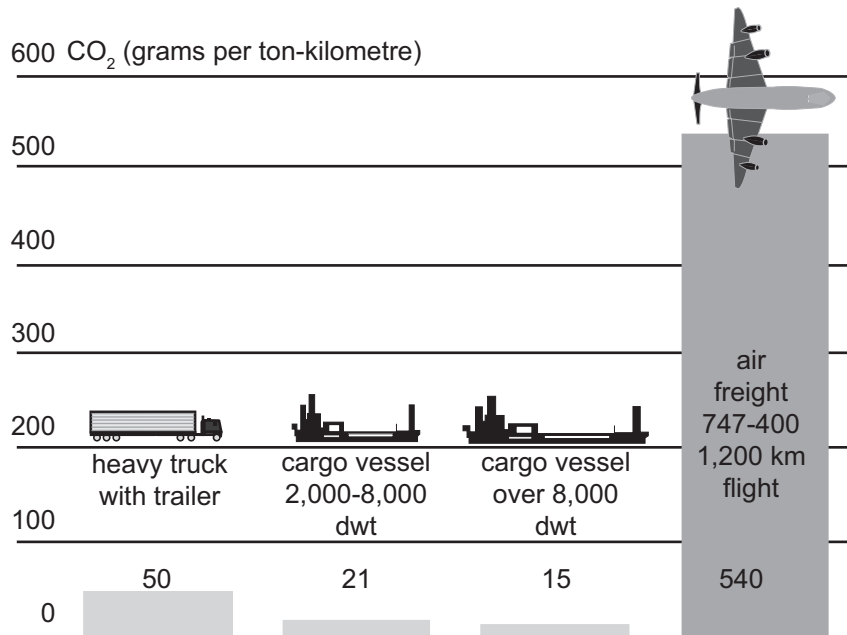
- Inclusion of maritime transport in a Global Emission Trading Scheme for selling and buying carbon credits. In this category, there are many options which should be analysed. A truly global system adopted in IMO would be much more effective in reducing CO₂ emissions from shipping than any regional system or any system excluding developing countries or states which choose not to participate. A trading system has to be flag neutral, clearly defined and monitored, and it should not distort competition.

For some ships in some trades, emissions trading schemes can play a positive role as an equivalent way to average compliance with a global cap. Emission quotas should not be based on historical data of the company. In the long run this would make life more difficult for new companies and companies who expect to grow. To stimulate behaviour which effectively reduces CO₂ emissions, quotas should be based on an emission index reflecting the true performance of the ship. It is believed that a performance based system is a more positive option for the shipping industry.

- Allocation of emissions from maritime transport to states—Such a scheme would include emissions from international shipping in national emissions and allocate these emissions within the framework of any post-Kyoto agreement. It would, however, be ineffective to allocate emissions to the flag state since this system could easily be circumvented by reflagging to states with no or only marginal limitations on their emissions. The emissions could instead be allocated to the export/import country benefiting from the transport.
- Mandatory differentiation of harbour dues—This option is already used in Sweden on NO_x and SO_x. However, in privately owned ports, such as in the UK, the measure would only work if some ships paid for the rebates of others, and this is not acceptable as a matter of principle. Additionally, it could result in distortion of competition between different ports. The EC NERA report was also negative on this option.
- Research and development Nations and companies can further develop the technology used in ships. This could include even more efficient engines, new hull forms, better control over the daily use of fuel on board ships among other things.

Comparison of CO₂ emissions by different transport modes

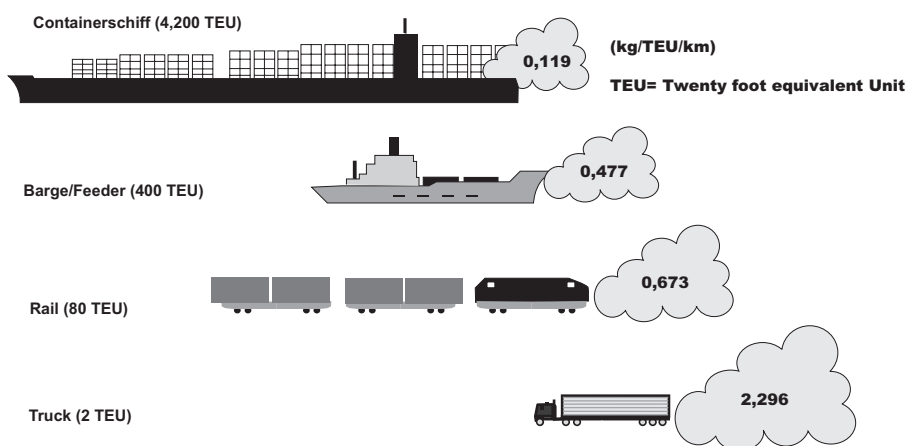
EXAMPLE 1



Source: Swedish Network for Transport and the Environment .

EXAMPLE 2

CO₂ Emissions



Quelle: Institut für Energie und Umwelt (IFEU), Heidelberg 2002

Supplementary memorandum by John Healey MP, Financial Secretary, HM Treasury (CCB 85)

CLAUSE 16 OF THE FINANCE BILL—EMISSIONS TRADING: CHARGES FOR ALLOCATIONS

During my appearance at the Joint Committee on the Climate Change Bill on 20 June 2007, I undertook to write to you with details of Clause 16 of this year's Finance Bill, which relates to charges for allocations in the EU Emissions Trading Scheme (EU ETS)

The EU ETS is the world's most significant international emissions trading scheme that has been introduced to date. It is an important step towards establishing a price for carbon with a view to ensuring that negative environmental externalities are reflected in investment and consumption decisions. As set out in the UK Government's Vision for Emissions Trading, published on 30 October 2006, greater use of auctioning will help to strengthen the long-term integrity and efficiency of the EU ETS.

In Phase I, given the newness of the EU ETS, effectively all allowances were distributed on a free basis. The EU ETS Directive permits Member States to auction up to 10% of allowances in Phase II, which runs from 2008 to 2012. The UK's National Allocation Plan (NAP) for Phase II of EU ETS, published last summer, set out the Government's intention to auction 7% of the total UK emissions allowances.

The power to auction allowances for the EU ETS is in Clause 16 of the Finance Bill (annexed at end). Powers to introduce measures that create revenue flows in some way are traditionally taken in the Finance Bill. These measures will be in place to enable auctioning at the beginning of Phase II EU ETS on 1 January 2008. The powers to allocate allowances on a free distribution basis are already in place through secondary legislation.

The clause relates to the issue of enabling powers for auctioning in EU ETS Phase II and beyond. Each decision about whether or not to use auctioning in other emissions trading schemes in the future will be taken on a case-by-case basis, but this power provides the necessary basis for auctioning under any European Community emissions trading scheme.

Auctioning levels are set through the NAP for the relevant EU ETS Phase, which is led by Defra in collaboration with others. These overall levels are determined in advance of the phase beginning and cannot be increased or decreased during the phase. The power in Clause 16 allows the Government to decide, amongst other detailed matters, how, when and how many of the allowances to release for value within the limits laid out in the NAP.

The measures for auctioning or sale will be set out in regulations and scheme rules. The regulations can provide for the appointment of a body (the "auctioneer") to run auctions or sell allowances, and the regulations must provide for these to be overseen by an independent observer who will ensure compliance. The regulations will also allow for the charging of fees and provide for default in payment to be treated as a civil debt. The regulations will not go into much detail about the format, design and rules of an auction or sale, as some flexibility will be needed to refine these details, if necessary, in future.

The clause allows the use of either the negative or affirmative parliamentary procedure for the regulations. The Government envisages that the first set of regulations will be subject to the negative resolution procedure, following a public consultation towards the end of this year.

I hope that you will find this information helpful.

June 2007

Annex

1. EMISSIONS TRADING: CHARGES FOR ALLOCATIONS [j1540]

(1) The Treasury may impose charges by providing for Community tradeable emissions allowances to be allocated in return for payment.

(2) The Treasury must by regulations make provision for and in connection with allocations of allowances in return for payment.

(3) The regulations must provide for allocations to be overseen by an independent person appointed by the Treasury.

(4) The regulations may make any other provision about allocations which the Treasury consider appropriate, including (in particular)—

- (a) provision as to the imposition of fees, and as to the making and forfeiting of deposits, in connection with participation in allocations,
- (b) provision as to the persons by whom allocations are to be conducted,

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- (c) provision for the imposition and recovery of penalties for failure to comply with the terms of a scheme made under subsection (5),
 - (d) provision for and in connection with the recovery of payments due in respect of allowances allocated (including provision as to the imposition and recovery of interest and penalties), and
 - (e) provision conferring rights of appeal against decisions made in allocations, the forfeiting of deposits and the imposition of penalties (including provision specifying the person, court or tribunal to hear and determine appeals).
- (5) The Treasury may make schemes about the conduct and terms of allocations (to have effect subject to any regulations under this section); and schemes may in particular include provision about—
- (a) who may participate in allocations,
 - (b) the allowances to be allocated, and
 - (c) where and when allocations are to take place.
- (6) “Community tradeable emissions allowances” are transferable allowances which—
- (a) relate to the making of emissions of greenhouse gases, and
 - (b) are allocated as part of a system made for the purpose of implementing any Community obligation of the United Kingdom relating to such emissions;
- and “greenhouse gases” means carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.
- (7) Regulations under this section are to be made by statutory instrument.
- (8) A statutory instrument containing regulations under this section is subject to annulment in pursuance of a resolution of the House of Commons unless a draft of the regulations has been laid before, and approved by a resolution of, that House.
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Supplementary memorandum by The Royal Academy of Engineering (CCB 87)

The Royal Academy of Engineering welcomed the opportunity to give evidence to the Joint Committee on the Draft Climate Change Bill on 13 June 2007 and we hope that the Committee found that evidence helpful. There are, however, a couple of issues that we would like to expand on having since had the chance to reflect on the answers given on the day.

The first relates to the issue of what targets the Draft Bill should set. During the course of the hearing, Mr Graham Stuart MP questioned the scientific validity of the target to reduce CO₂ emissions by 60% from 1990 levels and suggested that the European target of a temperature increase of 2°C from pre-industrial times might prove more useful both in scientific terms and in public understanding.

While we appreciate the advantage of aligning the UK target with that of Europe we are concerned that setting a target to restrict temperature rises is not appropriate for a UK Climate Change Bill. The problem is that temperature rises, and indeed atmospheric concentration of greenhouse gases (GHGs), are entirely global phenomena and any action taken by the UK, no matter how successful it is, will have no significant effect on these measurements. We could therefore be faced with the prospect of UK businesses and people making enormous efforts to reduce their emissions of GHGs without being able to achieve the stated targets. By all means the UK Government could encourage targets for temperatures and concentrations of GHGs in the global arena but for the purpose of the Draft Climate Change Bill these would be entirely inappropriate. Targets should be expressed in terms of reductions of GHG emissions as is currently proposed in the Draft Bill.

From an engineering perspective, targets for reducing emissions are also much more meaningful as these are what can be measured and designed for. Each sector, be it power generation, transport, manufacturing or energy demand, can measure how much CO₂ will be produced from any given technology and can assess how much CO₂ will be saved by the application of an alternative technology. Given the complexity of full carbon life cycle analysis this is not always entirely straightforward, however, it is at least achievable in theory whereas the effect an individual technology will have on global temperature or concentrations of GHGs is virtually unknowable.

Thus, while we accept that the target of a 60% reduction in CO₂ emissions may have to be adjusted in the light of further scientific findings, which may have an adverse effect on public acceptance, we would still advocate the use of this target in the Draft Climate Change Bill as the only meaningful target in terms of UK legislation.

The second point we would like to comment on is the more general issue of UK energy policy. Much work has been done in this field over the last few years and we currently find ourselves in the situation of having a large number of policy documents and consultations, all of which relate to the future of the UK's energy supply. There was the Energy Review which led to the recent Energy White Paper and all the associated energy consultations. There is the Planning for a Sustainable Future consultation and of course the Draft Climate Change Bill itself. It is essential that all these various documents result in a coherent and consistent energy policy which clearly sets out the relevant responsibilities within the various Government departments.

Central to this is one of the Academy's main issues, which was raised at the hearing but which we feel is important to reiterate here, and that is the crucial role that engineering has to play in achieving the desired outcomes. It would be pointless to legally enshrine any targets in UK legislation if it had not been first shown that there are the technologies available to fulfil these targets. There is much that engineering can do to develop the technologies required but a serious engineering assessment of the feasibility of the wide range of low-carbon options is urgently required.

It is therefore important when establishing the Committee on Climate Change, as laid out in the Draft Bill, to ensure that it has access to the relevant engineering expertise. The Academy would be pleased to assist in this matter by recommending the most appropriate people for this task.

In conclusion, we would like to again express our overall support for the Draft Climate Change Bill and the work being done by your Committee in scrutinising it. We hope that this note will be of some assistance and are pleased to offer any further help as this piece of legislation moves forward.

June 2007

Memorandum by Professor Christopher Forsyth (CCB 92)

Q1 *The Bill imposes a duty on the Secretary of State to meet a series of carbon targets and budgets, in particular for the years 2020 and 2050. To what extent would the court be willing to enforce the Secretary of State's duty in the event that a carbon target or budget is not met? In particular,*

- (a) *Would the court be willing to grant a declaration stating whether the carbon target or budget had been met?*
- (b) *What relief could the court grant?*
- (c) *What relief is the court most likely to grant, if any? For instance, do you think the court might be willing to compel the Secretary of State to take specific action such as purchasing carbon credits?*

Cl. 1(1) of the Bill imposes a general duty upon the Secretary of State "to ensure that the net UK carbon account for the year 2050 is at least 60% lower than the 1990 baseline". But here there is no indication that the duty is owed to any particular person or class of individual or body or class of body. Such duties, notwithstanding their appearance in statutes, should be seen as imposing political not legal duties in accordance with the approach set out in the following passage from Wade and Forsyth, *Administrative Law* (9th ed 2004) at 589–590.

"Parliament has become fond of imposing duties of a kind which, since they are of a general and indefinite character, are perhaps to be considered as political duties rather than as legal duties which a court could enforce. Many such duties may be found in statutes concerned with social services and nationalisation. Thus the opening words of the National Health Service Act 1977 are: 'It is the Secretary of State's duty to continue the promotion in England and Wales of a comprehensive health service . . .' The Coal Industry Nationalisation Act 1946 charged the Coal Board with the duties of 'working and getting coal in Great Britain', 'making supplies of coal available', and so on. Current legislation furnishes an abundance of such examples. Only in the unlikely event of its making total default would [an authority] be at risk of legal compulsion in respect of its general duties. But as soon as duties become sufficiently specific, the courts do not shrink from enforcing them."

It may be said that that the duty in cl.1(1), while owed to no one in particular, is sufficiently specific to be enforced. However, although cl.1(1) does specify precisely the reduction in the carbon account the Secretary of State is to ensure, it is plain that this reduction is a target. It is called that in the marginal note, in the heading and in the preamble. A target is something that one aims to achieve . . . but no one can guarantee a bull's eye. Inherent in the idea of a target is an aspiration not a guarantee of achievement. At most then this clause can be interpreted as requiring the Secretary of State to use his or her best endeavours to achieve the target. This has the consequence that a failure to achieve the target does not necessarily imply a breach of the duty. This then is a somewhat inchoate duty to ask a court to enforce.

The duty under cl.1(1) can be usefully compared with the precision of the Secretary of State's undoubted enforceable duty in terms of the Company and Business Names Act 1999, section 1 (I pick an example at random) of which provides that "It is the duty of the Secretary of State to secure that the expression "chamber of commerce" and its Welsh equivalent ("siambr fasnach") is specified- (a) in regulations under section 29(1)(a) of the Companies Act 1985, and (b) in regulations under section 3(1)(a) of the Business Names Act 1985, as an expression for the registration of which as or as part of a company's name, or for the use of which as or as part of a business name, the approval of the Secretary of State is required." Here it is plain what the Secretary of State has to do. There is no question of him aiming to achieve the regulation in question; it is crystal clear what he has to do and he is legally obliged to do it.

Where a court finds that a particular authority is in breach of a statutory duty, the usual remedy is to issue a mandatory order (*mandamus*) or in appropriate cases award damages. Such a mandatory order would order the authority (or minister) to do a particular thing on pain of being found in contempt of court. In the case of the Company and Business Names Act 1999, section 1, for instance, a recalcitrant Secretary of State would be ordered to include the expression "chamber of commerce" in the appropriate regulations.

But the court cannot order the Secretary of State simply to "ensure" that a target is met (especially if at the time the order is sought it was impossible to meet the target). The court would obviously need to be more specific in what it ordered. But the English courts lack the power (and the inclination) to enter into the detail of government. It is unthinkable that, in the absence of specific legislation granting such powers, that the court would order the Minister, for instance, to close coal fired power stations or make similar difficult decisions to secure the target. The Committee's questions, in fact, ask whether the court might compel the Secretary of State to purchase carbon credits in order to meet the target. But such a step would require Parliament to vote funds for such purchases and, perhaps, even raise taxes. It is unthinkable that the courts would take such a step in the absence of specific statutory authority.

Presumably because of these difficulties with the making of a mandatory order I am only specifically asked about the making of a declaration. The essence of a declaratory judgment is that it states the rights or legal position of the parties as they stand, without changing them in any way. No individual is ordered to do anything and it is not a contempt of court to fail to act in accordance with the declaration (although that may lead to other remedies). The declaration sought would presumably be the simple one that the Secretary of State was in breach of his duty under cl. 1(1).

The power to make a declaration in the modern law is very wide but the declaration, like other public law remedies, is a discretionary remedy. The court may withhold it if it considers it inappropriate or non-justiciable. The result is that there are no clear rules on the limits of the power to grant a declaration. If the question is doubtful the court will simply not issue the remedy in its discretion.

Save in a case of egregious unlawfulness by the Secretary of State I consider that a court is unlikely to grant a declaration stating whether the Secretary of State had complied with his duty to ensure that the target is met or not. (Note this is a different question to whether it has, in fact, been met or not.) This is because the duty is general and inchoate in the ways described above.

Before leaving this question of the cl. 1(1) target I make two additional points.

First of all, even though the duty is owed to no particular person, I do not consider that the rules of standing (which require a claimant seeking a declaration to have "sufficient interest") would be a significant obstacle to a challenge. The modern rules of standing are very liberal and were the court minded to make the declaration sought it would find that a representative organisation (Friends of the Earth or similar) had standing. The court will not allow a lack of a claimant with traditional standing to stand in the way of the vindication of the rule of law.

Secondly, there is a touch of unreality about this whole issue. It is unlikely that the issue will arise in the way that is envisaged. The Committee will not have overlooked the fact that the Secretary of State will have power to amend the percentage reduction specified in cl. 1(1) (cl. 1(3) & (4)). And it seems to me to be much likelier that the issue will be controversial when the target has been met but only after the Secretary of State has changed has amended the percentage.

The Secretary of State's decision under cl. 1(3) to amend the percentage will be subject to judicial review and one may anticipate that the court would have close regard to the restrictions on the exercise of that power under cl.1(4) (developments in scientific knowledge or international law or policy justifying a change of percentage). If the court found that the cl. 1(3) had been improperly exercised it would quash it through

the issue of a quashing order (*certiorari*). But, unless Sir Humphrey has lost his cunning, we may anticipate that a development in scientific knowledge or international law or policy will have been found to justify the change. And there will be no evidence that a base desire to meet the target at all costs played any part at all in amending the target.

Q2 To what extent is the rationale for the Bill undermined if the Secretary of State's legal duties are not enforceable?

Given that there are already legally unenforceable duties to be found in the statute book it is not self-evidently the case that such a duty in cl. 1(1) undermines the rationale of the Bill. If the rationale for the Bill is taken to be that set out in the Preamble it may be noted that the Preamble speaks of setting "a target for the year 2050 for the reduction of carbon dioxide emissions" but does not specify that it should be legally binding.

The setting of a target in an Act of Parliament, even if not legally binding, commits Parliament to that target and provides a focus for the accountability of the Secretary of State and may be considered justified on that ground. On the other hand, the fact that the target is not binding may be considered to undermine the sincerity of the commitment to carbon emission reduction. This question it seems to me is a matter for the judgment of others.

Q3 Whenever a new carbon budget is set the Secretary of State must report on the proposals and policies that will be used to achieve the emission goals. Would it be helpful to extend this obligation to require a report (or action plan) upon the failure to meet a carbon budget?

- (a) *Would it be practical to require a similar report (or action plan) if the annual figures laid before Parliament suggested that the Secretary of State was not on course to meet the carbon budget?*
- (b) *What impact would such a report (or action plan) have on judicial review proceedings?*
- (c) *Could the reporting functions of the Secretary of State be usefully expanded to provide more information about European and international developments more generally?*

As I understand the draft Bill, the Committee on Climate Change will report to Parliament each year on the progress towards meeting the carbon budgets and the 2050 target (cl. 21). The Secretary of State then has to respond to Parliament to the report on progress (cl. 11(1)). Thus the bones of an "action plan" procedure are already in place. The statute would require to specify that when a carbon budget has not been met or when the Committee report that insufficient progress towards meeting a carbon budget has been made, then Secretary of State's response should take the form of a plan setting out how the process can be got back on track. This does raise some questions about the nature of the Committee. Is it there simply to advise the Secretary of State? Is it there as some sort of independent scrutineer of the Secretary of State's progress towards the target (perhaps as some form of alternative to judicial accountability)?

I am then specifically asked to what impact such an action plan procedure would have on an application for judicial review (presumably of the Secretary of State's duty under cl. 1(1)). A history of failed action plans might go towards establishing the egregious illegality that might persuade a court to intervene. But on balance I do not think that this would have a significant impact on that question. In particular I do not consider that the action plan procedure would be the kind of alternative remedy that would exclude the possibility of judicial review.

On the final point I do not think that an obligation to provide information on European and international developments should be incorporated into this reporting procedure. If the reporting procedure is to be used as the prime mechanism to ensure that the Secretary of State is on track to meet his target (as suggested above), then this procedure should not be used for another purpose however worthy.

Q4 Clauses 9 and 10 of the Bill require the official reported figures to be used when determining whether the carbon targets and budgets have been met. To what extent does this prevent the court from looking beyond the official figures to consider weaknesses or holes in the reporting process?

I do not consider that cl. 9(8) and cl. 10(6) would prevent judicial scrutiny of the process whereby the figures laid before Parliament. These provisions simply ensure that the official figures are used in determining whether the target or the budget has been met. It does not preclude scrutiny of the process whereby those figures are arrived at.

Q5 The Secretary of State is given a range of powers to introduce trading schemes and, in certain circumstances, to amend primary or secondary legislation. Should the Committee be concerned about any of the enabling powers in the Bill?

Q6 The Bill omits a number of enabling powers that could have been given to the Secretary of State for future use. These include the power to introduce non-carbon dioxide emissions, the power to change the 1990 baseline, and the power to introduce emissions from international shipping and aviation in the absence of a change to international reporting practice. Should any of these powers have been included?

These questions are essentially policy questions beyond my remit. However, if it is accepted that non-carbon dioxide emissions (including, for instance, methane) contribute to climate change it would be logical to include a power to take such emissions into account in the carbon budget process. It may be noted that trading schemes set up under cls. 28 & 29 are designed to reduce “greenhouse gas emissions”, ie including non carbon dioxide emissions.

Q7 To what extent could the Secretary of State’s legal duty to meet emission reductions (or the policy instruments that are used to achieve the reductions) conflict with existing legal duties or private rights?

(a) If there was a conflict how would it be resolved?

I have not been able in the time available to provide an answer to this question. Clearly in setting up a trading scheme, the chief policy instrument, there will be winners and losers and fortunes will be made and lost as a result with emitters of greenhouse gasses being forced to reduce their emissions or purchase carbon credits. Some impact on existing legal rights in these circumstances is inevitable. On the whole I expect that such impact will be authorised by the power to set up the scheme under cl. 28.

Q8 Is the Committee on Climate Change sufficiently independent?

The Secretary of State may give the Committee on Climate Change both general and specific directions in the exercise of its functions (cl. 26(1)) and the Committee “must comply with any [such] directions” (cl. 26(4)). In addition the members of the Committee (including “the Chair” are appointed by the Secretary of State (Schedule One, cl.1(1)). The Secretary of State may remove a member from the Committee whom he or she considered is “unable or unfit” to carry out their duties.

These provisions show that the Committee is not intended to be independent of the Secretary of State but to work co-operatively with the Secretary to achieve his or her legal obligations and policy objectives. The chief mechanism for this is advice given to the Secretary particularly on the level of the carbon budget for the period (cl. 20(1)).

The Committee does, of course, report to Parliament not to the Secretary of State (cl. 21). And in its reports the Committee will lay before Parliament “its views on the progress made towards meeting the [relevant] carbon budgets”. These views are likely to be reasoned and objective (given the intended expertise of the Committee) but they are unlikely to be in significant conflict with those of the Secretary of State.

Q9 How best do you think the legal duties of the devolved administrations should be combined with those of the Secretary of State?

This is a difficult and complicated question to which I can offer little answer at present. I simply remark that the Bill at present adopts a single UK wide approach with all the powers and duties vested in a single Secretary of State by an Act that applies equally to the whole UK. This is inherent in the scheme of setting a target for the reduction of carbon dioxide emissions for the whole UK. This will I anticipate be the simplest and most effective approach to this issue. Dividing authority between the UK and the devolved administrations will create complexity and dispute without any improvement in effectiveness that I can presently discern.

Q10 From a legal perspective, how well does the draft Bill sit alongside the European and international schemes for addressing climate change?

I am not sufficiently familiar with the European and international schemes (and have not been able to familiarise myself with them in the time available) to be able to give a meaningful answer to this question.

May 2007

Supplementary memorandum submitted by Professor Christopher Forsyth (CCB 93)

STATUTORY POWERS AND DUTIES AND THE PRIME MINISTER

One traditional irony of the British Constitution has been the absence of legal powers (and still less legal duties) vested in the Prime Minister. There was a curious convention of treating the Prime Minister as unmentionable in the statute book. The usual practice is for Parliament to confer powers and duties upon “the Secretary of State” either in general or by reference to the Secretary of State’s department but not upon the Prime Minister. So the most powerful of all ministers has in law less power than his colleagues.²¹ There is no legal reason why this should be so and the convention seems to be breaking down. The Prime Minister does now appear occasionally in statute²² but his powers remain sparse in comparison with other Ministers.

Consideration of what I believe is the most recent example, the Constitutional Reform Act 2005, may be instructive. The phrase “Prime Minister” appears 21 times in this statute, mostly in relatively trivial contexts. But on other occasions the use is significant. For instance, section 2(1) provides that “A person may not be recommended for appointment as Lord Chancellor unless he appears to the Prime Minister to be qualified by experience.” But note that this provision does not impose a specific duty upon the Prime Minister. It is thus a far cry from the imposition upon the Prime Minister of a duty to ensure an emissions reduction target is achieved (or even the imposition of a duty to report on the progress towards the target). Moreover, it is difficult to suppose that a court would ever intervene and overturn the appointment of a Lord Chancellor on the ground that the Prime Minister could not have believed that the person in question was “qualified by experience”.²³

While there is no legal impediment to a scheme such as that proposed I expect that the Committee will encounter opposition to it on the grounds of constitutional principle. It will be said that such duties imposed upon the Prime Minister are inconsistent with his (and the Cabinet’s) role of co-ordinating policy across different departments (which might take different views of particular matters). At the same time it will be said that granting such duties (as well as the necessary powers to fulfil them) specifically to the Prime Minister will be a further step in the transmutation of the Prime Minister into a President.

A proposal to impose specific duties upon the Prime Minister would be relatively novel. But it would not be entirely without precedent. I am aware of one Act which imposes statutory duties upon the Prime Minister. This is the Regulation of Investigatory Powers Act 2000 which imposes legal duties upon the Prime Minister to appoint an Interception of Communications Commissioner and an Intelligence Service Commissioner and to lay appropriate reports before Parliament. Because national security touches these duties they are very important. But these duties are concerned with the mechanics of the Act, not with policy issues. They do not touch the kind of profound policy commitment envisaged in the Climate Change Bill.

It is clearly a matter for the judgment of the Committee (and others) whether the far-reaching (and cross departmental) concerns over climate change that lie behind the draft Bill are of such weight as to override the concerns of constitutional principle, set out above. I end by remarking that, if the Committee is still concerned over the enforceability in the courts of these statutory duties, it may wish to consider that, while formally the Prime Minister would be as subject to coercive remedies as any other Minister, a particular reluctance to coerce the Prime Minister may be anticipated.

June 2007

Supplementary memorandum by Mr William Wilson (CCB 94)

1. The Joint Committee has asked lawyers who gave evidence to it last week to comment on whether the long-term target based duty in clauses 1(1) and 2(1)(b) is novel from a constitutional perspective, and to consider whether there are other examples from the statute book which may be close or otherwise analogous to the target focused goals in the Bill.

2. The target based duties in the Draft Climate Change Bill are certainly very wide ranging and will affect many sectors of the economy, and in that sense they are new; but it is certainly not unknown for binding targets to be agreed, particularly at the European level, and then applied by a variety of different means in national environmental laws.

²¹ His power derives from convention and the prerogative; and from his position at the heart of government.

²² These are the statutes of which I am aware in which the Prime Minister makes an appearance: Chequers Estate Act 1917, Chevening Estate Act 1959; Ministerial and Pensions and Salaries Act 1991, Regulation of Investigatory Powers Act 2000, Political Parties, Elections and Referendums Act 2000 and the Constitutional Reform Act 2005. (List drawn from Bradley and Ewing, *Constitutional and Administrative Law* (14th ed, 2007) at 270.) The Secretary of State for the Environment, on the other hand, is given powers under some 65 different Acts (see Wade and Forsyth, *Administrative Law* (9th ed, 2004) at 47).

²³ I do not overlook section 2(2) lists the factors which the Prime Minister “may” take in to account in deciding this question.

3. For example, the Water Framework Directive 2000/60/EC (Article 4) requires that inland and coastal waters in the European Union achieve “good status” by 2015. That obligation is reflected in a variety of implementing regulations.

4. The Fourth Air Quality Daughter Directive 2004/107/EC, implemented by the Air Quality Standards Regulations 2007 (S.I. 2007/64), amongst other things, sets target values for concentrations of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air.

5. Section 80 of the Environment Act 1995, gives the Secretary of State powers to bring forward a National Air Quality Strategy, which can include policies for implementing EU or international obligations, and which allows him to set (s.80(5)) standards, objectives and measures.

6. The EC Directive on Packaging and Packaging Waste, Directive 94/62/EC (as amended), implemented in the Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (S.I. 2007/871) and the Packaging (Essential Requirements) Regulations 2003 (S.I. 2003/1941, as amended) contain, amongst other things, targets for reducing the amounts of heavy metals in packaging.

7. The Landfill Directive 1999/31/EC contains legally binding targets for reductions in the landfill of biodegradable municipal waste, which are met, amongst other things, by means of the Landfill Allowances Trading Scheme and other measures.

8. There are a number of other examples on these lines. I am not qualified to comment on U.S. law, but the Committee will be aware that in California, the Global Warming Solutions Act of 2006 (details from the Office of the Governor, <http://gov.ca.gov/index.php?/press-release/4111>) sets targets for greenhouse gas reductions to 1990 levels by 2020.

May 2007

Supplementary memorandum by Dr Terry Barker (CCB 95)

COMPARING THE RISKS OF CLIMATE CHANGE AND THOSE OF MITIGATION POLICIES

INTRODUCTION

This note is in response to a request from Mark Lazarowitz made during the Session of the Joint Committee on 13 June, at which Dr Terry Barker represented The Royal Society. Mr Lazarowitz asked for a written note on some ideas as to how the Bill could be amended to take on board the uncertainties in the economic costs associated with mitigation targets.

The Draft Bill, and the Explanatory Notes, appear to accept an underlying assumption that policies to mitigate climate change are certain to be costly. However, the evidence from business schemes to reduce emissions²⁴ and from macro-economic modelling results reported by the IPCC, suggests that mitigation need not be costly; to the contrary, there appear to be opportunities for benefits to individual businesses and the overall economy, depending on the design of policies.

“BOTTOM-UP” NO-REGRETS OPTIONS

Some beneficial options are the so-called no-regrets options, identified in the IPCC’s Reports and amounting to a potential of some 5–7 GtCO₂ globally by 2030. These come from “bottom up” studies synthesised in the 2007 Report (see Figure SPM5A, p. 13, reproduced below)

²⁵ The Climate Group, 2005: Carbon down, profits up. Beacon Press, 2nd ed., 38 pp.

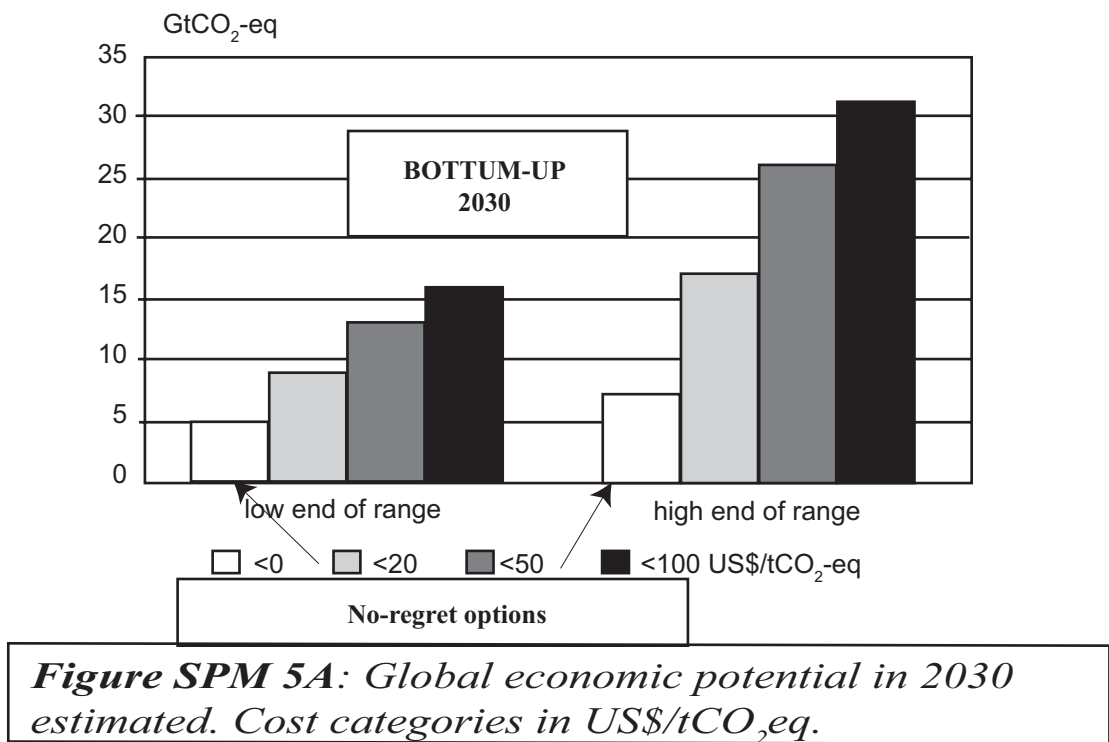


Figure SPM 5A: Global economic potential in 2030 estimated. Cost categories in US\$/tCO₂,eq.

The no-regrets options are identified in detailed energy-engineering studies (Chapters 4 to 10, WG3 Report) and are concentrated in the buildings sector. The studies imply that there are many options for reducing emissions from buildings that would pay for themselves, and provide a financial return, eg through more efficient heating and cooling equipment, or better insulation or design.

“TOP-DOWN” MACROECONOMIC BENEFITS

The opportunities for macroeconomic benefits are also assessed in the 2007 IPCC Report: “Some models give positive GDP gains (or negative GDP losses), because they assume that baselines are economically not optimal and that climate change mitigation policies steer economies towards reducing imperfections.” (WG3 SPM, Page 11, Line 30–32). The opportunities come from the incentives provided by policies, via carbon prices, to accelerate technological change or use revenues from carbon taxes or auctioned permits to reduce other taxes and improve economic performance. The benefits are amplified by international co-operation.

Figure 3.25a, reproduced below, shows the GDP costs for 2030 for different stabilization ranges, with the outliers of 3% global costs by 2030, reported in the press as headline costs. The figure shows one study with GDP gains for stringent targets. The evidence from long-term models is complemented by that from shorter-term studies, covered in the IPCC 2001 and 2007 Reports. In fact, the 2007 Report assessed 12 modelling studies altogether that show GDP gains at a global or national level under different assumptions in the shorter and longer terms.

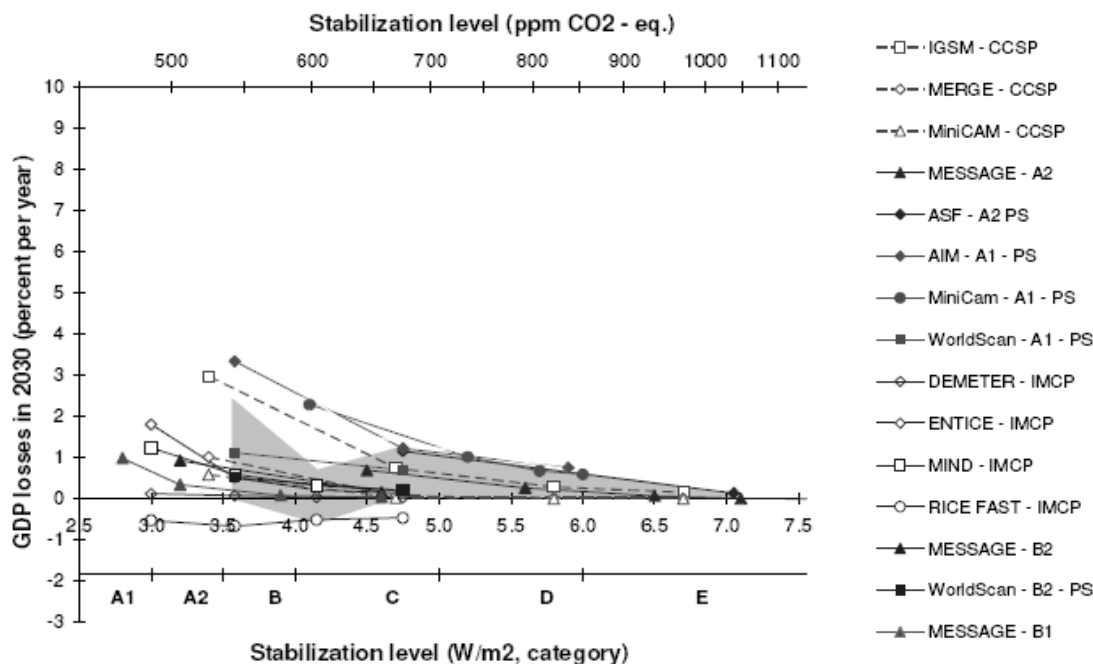


Figure 3.25a Global GDP costs of mitigation from modelling studies.

Source: IPCC WG3 Report, 2007.

In addition, it is important to note that many models assume that the economy is operating at full efficiency, with full utilization of resources (eg no unemployment), with a social planner having full information and perfect foresight. There is no evidence for the validity of such assumptions. In such models, any policies that reduce GHG emissions will also reduce welfare and GDP by assumption. There is no basis from empirical studies for such a result.

IMPLICATIONS FOR THE DRAFT CLIMATE CHANGE BILL

Policies to mitigate climate change have to balance risks of climate change with the risks of mitigation. These risks are of a fundamentally different character: the climate risks are long term and associated with understanding physical systems. Moreover they include the risks of run-away climate change, eg “Rapid sea level rise on century time scales cannot be excluded” (IPCC 2007, WG1 SPM p. 13). These risks have to be balanced with those of mitigation, in particular the risks of economic costs of rapid action on mitigation. The IPCC and the underlying literature clearly include opportunities for net economic benefits from action, although there are insufficient studies and evidence as to how substantial are the benefits.

The Draft Climate Bill has provision for changing the 2050 target if it appears that there have been significant development:

- (a) in scientific knowledge about climate change
- (b) in international law or policy.

There is a case for extending the developments to include

- (c) in the economic assessment of expected costs and benefits.

There should also be some suggestions as to what these developments might be: eg a future IPCC Report which indicates significant reductions in costs for stringent mitigation.

July 2007

Joint supplementary memorandum by Energywatch and National Consumer Council (CCB 96)

INTRODUCTION

On Tuesday 19 June 2007, Allan Asher, Chief Executive of energywatch and Ed Mayo, Chief Executive of the National Consumer Council (NCC) provided oral evidence to the Joint Committee on the draft Climate Change Bill. There was not enough time to cover all the questions in the meeting, so energywatch and NCC agreed to submit a joint written response.

CONSUMER AWARENESS

Question 1: *How much real awareness is there among consumers of the draft Bill and what it is seeking to do? In the absence of understanding the impact on society, will the 60% target, for example, have any real meaning for them, and is a percentage reduction the best way to frame the target?*

- Energywatch and NCC suspect that only a small minority of consumers will be aware of the draft Climate Change Bill. However, a much larger number are aware of the issue of climate change and the need for consumers to take action. The problem is that many consumers do not see how they can directly contribute to climate change abatement measures.
- The 60% target is probably too abstract for most consumers. It will be important to assess how the target could be conveyed in a more meaningful way. We have found that most consumers will respond to signals that have an impact on their daily lives and many would like to think they can make a difference. The challenge is to align wider consumer concern for environmental issues with signals that mean something in terms of how consumers lead their daily lives.
- Key signals include “money”, “limiting energy for environmental reasons” and “health”. With respect to health, there is considerable evidence that many consumers will change behaviour if they understand the health implications of environmental measures. There are comparison parallels with lead in petrol, smoking ban, etc. We believe much more could be done to spell out the health implications of climate change.
- This all underlines the need for leadership from civil society, government and business
 - NCC and energywatch have both found considerable customer confusion surrounding green energy tariffs and that consumers could be easily misled by suppliers’ claims. NCC research found that this confusion has contributed to minimal take-up of green energy tariffs by domestic consumers, with less than one per cent of households signed up to a green tariff. However, a recent poll suggests there is considerable interest with 64 per cent of respondents saying they would consider switching to a green energy tariff. There is clearly unfulfilled potential. Energywatch has produced information to help consumers through the maze of green tariffs. Both energywatch and NCC has called for Ofgem to up-date their guidelines on green tariffs and for a code and independent verification to be established to increase consumer confidence in green tariffs.
 - A new report entitled *What Assures Consumers on Climate Change* shows how consumers mistrust business. The report on the UK and USA from Consumers International and Accountability found that 40 % of consumers mistrust what they hear about global warming from business while a further 50 % do not know whether to believe corporate claims or not.
- Energywatch and NCC consider that the current energy market is not sending consumers the right messages with respect to allowing consumers to realise their potential to contribute to climate change abatement:
 - Consumers are not engaged with their energy consumption due to antiquated meters, inadequate information and advice, inaccurate bills and lack of information to enable comparisons with past consumption.
 - Business models encourage energy suppliers to sell more energy, rather than less.
 - The dominant business model means that suppliers are focused on selling energy alone, rather than the energy services (heat, light, power etc) consumers require.
 - Tariff structures incentivise increased consumption since consumers are charged less per unit, the more energy they use.
 - Tariff structures lead to low income households paying more for their energy (due to payment method and lower average levels of consumption), thereby reinforcing wider inequalities.
- Energywatch and NCC support the Government’s vision to bring about a transformation of the energy market whereby “energy efficiency, low and zero carbon technologies and behavioural change are increasingly driven by consumers themselves, with consumer demand creating a robust, self-sustaining market for low carbon measures and services.” (CERT consultation)
- Achieving this vision requires:
 - Smart meters in every home. The government has committed to this happening within 10 years but is likely to delay the early implementation by suggesting that, from next year visual displays could be supplied with old style meters. This does not provide the two way communication between supplier and consumer—which will eliminate the third of the bills

that are estimated and will not allow the consumer to get an accurate indication of the total energy they have used. At the very least we want to see smart meters being installed in new build and replacement meters from next year. Recent energywatch research, “*Costs and benefits associated with smart meters*”, found that smart meters will bring about considerable cost savings for both consumers and fuel suppliers. These benefits mean that consumers will recuperate the small additional costs associated with smart meters within 3 years of their installation.

- Accurate bills so that consumers know precisely how much they have consumed. This is also essential for ensuring that the Energy White Paper requirement to provide historical data on consumers’ bills is meaningful to consumers.
- Suppliers incentivised to sell less energy through providing energy and energy services (insulation, heating, micro-generation, etc).
- Tariff structures that incentivise reduced consumption, eg through rising blocks in which the first block is relatively low cost and subsequent blocks are progressively higher.
- Rising block tariffs are likely to reward the lower (on average) consumption of low income consumers.
- Regulatory action to eliminate the prepayment surcharge (which has risen in recent years)—a process that will be encouraged through universal smart meters.
- Provision of reliable information on green tariffs that consumers can trust and be sure provide true additionality.
- Incentives on distribution network operators to connect decentralised generation and become active managers of efficient local networks.
- Incentives to encourage local energy networks that distribute both power and heat, alongside micro-generation from homes, offices and industry.
- Penalise inefficient, centralised power stations to reflect the wastage from lost energy through transmission and lost heat through production of energy.

BALANCING CURRENT AND FUTURE CONSUMER INTERESTS

Question 2: *Both your organisations represent the interests of consumers. Does this include the interests of future consumers, and—if so—how do you balance their interests with those of consumers now?*

- Energywatch and NCC are committed to representing the interests of both current and future consumers.
- Energywatch defines sustainable energy as “the provision of energy services that meet current needs without compromising the needs of future generations”. Central to this definition is the concept of equity: both in respect to equity amongst current consumers and between current and future consumers. This is why it is important to address both affordability and long term sustainability.
- Achieving sustainable energy markets requires balancing economic, social and environmental objectives. In proposing sustainable energy solutions, we always seek to assess the distributional impact of our proposals. We seek solutions that maximise the combined impact on achieving all three objectives.
- Sustainable solutions cannot always be found within the energy market itself. The Government has to accept responsibilities for ensuring affordable energy, including through tax measures (rather than by expecting costs to be met by energy consumers alone).

ACHIEVING CARBON REDUCTIONS FROM THE DOMESTIC SECTOR

Question 3: *The domestic sector—both in terms of housing and its contribution to transport—is a particularly difficult one within which to achieve carbon reductions. What are your views on the scale of carbon reductions which are possible?*

- There is considerable potential to achieve much greater carbon savings from the domestic sector. However, this will require a transformation of the energy market, from energy supplier to energy service companies. We have described the package of measures required to achieve this: smart meters, accurate and informative bills, integrated advice, accreditation of green tariffs, rewarding low consumption and penalising profligate consumption, energy service business models, decentralised electricity, etc.

-
- However, there are some common key messages the Government must heed in implementing this package:
 - Government and regulatory intervention is essential, eg mandating smart meters and social tariffs, setting carbon reduction targets on suppliers.
 - Monitoring progress on achieving targets and taking the necessary steps if there is evidence that it is straying off target (the Government’s likely failure to hit its fuel poverty targets is very salient in this respect).
 - It should recognise that consumers are not a homogenous group. Different messages are required for different groups, eg it should send messages that profligate energy consumption (mainly an issue for higher income groups) will be penalised while also making it clear that consumers should not ration essential consumption (mainly an issue for lower income groups).
 - Embrace the behaviour change agenda in a coherent and integrated way. Currently, the government’s approach to behaviour change is very fragmented and *ad-hoc*.
 - Government should use social marketing techniques to bring about the major behavioural change that is required to meet climate change targets.

DEVELOPMENT OF SECTORAL TARGETS

Question 4: *One of the outcomes from the draft Bill could well be the development of sectoral targets for carbon savings. What impact do you think this might have on consumers, could they be set for the domestic energy market and how specific could these targets be?*

- Energywatch and NCC support the development of sectoral targets for energy saving and considers this is feasible for the domestic energy market. We envisage an energy market in which fuel suppliers are set carbon reduction targets, as described earlier. However, we consider that targets need to be set for all sectors; otherwise consumers of sectors that have targets are disadvantaged with respect to consumers of sectors without targets.
- Energywatch and NCC therefore support setting specific targets for sectors, otherwise companies and businesses will present excuses as why they should not reduce their emissions. Further, sectors should report on progress towards meeting targets. We specifically recommend setting targets for the “commercial and public services sector” and for including aviation and shipping within the target-setting process.
- It important that detailed research is carried out into the carbon “footprints” of different household types and income groups. This will help inform any mitigation activities required, for example relating to policies with an adverse impact on low income groups.
- There are merits in giving more responsibility and resources to local authorities and community-based initiatives to tackle climate change (which implies setting targets for such bodies). These bodies control many of the levers for achieving carbon reductions and can use local knowledge to ensure initiatives are tailored to local circumstances.
- The Bill should be more precise about the proportion of statutory targets that will be met through emissions reductions achieved overseas. We consider there should be a clear limit on the amount of traded emissions reductions that count towards the target.

ROLE OF THE CLIMATE CHANGE COMMITTEE (CCC)

Question 5: *What kind of role do you see the Climate Change Committee as having with regard to forecasting the scope for savings within specific sectors and recommending targets?*

- There should be greater clarity over the interface between the CCC and the Office of Climate Change. We agree with the list of Committee functions set out in the Bill but would like to see some responsibilities and resources devolved to local authorities, as set out earlier.
- The CCC should have real teeth, with respect to the Government’s compliance with targets and carbon budgets. We draw a parallel with the Government’s Fuel Poverty Advisory Group (FPAG). The Government has ignored a number of FPAG’s recommendations with respect to bringing it back on track towards meeting the Government’s statutory fuel poverty targets.
- In addition to the factors listed in 5.5.5 of the consultation, we would like to see the interests of consumers strengthened. Many of the policies and instruments will affect domestic consumers directly. It is therefore very important that these effects are adequately monitored. Further, if consumers are to become drivers of a transformed, sustainable energy market, as set out in the Government’s vision for CERT and the supplier obligation, it is essential that consumers are represented on the Committee.

- Energywatch and NCC would like to see the Committee of Climate Change place more emphasis on the importance of social circumstances. This would require the Committee’s terms of reference to include consideration of the implications of proposals on domestic consumers, particularly low income and vulnerable consumers. The Committee should also address the impact of proposals on the price of essential goods and services, including food (ie not just fuel). It is important that the Committee recognises the distributional impact of abatement policies and makes proposals for addressing these. In many cases this might require Government action, funded by taxation, rather than expecting energy consumers to bear all the costs.

PUBLIC ENGAGEMENT

Question 6: *The draft Bill is concerned only with a framework of target setting and monitoring. If it is to work, there needs to be widespread buy-in not only from business and industry, but also from the public. Do you think there should be mechanisms for engaging with these stakeholders within the structures proposed in the Bill?*

- It is important that mechanisms are established for engaging the public within the structures proposed. Social marketing techniques should be used as part of this public engagement.
- It is important that the Committee is accountable for its decisions. It is also important that every effort is made to ensure the public is made aware of the reasons for Committee decisions, eg publication of minutes of meetings.
- Consumer representation on the Committee and devolution of responsibilities to local government should help strengthen wider public engagement in the Committee’s work.

GOVERNMENT RESPONSIBILITIES

Question 7: *Is the Government refusing to accept that it has to manage and constrain demand—whether this is through regulation, fiscal penalties, or trading? Should this Bill include any such constraint or is it too early?*

- It is essential that the Government commits itself to taking whatever action is required for meeting the Committee’s recommendations, whether this is through regulation, fiscal measures or trading. We have already stated a number of policies where we consider the Government should commit itself to action, eg smart meters, social tariffs.
- We welcome the vision set out in the Government’s consultations on CERT and the supplier obligation. However, we consider achieving the vision will require further Government intervention, beyond those outlined in the documents, to secure the transformation of the energy market proposed, for example on the issues of tariff reform and overhauling the “use of system”, distribution and transmission charges.

THE ROLE OF TECHNOLOGICAL SOLUTIONS

Question 8: *There seems to be increasing recognition that significant carbon reductions in the domestic sector can only be achieved through major behavioural change. Do you accept that, if challenging targets are set for the next 15 years, we cannot necessarily wait for technological solutions?*

- Energywatch and NCC consider technological solutions, such as carbon capture, are not a substitute for changing consumer behaviour and other interventions. However, we consider one technological solution—smart meters—can make sustainable energy solutions much more viable. It is for this reason that we want the Government to commit itself to the 10 year timescale it set out in the Energy White Paper. We consider this will require a Government mandate to ensure the deadline is met. All of the major domestic energy suppliers and, to our understanding most of the minor suppliers, agree on the importance of a Government mandate.
- Smart meters are essential for facilitating consumer engagement with consumption, protecting vulnerable and low income consumers, reducing peak demand, making rising block tariffs feasible and making micro-generation more viable.
- The NCC has explored the opportunities for micro-generation in the home to catalyse behaviour change in our research *Seeing the Light* with the Sustainable Development Commission. Whereas climate change can appear distant and hard to tackle, having more of a “green” home—through the use of micro-generation—helps people to feel part of the solution and encourages them to make other lifestyle changes. There are other areas in which lifestyle change is also important, including transport, waste and food.

- The NCC also believes that social marketing, which is a professional and proven approach for behavioural programmes, is essential in achieving effective and major change in these areas. The Sustainable Consumption Roundtable, that NCC ran with the Sustainable Development Commission set out a comprehensive set of recommendations on this in its 2006 report *I will if you will*.

NEW EMISSION TRADING SCHEMES

Question 9: *The draft Bill places considerable emphasis on powers to introduce new emissions trading schemes. Do you think there is any potential for using these provisions to introduce schemes which would directly involve the consumer?*

- Energywatch and NCC appreciate the need for enabling powers to adjust policy mechanisms quickly to changing circumstances. However, it is important these are subject to full public scrutiny, thorough consumer research and robust impact assessment. There should be limits on the extent to which these powers can be exercised. For example, initiatives that are likely to have profound implications for domestic consumers, such as personal or household carbon allowances should be subject to full Parliamentary scrutiny.

REGULATION VERSUS EMISSIONS TRADING

Question 10: *Many witnesses have emphasised the importance of regulation as opposed to emissions trading as a means of achieving major carbon savings. How much scope do you think there is to achieve further carbon savings through regulation—and perhaps fiscal incentives—as opposed to emissions trading scheme?*

- The current European Union Emissions Trading Scheme (ETS) is not delivering the carbon savings anticipated. We accept that this may in part be due to “teething problems” in setting up the scheme. As the *Financial Times* pointed out on 18 June 2007, generating companies have made windfall profits from the scheme but electricity consumers have borne the costs in the form of increased bills. It has also exacerbated the wider trend of rising fuel prices witnessed between 2003 and 2006 and as such contributed to the substantial rise in fuel poverty that occurred over this period (which saw the numbers in fuel poverty rise by at least two fold).
- There are a lot of issues that still need addressing within the EU ETS, for example the national allocation of carbon permits and the distorted, inadequate market mechanisms it has set up. Energywatch and NCC hope these problems will be addressed in subsequent phases of the scheme. However, until they are, effective regulation and fiscal incentives will remain essential for securing carbon reductions. Regulation and fiscal incentives will continue to be required even after an effective ETS is established.
- Government interventions, such as Energy Efficiency Commitment (EEC)—now Carbon Emissions Reduction Target (CERT)—have proved to be very cost effective mechanisms for carbon reduction. Consumers are increasingly accepting the need for carbon reduction. However, the cost of these interventions should be more transparent. Consumers should be informed of the notional costs of EEC and the Renewables Obligation on consumers’ bills. This should also help encourage consumers to take advantage of company schemes set up under the EEC mechanism.
- The problem of consumers losing out from the current operation of the EU ETS and uneven interpretation of its requirements by different countries is repeated by the development of liberalised energy markets in Europe. The partial and uneven development of liberalised European energy markets is causing considerable detriment to consumers.
- The EU Green Paper on competitive energy markets fails to recognise the active role consumers can play in driving competition. It does not address the potential for consumers to become actively engaged in energy saving and to drive the development of energy service business models.
- Energywatch and NCC therefore advocate effective consumer representation in European energy markets, adequate regulatory control and proper consumer protection. Consumer rights are a pre-condition of successful energy markets and as such should be recognised by the Green Paper.

SOCIAL IMPLICATIONS

Question 11: *Should the Climate Change Committee focus more exclusively on the scope for carbon reductions in making its recommendations—leaving the Government to use social policy measures to address issues such as fuel poverty? If not, how should it strike a balance between these conflicting objectives?*

- Energywatch and NCC are strongly opposed to the notion that carbon reduction policies need not take social implications into account. We would be surprised if carbon policies do not take economic factors into account. We consider that a sustainable approach is one that takes all three factors—social, environmental and economic—into account.

- It essential that all proposed policies are subject to a full analysis of the distributional impact of policies and that responsibilities for bearing the costs of policies are addressed, eg consumers versus taxpayers.
- Carbon reduction and social policy measures are not necessarily always in conflict. Smart meters and rising block tariffs, for example, can meet both environmental and social objectives. In some cases, however, it may be more efficient to set up parallel policy mechanisms. For example, it may be necessary to set a separate social obligation on suppliers to the carbon reduction targets within the supplier obligation proposals.
- There is a dearth of detailed information on the “carbon footprint” of different household types and income groups. Until we have this information, it is difficult to draw conclusions on the likely distributional impact of carbon reduction policy measures.
- Carbon budgets should be set by taking into account a number of factors, especially social circumstances and in particular the likely impact of the decision on domestic consumers—especially low-income and vulnerable consumers—and the price of essential goods and services—such as fuel and food.

COST OF LOW CARBON ENERGY

Question 12: *Do you accept that all forms of low-carbon energy will cost more than, for example, coal; and that—if we are to move to a sustainable energy economy—the consumer will inevitably have to pay more for it?*

- There is logic to “internalising” the full costs of sustainable energy within the price that is paid. Many low carbon energy sources are currently more expensive than, for example, coal. However, many technologies are still small scale and have yet to achieve market transformation (with the partial exception of on-shore wind) and economies of scale.
- Further, the current industrial structure was developed under a very different environment than the one we face today. It therefore favours centralised, remote energy production and supply to atomised, individual consumers. Reform of these structures, eg to encourage decentralised energy networks, would make CHP/community heating and micro-generation much more viable.
- Active demand management is also often far more cost effective than investment in new generation.
- Energywatch and NCC do not therefore accept that low carbon energy is inevitably more expensive than “brown” energy.

GROWTH OF EMISSIONS FROM AVIATION AND ROAD TRANSPORT

Question 13: *The DfT is forecasting a threefold growth in aviation over the next 30 years, while emissions from road transport are also continuing to grow. Do you think such levels of growth are really acceptable in the context of the proposed framework of carbon budgets and targets? Should international aviation be included in the UK carbon budgets?*

- It is important that both aviation and road transport are included in the UK carbon budgets. As we highlighted earlier, energywatch and NCC support the development of sectoral targets. We believe it is important that targets are set for all sectors; otherwise consumers of sectors that have targets are disadvantaged with respect to consumers of sectors without targets.

DEVELOPING A LONG-TERM POLITICAL CONSENSUS

Question 14: *Would you agree that, if we are to establish consistent long-term policies for meeting carbon budgets which transcend individual Parliaments, we need to establish a political consensus about that mix of policies? And is the absence of any mechanism for doing so a significant weakness in the draft Bill?*

Energywatch and NCC agree that if we are to establish consistent long-term policies for meeting carbon budgets which transcend individual Parliaments, we need to establish a political consensus about that mix of policies.

July 2007

Supplementary memorandum by the Department for Environment, Food and Rural Affairs (CCB 97)

At the evidence session of 20 June, the Committee requested further information on the process for establishing the Committee on Climate Change, and on whether the targets in the Climate Change Bill are compatible with the UK's share of the EU's 20% greenhouse gas reduction target by 2020.

COMMITTEE ON CLIMATE CHANGE

The draft Bill requires the Committee on Climate Change (CCC) to provide advice on the level of the first three carbon budgets (2008–12, 2013–17, 2018–22) by September 2008. To ensure that the Committee is able to meet this deadline, and so that it is fully functional as soon as possible after it becomes an Advisory NDPB and gains its full legal responsibilities and status, the Government intends to establish the Committee in shadow form this year as a non-statutory advisory body so it can begin its work.

Setting up a Shadow Body

Defra will take responsibility for setting up the CCC in shadow form and, following Royal Assent, as an NDPB. In setting up the Committee we will ensure that we meet the commitments made in Defra's response to the NAO's report on setting up new bodies.

Appointment of Chair and Members

We have explored and agreed the approach to setting up a shadow body with the Cabinet Office, and with the Office of the Commissioner for Public Appointments (OCPA). In order for the Chair and Members of the non-statutory Committee to roll over into the statutory body they will have to be recruited "as if" they were being appointed to a statutory body, following the full public appointments procedure. In addition if, as is likely, it is agreed that appointments to the CCC are to be made by the Secretary of State with the agreement of devolved Ministers, we would need to mirror that approach administratively in making the appointments to the shadow body.

The draft Bill proposes that the CCC will consist of 5–8 members including the Chair. In establishing the shadow CCC, we intend to make a limited number of early appointments—only appointing 4 members along with the Chair Designate, which is the statutory minimum. The job adverts will make clear the particular skills sought in this recruitment exercise, emphasising the list of expertise currently set out in the draft Bill. This approach should allow for the remaining places on the Committee to reflect any changes to either the list of expertise in the final text of the Act, or to the maximum number of Committee members. This will give the Chair Designate an opportunity to make the final decisions on the exact size and shape of the Committee. We consider that this approach will achieve the best balance between getting the Committee up and running quickly, and still retaining the flexibility to respond to any changes to the size or skills of the Committee as the Bill passes through Parliament.

Timetable for Appointments

To ensure that the Chair Designate can be appointed before the end of the year and that the Members of the shadow CCC are in place no later than early next year, the appointments process has already begun—accommodating the various stages of the OCPA process. In practical terms, we plan to finalise the recruitment process in the next couple of weeks so that adverts can be issued before the summer holiday period.

Providing a Shadow Secretariat for the CCC

To ensure that the shadow CCC is able to provide its first advice as quickly as possible after Royal Assent, the Government has also decided to establish a shadow Secretariat to the CCC ahead of Royal Assent. This will allow the analysis necessary to inform the CCC's advice to be commissioned as early as possible.

While in shadow form, the CCC Secretariat will have to be provided from within a central government department (ie staffed by civil servants), as the CCC will not have its own legal identity. A number of options were carefully considered across Government with regard to setting up a shadow Secretariat. It was agreed that the Office of Climate Change (OCC) would provide this Secretariat, and that until Royal Assent it would be run as an extra project in the OCC, so providing for a good measure of independence from any individual Department.

A team of four analysts has already been recruited as a project team to begin the work of the shadow Secretariat. Their initial priority is to look at the analysis the CCC will require to inform its initial advice to the Government, required by 1 September 2008. This will also help develop our initial estimates for the

budget needed for the staffing and research needs of the CCC. Doing this work now will ensure that enough analysis is in place in time for the appointment of the Chair Designate and Members of the shadow CCC, so they can immediately begin their work.

The shadow secretariat will expand as the work progresses and is expected to be at close to full strength by the time when the Chair Designate and Members of the shadow CCC are appointed. This will ensure that no time is wasted in beginning the running of the Committee as a non-statutory body, and will help facilitate a smooth transition to a statutory Advisory NDPB following Royal Assent. This will mean that all the preliminary work will already be complete and the Committee can begin to fulfil its main purpose—authoritatively and expertly advising Government.

UK'S SHARE OF THE EU'S 20% BY 2020 GHG REDUCTION TARGET

The precise figure for the UK's share of the EU target has yet to be finalised. The European Commission will be making proposals on the nature of the burden sharing agreement but that won't be until December 2007 at the earliest. In the meantime Defra is commissioning research into what the burden sharing agreement might look like. The Bill's target range of cutting CO₂ emissions by 26–32% from the 1990 level by 2020 corresponds to cutting total UK greenhouse gas emissions by about 32–37%. For illustration, applying the same Triptych methodology that was used for allocating the EU's Kyoto target, would put the UK's burden sharing target at around a 25–26% reduction in greenhouse gases.

Hilary Benn MP
Secretary of State

July 2007

Supplementary memorandum by the Office of Gas and Electricity Markets (Ofgem) (CCB 98)

INTRODUCTION

1. The Committee took oral evidence from the then Secretary of State for Environment, Food and Rural Affairs, Rt Hon David Miliband MP, on 20th June 2007. In the course of the evidence session, Baroness Miller of Chilthorne Domer asked about Ofgem's interpretation of its sustainability duties. Mr Miliband suggested that Defra or Ofgem could provide the Committee with a memorandum on this subject. This supplementary memorandum has been prepared in response to that suggestion.

2. Ofgem's remit means that we play an important role in influencing the shape of the future of the gas and electricity networks and—to a lesser extent—markets in Great Britain. The energy industry has a large role to play in tackling climate change as it contributes to over 50 % of Britain's carbon emissions.

3. We take our contribution to tackling climate change very seriously. We see our role in relation to the environment and sustainable development as a multi-faceted one where we are working as an initiator, advisor, facilitator and administrator, as appropriate. The following examples illustrate our commitment to sustainability throughout the supply chain: from generation through to networks, suppliers and consumers, including vulnerable customers.

RENEWABLE GENERATION

4. Much attention has focused on the Government's commitment to increasing the proportion of Britain's energy supplies generated from renewable sources. Our first task in facilitating the development of renewable energy is to create a stable regulatory regime that gives investors the confidence to deploy capital into the sector. We also need the networks to be able to respond to the challenges ahead.

- **Markets:** Both the wholesale and retail markets are fully opened up to competition. This means investors are able to choose openly which technologies they wish to support. The Government provides incentives to invest in renewable technologies through the Renewables Obligation. Our role is to administer these arrangements. We also offer advice to the Government on cost-effective means to support renewables, both in the electricity sector and in other areas including heat and transport.
- **Networks:** The electricity networks, in particular, have a large role to play in making sure that renewable technologies are able to get their power to market. Our regulation of these networks means we have a low cost of capital combined with a strong growth in capital expenditure—so customers get a modern reliable system at a competitive price. Ofgem has sought to be innovative

on research and development whilst at the same time providing continuity and stability for those participating and investing in the utility networks business. Since 1990, the regulatory structures, based on incentives and comparability, resulted in impressive efficiency gains combined with significant improvements in quality of service. The same approach to incentive regulation is now being applied to the connection of renewable generation to the networks.

RENEWING THE ENERGY NETWORKS

5. Facilitating the connection of renewable generation to the transmission network. In December 2004 Ofgem approved some £560 million of investment in the Scottish transmission system to connect renewable generation in response to growing demand for connections driven by the government's renewables policies. This decision was made outside of the normal price control review process to avoid any risk that the normal five-year review cycle would delay investment required in support of renewables. In the subsequent 2007–2012 transmission price control review we approved nearly £5 billion of investment to renew Britain's electricity and gas infrastructure to meet new demands from gas imports and renewables connections.

6. Our goal has been to enable timely efficient investment and to ensure that lack of investment does not present a barrier to new connections. As we know, planning issues have presented a major block to bringing new projects on stream and we particularly welcome the measures in the government's Energy White Paper to address the planning regime in England and Wales. As well as enabling significant network investment we are also leading work, jointly with the Department for Business, Enterprise and Regulatory Reform (BERR), to review access to the transmission system. Specific measures are now in train to manage the effects of the "BETTA queue". A longer term review of the access regime is due for presentation to the Ofgem Authority and the Secretary of State later in the year.

7. Promoting innovation and strengthening incentives to connect distributed generation. Three years ago, in setting the electricity distribution price control for the period 2005–2010, we also allowed a major investment of £5.7 billion, an increase of 48 %, in the development of local electricity networks. In addition we put in place a range of new incentives to drive forward the development and connection of distributed generation. The Distributed Generation Incentive, Registered Power Zones (RPZ) and the Innovation Funding Incentive (IFI) were designed to reward generation connections at the distribution level—principally renewables—and to encourage innovation in network development. The four RPZ schemes initiated so far have brought forward a number of imaginative new technology projects in the field for facilitating the connection of distributed generation from low-carbon sources. In the 2006 transmission price reviews we continued this approach to IFI. We gave support to some major state-of-the-art capital projects eg the Dewar Place substation development in the heart of Edinburgh. With some two years' experience, the effectiveness of the IFI has been marked and R&D expenditure has already returned to greater than 1990 levels. These schemes have become well known across Europe, and we have extended the RPZ scheme and the IFI up to 2015 so there is no loss of momentum in this important work.

8. Conducting a review of the barriers and incentives to the development of distributed generation. Earlier this year Ofgem and the Department of Trade and Industry (DTI) jointly published a review of Distributed Generation (DG) alongside the Energy White Paper. We will jointly consult by the end of 2007 on options for the creation of more flexible market and licensing arrangements for distribution-connected, low carbon electricity. We will also seek to identify workable solutions that minimise the barriers to entry for DG. These solutions will:

- seek to simplify the system for potential generators and suppliers;
- ensure that DG receives appropriate rewards for the benefits that it provides; and
- ensure that consumers are adequately protected.

Our solutions will not:

- compromise the integrity of the competitive market; or
- impose unnecessary costs or complexity on DG generators, or those parties that seek to purchase from them.

9. We are committed to understanding and developing measures to address any issues raised by the increased development of DG and energy service companies (ESCOs), where it can be demonstrated that the rewards available to DG do not reasonably reflect their economic value. It does not appear to be a necessary feature for DG to receive its proper value that it need have special licensing arrangements, although we do not rule this out. Just as licences help protect gas and electricity customers in general, our starting point is that the customer protection provided by licences is also appropriate for customers of DG.

10. Reducing the environmental impact of energy transportation. Limiting the impact of energy transportation on the environment has also been a strong theme of price reviews over the last 2–3 years. In 2005 we significantly strengthened incentives to reduce distribution losses, partly due to consideration of the carbon benefits of loss reduction, and committed to an additional mechanism to provide funding for selected network undergrounding in areas of outstanding natural beauty. In the 2007 transmission review, we set new incentives to reduce losses of SF₆, one of the most noxious greenhouse gases and extended the successful IFI incentive with a focus on “green technology”. In the 2008 gas distribution review we are considering further measures to reduce gas leakage (known as shrinkage) in order to limit methane emissions and curb costs and we have laid down a challenge to the industry to come up with new ideas in this area. Curbing losses of energy from the networks is also a key feature of the Ofgem Authority’s recent “minded to” decision on new transmission losses charging arrangements. Stronger pricing signals will help inform decisions about siting generation closer to demand, thus reducing costs and carbon emissions.

MAKING THE ENERGY MARKETS MORE SUSTAINABLE

11. Breaking down barriers to smart metering and microgeneration. We have initiated work to tackle the barriers to the development of smarter metering and microgeneration to help realise their potential. Here we have shown how we can use our influence as well as our statutory powers. Our work on smart metering and our leadership of industry in particular on interoperability has helped make progress on smart metering although this is much less than we would have liked or expected. Our call on suppliers to develop simple products and a fair export tariff for customers to avoid the need for regulation has seen some industry response. Our work now on the DG project and on domestic microgeneration reward in response to a request from the Chancellor of the Exchequer will bring further progress here.

12. A fair reward for microgenerators. In the 2007 Budget, the then Chancellor of the Exchequer invited Ofgem to conduct a review to ensure that the market for residential scale exported electricity is working effectively and to identify whether microgenerators are being fairly rewarded. The review is being progressed in parallel with our DG work and it will include such questions as whether:

- the supplier offers are easily accessible and comparable by consumers. The structure of the offers that we are aware of differ considerably including a fixed fee per annum for installed generation, a standard rate for exported electricity and a tariff for all generated electricity regardless of own consumption;
- consumers are able to switch easily between energy suppliers. We will determine the mechanism for switching between suppliers and identify any “lock-in” terms—such as being an import customer—that limit the ability of customers to shop around; and
- the offers are a fair reflection of underlying value of microgeneration.

In addition we will also:

- identify the key cost drivers of the offers, including those related to networks, and highlight measures that might warrant further investigation to improve the reward for microgenerators; and
- feedback any relevant findings from the working group that is examining whether there are any factors in the market, or due to regulation, that unduly obstruct the ability of DG projects to be sustainable, commercial business propositions.

13. The distributed energy working group will have access to any relevant information from the review as it becomes available.

14. Introducing green supply guidelines to give customers greater confidence in green tariffs. We have proposed a star accreditation scheme that will identify how much carbon each green tariff uses. Customers and businesses looking to reduce their carbon footprint will be able easily to compare the environmental credentials of green energy deals.

15. Protecting vulnerable customers. Our Social Action Strategy sets out to help vulnerable consumers and tackle fuel poverty. Ofgem’s Chairman, Sir John Mogg, chairs an advisory group on social issues which brings together experts across the field and from industry to inform and shape our policies. Our Social Action Strategy is based around the four themes of regulatory action; research and best practice; informing the debate; and promoting information. Our work here has been consistently acknowledged by the Fuel Poverty Action Group (FPAG), energywatch and others.

16. In 2000 we published clarificatory guidance on the development of social measures in the competitive market. These kick-started the development of the range of social tariffs, rebate schemes and trust funds that we now see in the market. Our Corporate Social Responsibility (CSR) audit in 2005 and plans for a new CSR reporting framework this year help shine a light on supplier activity, promoting transparency for consumers and further competition between suppliers. The supply licence review, which we are just completing, has modernised the supplier obligations, retaining and in some cases extending the protection afforded to vulnerable consumers. Two years ago we set up a new scheme to reward electricity distribution companies who go beyond their licence obligations in serving more vulnerable consumers in their area. This

has been very successful and we are looking to extend this to gas as part of the next price control. We are also proposing ways to tackle barriers to the extension of the gas network into non-gas communities which has been warmly welcomed by FPAG and others.

17. At a government policy level we have argued for the retention of the Priority Group in the Energy Efficiency Commitment (EEC) given the distributional impact of removing it. In our response to the government's Energy Review we put forward ideas on how they might improve targeting and coordination of help to vulnerable customers and we suggested some principles for the fuel poverty target itself.

CONCLUSION

18. We hope this has given the Committee a flavour of our approach to sustainable development—in our policy and in the way we organise ourselves and conduct our business. We could give the Committee more information about our other areas of work on sustainable development eg our carbon contracts proposals to bridge the gap to the next phase of the European Emissions Trading Scheme (EU ETS); our substantial work to administer the government's Renewables Obligation and Energy Efficiency Commitment; the ways we have built sustainability and environmental work into our corporate structure with the Authority-led Sustainable Development Committee, our newly reorganised Europe and environment team and merged consumer and social affairs teams; and, finally, to highlight the range of internal measures we take as an organisation to limit our own carbon footprint.

19. As you can see, this is not all new work. Much of it has been progressed over a number of years. We have, and are now building on, our initiatives as the scientific evidence on climate change has strengthened and as public and consumer attitudes to sustainability are shifting. Our recent Consumer First report on consumer attitudes to energy and environment, which will be followed by other work, is a manifestation of how we are committed to understanding changing consumer views so that we can fulfil our duties to present and future consumers. This commitment will be maintained and enhanced. I look forward to further dialogue with Parliamentarians and government, industry and consumers, on how to take forward this crucial work.

July 2007

Annex

Legal Framework

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|--------------------|---|--|
| 1986 | Gas Act | Range of social, environmental and economic duties |
| 1989 | Electricity Act | Range of social, environmental and economic duties |
| 2000 | Utilities Act | Range of social, environmental and economic duties and introduced the requirement for the Authority to have regard to social and environmental guidance issued by the Secretary of State |
| 2000 | Ofgem's first social action plan published | |
| 2001 | Ofgem's first environmental action plan published | |
| 2002 | Social & Environmental Guidance I | |
| 2003 | Sustainable Energy Act | Amended the Utilities Act to introduce the requirement for the Authority to undertake impact assessments |
| 2004 | Social and Environmental Guidance II | |
| 2004 | Energy Act | Introduced sustainability and better regulation duties |
| 2004/2005 | Ofgem's environmental policy statement | |
| 2006 | Climate Change & Sustainable Energy Act | Reinforces role in relation to microgeneration |
| 2006 (November) | Ofgem's first Sustainable Development Report | |

Supplementary memorandum by the Department for Transport (CCB 99)*Q.396: International aviation and shipping emissions***INTRODUCTION**

1. The UK has long been at the forefront of international efforts to address climate change. Recent years have seen a steady increase in international understanding of the scale of the problem of climate change, and also in recognition of the need for global action to address it. The Climate Change Bill, and in particular its target of a 60% reduction in CO₂ emissions by 2050, is intended to build on that momentum and provide decisive international leadership.

2. Climate change is a global problem that requires global solutions. The Government hopes that by leading by example it will be able to galvanise global action in a post-2012 agreement. However, in complex international discussions the approach of leading by example will not necessarily work in every area; what is seen as leadership in one context may be construed as unilateral action in another.

3. International discussions on the allocation of emissions from international shipping and aviation have been particularly problematic. There has been no agreement on a methodology for the allocation of these emissions to individual states. Such an agreement would be the crucial first step towards concerted international action and the Government is working hard to achieve that. However, if we were to select a methodology and apply it to the UK, it is not clear that it would in practice deliver constructive international leadership; not only that, but the result may be counter-productive.

4. The Government remains committed to addressing the impact of aviation and shipping emissions, as set out in Ministers' evidence to the Committee. We will continue to work through the UNFCCC, International Civil Aviation Organisation (ICAO) and International Maritime Organisation (IMO) in promoting the need for greater action internationally.

DEVELOPMENT OF AN INTERNATIONAL ALLOCATION METHODOLOGY

5. During the negotiation of the Kyoto Protocol, emissions from international aviation and marine transport were not included in national totals because, despite early discussions at Subsidiary Body for Scientific and Technological Advice (SBSTA) level, on several accounting options, agreement on a methodology for allocating emissions to national inventories of Parties was not reached.

6. Acknowledging the lack of agreement on an allocation methodology, the Kyoto Protocol requests Annex I parties to pursue policies and measures to address these sectors, working through the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO). Decision 2/CP.3 of the Kyoto Protocol further emphasises the need for methodological work to be pursued, with a view to the possible inclusion of these emissions under national totals. Despite continued pressure from the UK both within the United Nations Framework Convention on Climate Change (UNFCCC) and in ICAO and IMO, discussions, which were meant to be resumed at SBSTA 22, have not progressed.

7. The UK has pressed for increased technological and policy analysis for improved knowledge of methodological issues and has developed proposals on how to deal with emissions from these sources. Despite this, and due to international opposition (the UK/EU position remains isolated in these organisations), the introduction of mitigation measures in ICAO and IMO has been limited and as a consequence worldwide emissions from international maritime transport and aviation continue to rise.

8. The UK sees a strong need for a global solution to tackle the global problem of rising emissions from international aviation and shipping and the UNFCCC, IMO and ICAO as organisations dedicated to handling climate change, should assume leading roles. However, in the absence of international agreement, the UK continues to take a leading role working within the EU towards alternative measures to tackle emissions, for example to bring aviation within the EU Emissions Trading Scheme.

CURRENT REPORTING OF AVIATION AND SHIPPING EMISSIONS

9. Currently the UK voluntarily reports international aviation and shipping emissions using the methodology described in the IPCC guidance. Emissions from international aviation and shipping are not included in the UK's national greenhouse gas (GHG) totals, but are reported separately to the UNFCCC as memorandum items.

10. Emissions of CO₂ from aviation are calculated using the total inland deliveries of aviation spirit (AS) and aviation turbine fuel (ATF) to the UK, taken from DUKES, and the carbon contents of those fuels. The destinations of aircraft flying from UK airports are provided by the Civil Aviation Authority, and these

data are used in an aviation emissions model to estimate and attribute emissions to the categories of domestic and international aviation. The inland delivery of ATF in DUKES is corrected for use of ATF by the military and the total ATF and AS use estimated by the model is normalised to the total use reported in DUKES. A flight is classified as international if its final destination is outside of the UK.

11. Fuel use estimates for marine bunkers are supplied in the DTI's annual Digest of UK Energy Statistics (DUKES) publication. These estimates are based on fuel sold to UK operators going abroad and overseas operators assumed to be travelling abroad. The data are supplied to the DTI by the UK Petroleum Industry Association (UKPIA). Emissions are then calculated from the fuel use data using the carbon content of the fuel.

12. GHG emissions calculated in this way do not perfectly represent the totality of emissions from aviation and shipping movements from the UK. In this sense, the methodology for their calculation is best considered as a reporting methodology, as opposed to an allocation methodology.

13. For example, in relation to aviation, some flights have a refuelling stop en route to their ultimate destination. In this case the fuel uplifted in the UK would not equate to the whole emissions from the journey. There can also be cases where airlines might take on more fuel in the UK; for example if fuel capacity at the destination airport were limited, then it would be practicable to "tanker" fuel to ensure that the airline has enough for the return journey.

14. In relation to shipping, while total global bunker fuels consumption provides a generally acceptable measure for global emissions, it has serious flaws as a method for assessing the emissions of a single nation or region. Ships on international routes have considerable flexibility as to where they take on fuel. With relatively high fuel prices, the UK is not generally a popular choice for ships looking to refuel. Estimates on this basis would therefore significantly misrepresent the UK's GHG emissions from shipping.

Q.400: *Estimate of Aviation Emissions for 2030 and 2050*

15. Currently, aviation accounts for 6.3% of UK emissions (including all international emissions). The table below sets out the figures provided by the Department for Transport to the House of Commons' Environmental Audit Committee inquiry into aviation sustainability in the 2003–04 sessions,²⁵ updated with figures for UK total emissions from the 2007 Energy White Paper. The table reflects the most recent published estimates of aviation emissions, but these are not to be considered a definitive set of forecasts. The DfT will be publishing revised aviation carbon emissions forecasts later this year.

| AVIATION AND UK TOTAL EMISSIONS (MtC) | | | | |
|--|---|--|---|------------------------------------|
| Year | Aviation (domestic + international) actual/central forecast | UK total for all sectors as in Energy White Paper (EWP) (Including domestic aviation but excluding international aviation) actual/60% goal | Combined total emissions (EWP + international aviation) | Aviation as % of combined total |
| (1) CO ₂ as carbon | | | | |
| 2000 | 8.8 | 149.7 | 157.9 | 5.6% |
| 2030 | 17.7 | 103.1 | 119.6 | 14.8% |
| 2050 | 17.4 | 64.6 | 80.9 | 21.5% |
| (2) radiative forcing, applying factor of 2.5 to aviation* | | | | |
| 2000 | 22.0 | 184.0 | 204.6 | 10.7% |
| 2030 | 44.3 | 127.2 | 168.5 | 26.3% |
| 2050 | 43.5 | 86.9 | 129.6 | 33.6% |

*UK total including radiative forcing comprises CO₂ from the EWP target envelope, plus non-CO₂ projections from ENTEC (2006): "Updating of Non-CO₂ Greenhouse Gas Emissions Projections for the UK" (will be available from the Defra website shortly). These projections do not assume any non-CO₂ abatement measures.

²⁵ House of Commons Environmental Audit Committee: Aviation: Sustainability and the Government Response (Seventh report of Session 2003–04).

The non CO₂ climate change impacts of aviation (known generically as “radiative forcing” effects) are estimated to be 2–4 times that of its CO₂ impact alone. The figures in the lower half of the table assume a radiative forcing factor of 2.5, but the Air Transport White Paper (ATWP) Progress Report (2006) refers to more recent evidence suggesting a factor of around 2.

The aviation column is the DfT’s “central case forecast”, as in Aviation and Global Warming para 3.56; it excludes benefits from potential economic instruments like EU emissions trading scheme, whereas in other sectors the impact of policies to reduce CO₂ is taken into account.

Q.413–5: CO₂ Emissions in Decisions on Airport and Runway Build

16. The DfT can confirm that the Government’s forecasts for CO₂ emissions are consistent with the proposals in *The Future of Air Transport White Paper*. The CO₂ forecasts are from “Aviation and Global Warming”,²⁶ published by the Department in 2004 in support of the Air Transport White Paper. The demand forecasts underpinning these CO₂ forecasts were taken from the “high airport capacity” case reported in “Aviation and the Environment: Using Economic Instruments”.²⁷ The Low capacity scenario assumed no new runways in the UK, while the high capacity scenario assumed new runways at Heathrow, Stansted, Gatwick, Birmingham, Manchester and Edinburgh.

17. In line with the Department’s transport appraisal guidance,²⁸ an assessment of the CO₂ impact of developing airport capacity informed the Air Transport White Paper strategy.

18. The Air Transport White Paper provides a strategic framework for sustainable airport development in the UK. A decision to initiate a specific airport development scheme—and how to fund any such scheme—would be a matter for individual airport operators.

19. Airport expansion which is going through a planning inquiry will be subject to the same requirements as any other major development. Any development which is likely to have a significant environmental effect must be subject to an Environmental Impact Assessment (EIA). The EIA Regulations (1999) which implement the 1985 EU Directive as amended, require an assessment of aspects of the environment likely to be significantly affected, including air and climatic factors. There are no specific requirements to refer to CO₂ emissions, although it would seem both sensible and good practice to include this information.

20. *The Planning for a Sustainable Future White Paper* provides information on both the preparation and handling of planning applications for nationally significant infrastructure projects.

Q.417: EU Emissions Trading Scheme (ETS) Allocation Methodology

21. Following the UK Presidency of the EU in 2005, the European Commission was mandated to work up proposals to include aviation in the EU Emissions Trading Scheme (ETS). To this end, the Commission have recently published a proposal and negotiations have begun in Council Working Groups. The current proposal includes all flights into and all flights departing the EU on the basis that airlines are the entity that participate in trading and are allocated allowances directly under an EU wide cap. There is no requirement for each Member State to set its own cap and develop a National Allocation Plan (NAP) as currently happens with fixed installations in Phase I of the EU ETS. To some extent, the proposal to include aviation has the benefit of learning from the experiences of Phase I. The initial thinking for the EU ETS review indicates in future phases, EU wide emissions caps are likely to be applied to all sectors in place of the existing Member State NAP model.

22. As a consequence of the direct allocation of allowances to airlines, the nationality of each airline is relevant only when considering the administration processes of the scheme. The Commission proposes that each aircraft operator would be administered by a single Member State. For EU airlines, that state would be the one that issued the airline’s operating licence. Non-EU airlines would be administered by the state within the Community to whom its emissions in a base year are mostly attributable.

23. This process of allocating airlines to Member States is designed for administrative effectiveness; it has not been designed as a national emissions allocation methodology. For the purposes of the EU ETS, the question of whether emissions “belong” to a particular state is not actually relevant. In order to demonstrate the weaknesses of applying the EU ETS approach to an allocation methodology for emissions, it is helpful to consider an existing route that is currently operated from the EU.

²⁶ <http://www.dft.gov.uk/about/strategy/whitepapers/air/docs/aviationandglobalwarmingreport>

²⁷ http://www.hm-treasury.gov.uk/media/8/F/Aviation_Environment.pdf

²⁸ <http://www.dft.gov.uk/consultations/archive/2002/fd/see/mc/thefuturedevelopmentofairtra1547>
http://www.webtag.org.uk/webdocuments/3_Expert/3_Environment_Objective/3.3.5.htm

Madrid—Zurich return flight operated by Easyjet

24. Under an ETS-like allocation methodology, the UK, as administering state for Easyjet, would be allocated these emissions. However, the flight does not enter UK airspace, use UK airport infrastructure and is likely to carry very few British passengers. Such a methodology would, in the same way, produce inequitable results for a country like Ireland, which would be allocated the emissions of Ryanair, despite the large number of Ryanair's flights which do not operate to or from Ireland.

25. The Madrid-Zurich example also highlights a further complication. The Commission's proposal is that all departing and arriving flights will be covered by the ETS. This means that emissions for both legs of a flight between an EU and a non-EU destination would be included in the ETS. As highlighted above, this is administratively effective, but does not provide a basis for international allocation without a high level of double-counting at a global level.

26. Finally, it should be noted that the EU scheme is still under negotiation. There must, therefore, be uncertainties about its scope and application, which need to be taking into account in considering the way forward.

Q.433: *Dirty Aircraft*

27. The Committee asked whether it would it be possible to phase out dirty aircraft from landing at UK airports.

28. Dr Whitehead referred to "dirty aircraft". In the context of the Climate Change Bill, we assume this would relate to aircraft with relatively high fuel consumption.

29. There are agreed international standards for noise and for emissions of oxides of nitrogen (NO_x), carbon monoxide, unburned hydrocarbons and smoke. As technology has improved, standards have been raised. The UK has led the debate in pressing for tightening of standards.

30. Under the European Directive 92/14 on aircraft noise, aircraft whose noise levels are certified only to the ICAO's "chapter 2" standard have been prohibited from operating to and from EU airports since April 2002. On the whole more modern aircraft are more fuel efficient than older aircraft, so this has removed from service many of the aircraft which have high fuel consumption.

31. The UK is a successful and well-developed aviation market and the aircraft fleet operating to and from the UK is among the most modern in the world. It is therefore already the case that the UK is comparatively well positioned compared with other states. Therefore "phase outs" have less impact on the UK as the targets of any phase out are likely to be represented only in very small numbers, if at all, in the case of UK airports.

32. The latest standards applying to civil aviation are ICAO's "chapter 4" for noise which became mandatory for all new subsonic jet aircraft entering service from 1 January 2006. New NO_x standards which were agreed in 2004 will become mandatory for all new aircraft from the beginning of 2008. We will continue to press for tightening of standards so that passengers and communities around airports benefit from adoption of new technology.

Q.440: *Trading Schemes for Transport*

33. The Committee asked why the Bill does not contain any provisions for auctioning to be used as an allocation methodology in any trading schemes brought in under the legislation.

34. Powers to introduce measures that generate revenue in some way—such as auctioning—are traditionally taken in the Finance Bill, and that practice is being continued with regard to any emissions trading schemes to be brought in under the Climate Change Bill's powers. Each decision about whether or not to use auctioning in other emissions trading schemes in the future will be taken on a case by case basis.

July 2007

Memorandum by Anne Fielding (CCB 01)

I am writing to you at the suggestion of my MP Michael Jack, in connection with the Climate Change Bill.

I would like to make the following points:

- 2050 is a long way off; annual targets would sharpen up everyone's efforts;
- reduce emissions every year so the UK reaches a target of at least 80% cuts by 2050;
- include emissions from international aviation and shipping; and
- the Committee on Climate Change should include representatives from Environmental Groups such as the Friends of the Earth.

May 2007

Memorandum by Land Network International Ltd (CCB 02)

This list of areas on which the committee wishes to concentrate appears to be comprehensive. In as much, they might like to consider whether the following points have been included in their thinking.

- “Green” processes may or may not actually be green in the sense of reducing environmental impact when looked at in a full lifecycle examination. For example, there are four major bioethanol plants planned for Lincolnshire. Those four are likely to consume something in the region of three million tonnes of wheat between them every year. Most of that wheat will be grown using mineral fertilisers including mineral Nitrogen. Mineral Nitrogen fertiliser is made by passing air through a very large electric arc. It demands very significant power and that electrical power is usually made by burning fossilised fuels! As another example, under the NFFO programme, some years ago, two power stations were constructed using poultry litter for burning to produce heat, to drive turbines to produce electricity. One of those is at Eye in Suffolk. The figures on that indicate that the electricity needed to replace the Nitrogen fertiliser which was burned in the factory (and would otherwise have been used on the land to fertilise crops) was—and still is today, at least six times the electricity that the factory produced.
It really isn’t any good just looking at one linear step in “greening up” Britain and trying to reduce effects on climate. It is certainly better to look at a “cradle to grave” approach but even that is quite likely to mislead us. What we need is an examination of the full closed loop.
- Our fossilised fuel reserves (which we are now rapidly burning) were laid down in the Carboniferous Era which started some 350 million years ago. It took about 60 million years to lay down those reserves. They were laid down by plants taking water out of the ground and Carbon dioxide out of the atmosphere in order to make large Carbon-based molecules. That is exactly what green crops still do today.
The problem with CCS (Carbon Capture and Storage) technology with, for example, new coal-fired power stations, is that all they do is attempt to remove the Carbon dioxide they have produced. In other word, they attempt to stop things getting worse but they don’t improve the situation.
The advantage of PCCS (Photosynthetic Carbon Capture and Storage) is that such processes take Carbon dioxide out of the atmosphere, sometimes in very large quantities.
For example, producing biofuels from crops which have been grown using mineral fertiliser really isn’t terribly “green” and will, at best, make only a small difference to atmospheric Carbon dioxide. However, if biodiesel is made locally on farms, where the farms composted locally produced urban wastes in order to fertilise their crops, then there is a double effect of not burning the waste and actually removing very large quantities of Carbon dioxide out of the atmosphere. One hectare of oil seed rape grown in the UK in this way will, after burning the biofuels, take a net at least 43 tonnes of Carbon dioxide out of the atmosphere (copies of published papers attached in the appendix).
- It seems to me that there will be a danger that the Act will seek to promote benefits in Climate Change but may end up being superficial or even counter productive. Attempts to encourage full “closed loop” approaches to gains and losses will be difficult, complicated but very much more likely to produce really beneficial results.

May 2007

APPENDICES

Not printed—see <http://www.landnetwork.co.uk>

1—Biofuels from Waste: Refocus May/June 2006.

2—Reversing Global Warming: Refocus September/October 2006.

3—Incineration, MBT and MBS Sustainability: Environmental Business submitted for publication April 2007.

Memorandum by Mr Edward Mashate (CCB 03)

REVISED GREENHOUSE TOURISM ACTION PLAN

The Master Plan is an Outbound integrated strategy applying supply and demand driven collective participatory drive for the purpose of implementing a comprehensive framework tackling the challenge of Global Climatic Change from manifold angles engaging multi dimensional approaches for the purpose of involving new players in the management of tackling the environmental problem.

Ideally to transform the less developed poor nations by promoting Green House rural and eco Tourism through Green agricultural and Clean development mechanism while transforming the population by adult educational forums environmental awareness, Primary Green education to the new young generation, business investments and skills transfers forums, health and water management programmes.

The Master Plan evolves from the concept of Green House Tourism abbreviated as GREHT following the call of tackling the challenge of Global warming and the author introduces the aspect of Trading in Clean Air O₂ which is coded Tourism O₂ (T O₂) through the mechanism of stimulating demand in the hidden importance of natural habitats like flora and fauna as well.

Summarily the strategy promotes wildlife and eco Tourism as a whole, henceforth there is need to kick start a Green House development mechanism by campaigning to plant more trees and also directly investing in Green Agricultural development. Participating in water management and building scientific research centres in view of implementing a comprehensive controlled Green House development mechanism.

The clean development mechanism is incomplete until the Green rural mechanism is linked with Clean development mechanism a concept already in implementation under the EU emission Trading Scheme (EU ETS) and thus why GREHTA adopts the action to actively invest in the clean development mechanism to complete the full circuit of executing a forward and backward linkage in the sectors of green development Production.

The Master Plan will integrate the Meteorological input in pursuance of addressing the Object of executing the Scientific data base that will be converted into a bank of statistical monitoring mechanism of the climatic trends and integrate them with EU ETS compilation for the purpose of understanding the levels of the emissions of CO₂ and O₂ in the air. It will help management to understand the climatic trends projections and what is affecting climatic conditions and what measures are relevant in reducing the Carbon gas emission. The anti dote to a problem is understanding and identifying the source of the problem.

For the purpose of ensuring a sustained Greenhouse and Clean development mechanism there is need to integrate Green primary education to the young generation of the recipient trading nation in the master plan for the purpose of sensitising a new environmental friendly generation that will push forward the Green/ House movement. There is therefore need to engage the Educational alliances and professionals to formulate a strategic primary framework to develop force of a population joining partnership to combat global warming.

The networking mechanism is envisaged as a comprehensive framework stretching from world international organisations featuring the United Nations and sub agencies such as the UNDP, UNEP, FAO, to organisations such as World Trade Organisations, World Tourism Organisation, National Export Organisations, International Civil Aviation Authority, Inter Governmental Organisations, the European Union, Asian Pacific nations, African Union, the Commonwealth organisation of nations, and new players but influential sports and Athletics organisations such as Union of European Football Organisation (UEFA), Federation of International Football Association, (FIFA), International Olympic Committee, (IOC) and religious Ecclesiastical organisations and Islamic organisation of nations, National and Local governments to grass root levels involving local recipient social structures such as the tribal or cultural chiefs to individual members of the locality.

The Master Plan will engage players operating in the industry such as tour and travel operators' environmental professionals and NGO's to the business community for the purpose of disseminating the full mission of combating global warming through Green House and clean development mechanism.

The purpose of this is to cultivate a comprehensive, systematic coordinated plan involving all sectors of governance for the case of promoting the notion of global effort tackling the climatic change as the major threat to our welfare.

The EU ETO₂TS commences with trading agreement between Nations, regional organisations or government of the donor Industrialised demanding consuming side and less industrialised supplying Green House TO₂ side at a global and then regional and national levels.

On pursuance and execution of this International Trading agreement between the donor buying and the recipient trading supplying agreement the Master Plan gazettes the Green House economies of less developed nations as a reserve and possible resource of implementing Green and clean development programme as it shall be explained in the Chapter of gazetting the Green House trading economies.

The purpose of engaging the Ecclesiastical clerics is a publicity strategy for disseminating and sensitising the gospel of Green House Tourism through religious gatherings and how the Objects of the Master Plan might be integrated in the delivery of the fundamentals of the faith message. While the new entrants namely

the sports stars and Athletics Champions are not only to offer the publicity and stimulate the need to rally the global call to take the lead position in mobilising the global call in combating climatic problem but play a lead role in the initiative.

Green house seeks the International trading mandate to co ordinate the trading of TO₂ through Green House Tourism by co coordinated international track record keeping of receipts, excise levies and international coded transaction of financial TO₂ trading mechanism.

The methodology in this framework is derived from entirely applied social—economic policies it is ideally moulded as a mechanism co-ordinated by Green House initiatives, objectively framed to engage all players for the purpose of introducing a notion that is diffused within the principles of *laissez faire*—free Market competition, in the third world trading O₂ countries.

THE CONCEPT OF GREENHOUSE TOURISM (GREHT)

The Concept

The concept of Greenhouse tourism is a notion conceived to answer and address the challenge of Climatic Change and global call on joint framework towards combating climatic change. The name Greenhouse tourism is derived from the aspect of “Greenhouse effect” which has been addressed under the Kyoto Protocol in the United Nations Framework on Climatic Change.

That the participants in the convention framed a work plan called the Clean Development Mechanism which birthed the strategy of Emissions trading Scheme which has evolved into the European Union Emission Trading Scheme (EU ETS) ideally called the greenhouse gas emission trading Scheme. The framework is framed to reduce and cut greenhouse gas emissions in the most Industrialised Nations.

The Name

Therefore we adopted this name Greenhouse tourism synonymous with the above mechanism and also flows with the Global Green movement on conserving and managing a greener, friendlier and safer environment.

The Purpose

The idea behind this mechanism is to introduce the notion of trading in Clean Air O₂ (oxygen) as a parallel Scheme with the Greenhouse gas emission Trading Scheme now the (EU ETS), by introducing a new scheme called the European Union Emission TO₂urism Trading Scheme (EU ETTS) so that the poor less industrialised nations rich or potentially rich in natural vegetation habitats and forestation can trade in clean air on the basis of Comparative advantage so that the less industrialised nations can develop without necessarily risking the environment by going industrial.

Scope

The scope of Greenhouse tourism Agency is global as it is framed to act as inter-mediary between the Northern and Southern hemisphere to establish a trading network that cuts across the globe.

Why tourism?

Under the environmental management tourism is a mechanism applied that embodies natural habitats and natural scenery as a source of income for local communities from expenses incurred by travelling tourists of all types. This mechanism has been explained in the UNEP comprehensive guidelines on tourism where sustainable eco-friendly tourism has been practiced and promoted in both developed and less developed nations.

Secondly tourism is versatile because it engages so many activities and brings the globe together in development and it is a link between the northern and southern hemisphere indeed recent statistics show that tourism has contributed to economic growth in the southern hemisphere.

The Greenhouse Tourism framework is constructed to operate as a specialised mechanism entirely framed to promote sustainable development targeting Nature and environment as major source of the work plan and will operate in accordance to the UK government guidelines on sustainable tourism which seeks to develop the third world countries through responsible tourism guidelines. Suffice it to say that the concept and notion of Greenhouse tourism is formulated as a framework that falls in the category of responsible tourism pursuing sustainable development

The scheme

The Scheme is therefore formulated as an integrated mechanism in the Greenhouse tourism strategy to stimulate sustained development and will work as a credit input to the emissions trading Scheme to basically stimulate and transform the poor local population of the poor nations as potential partners in addressing the demand of sustainable development. The scheme is the heart of the proposal and it is the innovation that GREHTA is introducing so that non marketable valuables like forests and natural vegetation habitats gazetted under the Clean Development Mechanism (CDM) are transformed as a source of commercial income on basis of *Laissez faire*, choice and preference and not as a compulsory scheme unless if otherwise.

Henceforth the economic policy of *Laissez faire* addresses the voluntary aspect in the mechanism.

Why EU ETS/EU ETTS

Because Greenhouse draws inspiration from the speech by the Prime Minister Tony Blair and on realising that the EU plays a lead role towards climatic change and the scheme engages private companies to participate towards the Emission trading Scheme this has proved effective in implementing the objects of the Kyoto Protocol and therefore the need for Greenhouse to integrate the framework in the Scheme in pursuing to form this global trading. Greenhouse intends to integrate the framework into the International Trading Scheme

The benefit and innovation

Ideally the mechanism is formulated as a scheme and is ideally meant to directly benefit poor local communities and families, the scheme is to be built in a net work that stretches from the United Nations framework to the EU trading and other regional industrialised nations to the poor TO₂ trading nations directly on the poor communities endowed with rich natural vegetation sustainable resources.

Towards international specialization and fair trading

The idea behind this is to advocate for international specialisation so that the policy of fair trading is observed, Greenhouse will advocate for improved agricultural input sustainable economic productivity along with efficient and optimised constructed land management by engaging research agricultural organisations and networking with local, national and international players towards building an integrated sustainable green economies in the southern hemisphere.

Multi-lateral trading agreement

Since the scheme built on economic policies of *Laissez faire* perhaps the aspect of addressing a trading agreement is required in order to establish a legal international trading scheme . More so we need to construct a net work from the United Nations to the Local Trading communities for purpose of delivering a system that will realise accelerated sustained rapid development under framework of the United Nations convention on Climatic Change.

The pilot scheme

The pilot scheme is ideally meant to be implemented in Uganda where and also blessed by the fact that the Commonwealth heads of State summit is scheduled in the same it would be therefore a double blessing to implement such a scheme and also good for publicity and preparing the public in the northern and southern hemisphere on the initiative.

The impact

Summarily the scheme will bring a great impact and we hope that will excite players both in northern and southern towards a joint sustained effort in combating climatic change, we hope to see rapid transformation of the rural communities, we hope to realise decreased rural urban migrations, we hope to see increased agricultural and sustainable development, we hope to see increased participation of the local communities in the local and national decision making process, we hope to see the African, Caribbean and Pacific women and children, empowered we hope to see a huge poverty reduction, we hope to see a robust international co-operation towards sustained development.

May 2007

Memorandum by the High Wycombe Society Transport Group (CCB 05)

This submission is from the High Wycombe Society's Transport Group. The Society set up the Group in 1989 to study local transport problems and their environmental impact. Carbon emissions have been among our concerns since the mid 1990s. This submission is a response to the Joint Committee's Theme No 3, to "what measures should be included in the Bill to secure a change in public behaviour" and is directed at reducing the number and length of car journeys,²⁹ by promoting innovative public transport which is both energy efficient and likely to achieve a willing significant "modal shift" by motorists. A clear direct national cross party lead seems essential.

Hence we call for the Climate Change Bill to promote wide use of new energy efficient lightweight/ultra light rail (both are significantly cheaper and more flexible than established light rail), and for extensive development of flexible Demand Responsive Transport (DRT), to replace many conventional, fixed route bus services, in both urban and rural areas. DRT would also assist using different travel modes for out and return journeys, so avoiding taking the car.

1. COMMUTING BETWEEN WYCOMBE DISTRICT AND THE THAMES VALLEY

1.1 Use of the 2001 Census which collected data about commuting. We used the numbers of people commuting in and out of the District to calculate the commuter mileage between Wycombe District and three Thames Valley towns—Maidenhead (12 miles), Slough (16 miles) and Reading (23 miles). The resultant Daily 278,000 MILES is farther than to the moon. This is car mileage. There is no realistic public transport alternative, congestion adds to the fuel consumption, buses can offer no solution, but there is a disused rail track.

2. REINSTATEMENT OF NINE KILOMETRES HIGH WYCOMBE/BOURNE END RAIL LINK (HBL) USING LIGHTWEIGHT/ULTRA LIGHT RAIL

2.1 This reinstatement could provide a frequent through service between Chiltern Railways at High Wycombe and First Great Western services (local and long distance) at Maidenhead, because the Marlow/Maidenhead rail service goes via Bourne End and is still running. It would also offer valuable shorter distance local trips to reduce carbon emissions and congestion. Most of the HBL track (built by Brunel in 1854, closed in 1970) is still open and there is nearby land for diversions in the few places it has been built over.

2.2 HBL studies since 1994, have been made with two professional members of this Group, a civil engineer and a railway signals engineer, who have both recently died. The Wycombe District Local Plan includes protection of both the track and land for the diversions. The County Council has declined to take any interest in the reinstatement. The Climate Change Bill should give a strong lead on innovative, energy efficient, public transport (Para 2.3.).

2.3 Lightweight/ultra light rail—These are similar and are very energy efficient, due to their light weight, steel wheels and rails, regenerative braking, and hybrid power systems. They are also unobtrusive (very quiet, no overhead power lines) and use the minimum land (guided on narrow tracks). Also light rail has an impressive record of 20% modal shift (much better than "improved" bus services have so far achieved). The Stourbridge experience³⁰ revealed that, compared with conventional heavy rail, lightweight rail reduced CO₂ emissions by 80%, and operating costs by 45%. The Climate Change Bill should support this form of transport. We note the apparent new interest in re-opening disused rail lines.

3. CONVENTIONAL FIXED ROUTE BUS SERVICES AND DEMAND RESPONSIVE TRANSPORT (DRT)

3.1 Conventional fixed route bus services Outside London and a few other special places, these services cannot compete with the car on many of the journeys people need to make. Population densities in urban and rural areas are widely insufficient to support frequent services, the routes are confined to main roads, are often circuitous, and include many stops for passengers to get on and off, thereby lengthening the journey time for others. The "flexibility" of bus services, so beloved of transport planners, does not inspire users with confidence. People buy a house because it is near a station or light rail, but a bus service is always likely to be discontinued or re-routed. It is not surprising that bus passenger miles have been declining for some years. We observe many empty seats, which are a great waste of fuel. Patronage seems to have increased slightly since the introduction of free bus passes for pensioners, but relatively few people appear to use a bus to get to work.³¹ We have consulted local bus users, most of whom are people who have no choice.

²⁹ Endorsed by the IPCC as a way to cut CO₂ emissions.

³⁰ The Parry lightweight rail vehicle provided a successful Sunday public transport service between Stourbridge Junction and Stourbridge Town during 2006. Visit www.parrypeoplemovers.com and www.ultralightrail.com

³¹ Observations between 7.00 and 9.00 am on a recent Thursday morning, on the main commuter road in High Wycombe (A40 London Road) counted 45 buses carrying a total of 178 passengers. 11 buses were quite empty.

3.2 Demand Responsive Transport (DRT) in contrast to para 3.1 can closely match demand, sharing the most appropriate size vehicle (usually but not always, an eight seater minibus or a taxi) with a few others going the same way. Such vehicles can use all roads in a flexible way according to demand, to make fast, direct journeys. Also transport obtainable in response to a request gives the user a sense of being in control, reducing anxiety, avoiding wasted vehicle trips and fuel, with minimum stops to meet the needs of a small number of passengers.

3.3 The technology for DRT combines global positioning, digital mapping, mobile telecommunications, and computer programs. Requests for transport can be made 10 minutes to 10 days in advance, via the Internet or phone, matched with other requests, and with appropriate vehicles. There appears to have been no Government encouragement for DRT in the UK. The Climate Change Bill should assist investment in DRT to make better use of fuel and reduce car journeys. The money would be better spent than much of the £2 billion a year subsidy now lavished on conventional bus services. Visit www.mobisoft.com

3.4 The economics of DRT To keep drivers and vehicles efficiently busy, the service would be available for many different kinds of journeys, usually of one to eight miles, but during its development in an area it would probably have to limit applications.³² These might include hospital trips for staff (many are shift workers), patients and visitors, trips from very small (10–20 cars) “Park and Ride” car and cycle parks, and most importantly, station transport.

4. GETTING TO AND FROM THE STATION AND LIGHT RAIL STOPS

4.1 High Wycombe station is Chiltern railways second busiest station after Marylebone. The timetable shows 179 trains a day, which give rise to 152 departures and 150 arrivals (55 trains run between London and High Wycombe only). Departures and arrivals require different connecting transport for the same train, so conventional bus rail links are unsuited to a busy station serving many different onward destinations and journey origins.

4.2 Arriving passengers want to proceed quickly to their next destination, but each train arrival brings a variable mix of passenger numbers and onward travel needs, so seeking to match these with conventional scheduled bus services would waste fuel, drivers and space for buses to wait. Rail passengers approaching High Wycombe can be observed phoning friends to pick them up. An efficient DRT service would enable passengers to ring a dispatch centre to arrange convenient, fuel efficient, shared transport, as in Germany.

4.3 Departing passengers want to be sure of catching the train of their choice. We found very few people rely on a bus to catch a train (confirmed by professional consultants). Even people with a car chose a 20 minute walk to the station, because the time from front door to the required platform is more predictable. (It avoids traffic problems and parking delays). DRT could offer faster, more reliable transport as required and avoid long stay parking.

5. OUT AND RETURN JOURNEYS

5.1 DRT and leaving the car at home. There are a number of journeys which could be done one way without a car, but need motorised transport for the return trip, so the car gets used for both out and return. For example, a walk to the station from home in daylight can be controlled, predictable and acceptable, but the return after a days work may be less predictable and after dark. DRT from the station would then be helpful. Also walking or taking a bus to the shops with an empty shopping basket could be acceptable, but carrying the shopping home would need door to door transport—such as DRT could provide. Or again, cycling downhill to the town centre, cinema, rail station etc, may become practical if the cyclist could get DRT back uphill for rider, bike and perhaps shopping.³³

6. LOCAL TRANSPORT PLANS (LTPs)

6.1 The latest LTP's were published in July 2006. This was three months before the Stern Report (30 October 2006) and six months before the IPCC Report published 2 February 2007. These two reports have prompted the corporate sector (eg Marks and Spenser, Eurostar etc.) and the Government, eg the Climate Change Bill, to take urgent new measures to reduce carbon emissions, but it is unlikely that many LTP's gave a similar high priority to Climate Change. Therefore the Bill should make it clear that desirable “low carbon” transport measures should not be excluded just because they were not included in the LTP. (See paras. 2.2 and 2.3) At the same time, local NHS changes will generate many new car and ambulance miles between Wycombe and Stoke Mandeville Hospital, and a new shopping complex in High Wycombe, due to open in 2008, is to provide hundreds of new parking places—while there are no plans to cover the huge exposed flat roof with photovoltaic cells—nor the large station roof.

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³² Many applications are possible. eg in Flintshire, DRT was launched in the County town of Mold, to enable people without cars (also available to those with cars) to take jobs in the out of town business park (on site of old steel works). In Lincolnshire, DRT feeder services have increased patronage of a long distance bus service.

³³ The Climate Change Bill must promote a range of shopping delivery services to reduce the huge shopping car mileage stimulated by out of town supermarkets with large car parks.

Memorandum by Dr Paul Freund³⁴ (CCB 06)

Dr Freund has many years experience investigating options for mitigation of climate change, including 10 years as Project Director of the IEA Greenhouse Gas R&D Programme. He was a specialist adviser to the House of Commons Select Committee on Science and Technology for its enquiry into the role of CO₂ Capture and Storage in 2005–06 and a convening lead author of IPCC’s special report on that subject. In addition his extensive experience of energy topics includes practical experience improving the energy efficiency of buildings, work on various forms of renewable energy, as well as oil production and use. He has published extensively on these topics.

In response to the Committee’s questions, I would make the following comments:

What the main aims and purposes of the Bill are and why it is needed?

1. Effective action on climate change will require major effort by everyone so there is a clear need for government to give leadership and direction and also to establish some means by which the goals can be translated into commercial mechanisms for paying for the changes that will be required. It should be noted that the Bill focuses on how to achieve a level of emissions reduction by 2050 but this will not be enough to stabilise greenhouse gas concentrations in the atmosphere (even if every country did the same)—further reductions will be needed after that date. This does not seem to be discussed in the Bill.

To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed?

2. In the absence of legislation to provide direction, no country will reduce its emissions by the extent required and, as importantly, soon enough to tackle climate change. Voluntary action would be preferable but, looking back over the past few decades, voluntary action on, for example, domestic energy consumption has only ever been strongly influenced by rising prices. We can tackle emissions from new construction by compulsion (eg use of Building Regulations to limit energy losses) but more than half of the housing stock which will be in use in 2050 has already been built—this will be much more difficult and expensive to adapt. US experience has shown that individuals require a high rate of return from energy efficiency investments, so these are unlikely to happen in the absence of government action such as making energy more expensive or assisting users to make reductions in emissions. However, both of these likely to be expensive, and hence contentious, but the result will be more certain than if left to voluntary action.

Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence

3. CO₂ is the main greenhouse gas derived from human activities; roughly half comes from large central plant, such as power stations, cement works, etc; the other half comes from a multitude of small sources, such as buildings, cars, etc. Regulation of emissions from central plant is relatively straightforward, so to set target for these sectors is sensible. On the other hand, there is no simple answer to the problem of controlling emissions from small sources so, until it has been decided how this is to be done, it would make no sense to set targets for small sources. Targets should only be set when it is clear how government is prepared to act to achieve them.

4. The second major greenhouse gas is methane—this is produced by a diversity of sources. Many of these are not even recognisable as sources of emissions in the conventional sense, such as the anaerobic decomposition of waste, which can release methane in a diffuse way, or the various sources of methane from agriculture. Whilst it would attractive to be able to control these emissions, it seems unlikely that any national target for methane emissions could sensibly be addressed by industry, farmers, etc, not least because of the difficulty of accurate measurement of the situation before and after. Similar remarks can be made about N₂O. Whilst statutory targets are not appropriate for these gases, government should set itself goals for reducing these emissions, support research and evaluation of effective measures and use the results as the basis for developing policies as and when suitable options become available.

5. Some of the other greenhouse gases, such as the gases controlled under the Montreal Protocol and the fluorocarbons are relatively long-lived in the atmosphere. Once emitted, the long-lived gases are, in effect, there for ever. This means that for any given goal (such as 550ppm concentration), the presence of the long-lived gases will reduce the “headroom” for emissions of CO₂. So the more of these gases which are emitted, the tougher will have to be the controls on CO₂. Therefore control of the long-lived gases is needed. These gases are mainly products of industrial processes so are much more amenable to measurement and control, and so would be appropriate targets for statutory regulation.

6. The proposed target of 60% reduction is a practical target but, based on past experience, it will be difficult to achieve; going beyond this by 2050 would be costly, and likely impossible.

³⁴ Independent consultant and author.

What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so

7. One obvious difficulty facing Government in following an optimal trajectory is to know what is optimal. All that can be done is make a best guess at this now and adjust the targets as more knowledge is gained.

8. Another difficulty is achieving emissions reductions in a competitive world, where industry can move offshore to avoid excessive restrictions (and the consequent cost increases). If the UK were to reduce emissions in this way but there was no similar control on global emissions, then UK action would be pointless, merely inflicting damage on the UK economy. This is a key issue which has not often been addressed by government. It needs action across government and with the EU to ensure that industrial competitiveness is maintained at the same time that emissions are reduced.

9. Reducing emissions by 60% by 2050 implies a very great change in approach from what has been done to date—so far emission reductions have essentially come “for free” from measures such as closing coal mines. What is needed now is a purposeful policy for reducing emissions by a large amount, something that few other countries have ever achieved—one exception is France which reduced its national emissions by 30% in the 1980s by wide spread introduction of nuclear power. This was done for reasons of energy security rather than emission control. In contrast, Denmark did have a national policy of introducing wind power but is today a long way away from meeting the emissions reduction goal it accepted under the Kyoto agreement. So it is not just a national policy which is needed but the correct national policy.

10. Setting 5-year budgets seems a reasonable way of addressing emissions, providing the targets are subject to review to ensure the level is appropriate.

The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target

11. There are two types of sequestration—carbon locked up in trees or capture and storage of CO₂ from large industrial facilities. This comment concerns only the latter.

12. The UK is one of the best placed countries in the world to implement CO₂ storage underground, making use of the offshore oil and gas fields, when depleted, and also deep salt-water aquifers as has been demonstrated by Norway over the past 10 years. The option of capturing and storing CO₂ is one of the less expensive methods of dealing with CO₂ emissions (extra cost of c. 2p/kWh indicated by supporting work done for the 2006 Energy Review). In terms of the cost of avoiding a tonne of CO₂ emissions, it can be much less expensive than large scale use of wind power (which currently receives support through the Renewables Obligation of 3.4p/kWh although the additional cost may be even greater) and is certainly much cheaper than other renewable sources of energy such as solar photovoltaic electricity.

13. In addition capture and storage of CO₂ offers a number of potentially attractive options—such as when used with biofuels, it would serve to produce net removal of CO₂ from the atmosphere (one of the few techniques which could do this). Also it could enable production of hydrogen from fossil fuels—this would be a much cheaper source of this alternative fuel than using electricity from renewable sources for electrolysis of water (as is often discussed).

14. Bearing in mind that tackling greenhouse gas emissions will add cost to industry and individuals, it is important that this cost is as low as possible. Use of CO₂ capture and storage would enable production of electricity with only small added cost and hence penalise the UK economy much less than most of the alternatives.

15. Rather than specifying targets for particular mitigation measures, a lower cost approach would be to set general targets, establish a means of paying for the emission reductions and then allow industry, organisations and individuals to find the most appropriate ways of achieving them. At present the government appears to favour a different approach, namely “picking winners”—for example, by setting targets for the proportions of renewables and biofuels. Over many years this type of approach has been shown to be an inefficient method of deciding energy technology policy (for example nuclear power development between 1950s and 1980s). If the current approach continues, the national economy will have to bear a much greater cost than if government lets industry and users select the most appropriate technology. If our energy costs rise faster than our competitors’ costs, this risks loss of national competitiveness.

16. Although there is no case, *per se*, for restricting use of international measures, there is a need for a much stricter regime to ensure a reduction in global emissions is achieved as a result. There is no point in continuing to emit at home whilst paying other countries to emit more, even if this would not be as much as they would otherwise have emitted. This failing can be seen in a large number of the “carbon offset” schemes which are on the market. Indeed none of these demonstrate an understanding of the challenging

nature of the 60% target for emission reduction. This situation needs to be corrected before targets are set by the UK government for international measures so that the only measures which are accepted are those that reduce the absolute quantity of greenhouse gases being emitted by the whole world.

Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments

17. The remit of this Committee is very wide and its function would seem to overlap with DEFRA, DTI and others, not to mention the Royal Commission on Environmental Protection. Having one Committee which is competent to deal in science, technology, economics, social aspects, etc is a recipe for extensive discussion, probably much of it reflecting a lack of understanding of one aspect or another, since it will be well nigh impossible to staff the Committee with people who are expert in all these fields. It is not clear to me that a Committee with such a wide ranging remit will be able to make a useful contribution.

The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism

18. The Secretary of State for the Environment will have only limited power to influence the emission of greenhouse gases, except from the regulated sectors. In these circumstances, imposing judicial review on the Secretary of State is unlikely to help achieve the overall goal. Tackling climate change is far from a simple problem so it would be far better if Parliament (and through them the country as a whole) involves itself in understanding and scrutiny of greenhouse gas emissions and of Governments implementation plans to achieve reductions.

How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations

19. CO₂ emissions are largely derived from use of fossil fuels for energy. Thus climate policy is in fact energy policy. To discuss it as environmental policy, which is a devolved power, is to miss the point. As it is an aspect of energy policy, and strongly bound up with issues of energy security, it would be best to treat this in UK legislation.

How the contents of the Bill will affect international climate change activity

20. As discussed above, there is a danger that inappropriate regulation of greenhouse gases in the UK would cause industry to move offshore, thereby adding to the emissions of other countries. This must be avoided.

21. In addition, the Bill should enable the UK to influence other countries by example. If the Bill is enacted as it stands, the UK will be one of the leading countries although it seems unlikely that the targets will be much more dramatic than those of some other European countries (such as Germany, which is discussing a 30% reduction by 2020). Thus the main impact of the Bill will be to reinforce the example that Europe collectively provides to the rest of the world.

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Memorandum by Dieter Helm³⁵ (CCB 07)

1. INTRODUCTION

The draft climate change bill proposes long- and medium-term targets for carbon emissions, supported by a series five-year carbon budgets, and establishes a new body—the Committee on Climate Change—to monitor performance and carry out a number of supporting advisory functions. The draft bill also includes a host of enabling powers. This memorandum focuses on each of these components.

2. THE CARBON TARGETS

The 2050 60% target is best considered as a working aspiration, rather than a formal target. Over nearly half a century, between now and 2050, much will change—the scale and effects of climate change will be much better understood; low-carbon technologies will have advanced greatly; and the scope and scale of international co-operation and agreements will be much better known. The costs of climate change and of

³⁵ Professor of Energy Policy, University of Oxford.

mitigation will also become clearer. Indeed, the draft climate change bill in Section 1(4) explicitly recognises changes in scientific knowledge, international law and international policy. It is therefore not really a target at all.

The choice of the ‘60%’ should take account of costs and benefits, and the extent of current ignorance should be explicitly recognised in setting such an aspiration for 2050. The recent *Stern Report* is a key input, and unfortunately many politicians have simply taken the headline numbers from the recent Stern Report as “given”, rather than, as its author is careful to emphasise, as subject to very considerable uncertainty, and this has led to conclusions which merit much careful scrutiny before being cemented into policy. In particular, the *Stern Report*:

- states the costs and damage in relation to GDP. GDP takes little account of asset valuations (including the environment and the climate), and includes almost no pollution costs. It is, in effect, a cash number, and is peculiarly unsuitable for considering environmental issues. It is gross not net, and assumes that new man-made capital can compensate for the loss of natural resources and the environment;
- assumes GDP growth throughout the century at just under 2% per annum—making us extremely rich by the end of the century (as will too the two billion in each of China and India). If this GDP growth were to materialise, and if GDP were to be a good measure of economic well being, then our concerns about climate change should be muted—and probably less important than issues like health, nuclear weapons and water supply;
- takes a very optimistic view (as does the IPCC) of the costs of mitigation—perhaps 1% GDP. These calculations are uncertain—since we do not know the technologies—and crucially these estimates do not take proper account of the policy costs of delivering them. (For example, the actual cost to consumers per tonne of carbon saved under the Renewables Obligation has been estimated by Ofgem at £429 against the grid average emissions).³⁶

These considerations are not merely academic or economic: they have an important political implication and direct relevance to the draft climate change bill. If GDP is adjusted to take account of environmental assets and pollution costs (to produce *Green GDP*) then climate change may reduce growth significantly, or even reverse it, especially later in the century, making the real impacts much worse. We will not then be much better off. So, by using GDP, the Stern Report may have underestimated the costs significantly. And, on the other hand, the costs of mitigation may be (much) higher. The result is that the scale of intervention to achieve the draft climate change bill 2050 target may be much greater, and as a result the political requirement will be to persuade people to adjust their living standards accordingly as they are required to face the full costs of the carbon reductions.

These considerations suggest the following conclusions:

- It is extremely unlikely that future governments will not change their minds, perhaps aiming for much greater emissions reductions.
- The form of this target should be set as a minimum, and careful thought should be given as to how to revise it over time.

3. THE CARBON BUDGETS

The carbon budgets represent a short- to medium-term envelope of emissions reductions, and their credibility depends upon the prospects for their delivery. Given that the 2010 target of a 20% emissions reduction is likely to be missed by a wide margin, and that emissions of CO₂ have actually gone up by (depending on the statistical measure used) perhaps by as much as 5–6% since 1997, it is important to recognise that even stabilising CO₂ emissions is a demanding requirement without major interventions. Such progress as there has been is flattered by the exclusion of aviation and shipping.

Looking forward over the next decade, significant reductions may indeed be very hard to achieve. In particular, the government White Paper on aviation envisages a major expansion of airport capacity to facilitate growth in air travel, shipping is projected to expand considerably, as is road transport. Major new house-building will increase emissions (house-building will not be carbon neutral, even if—again unlikely—the houses are zero carbon in subsequent emissions, as will the Olympics (again, however low carbon the buildings that are planned are in use). Economic growth will feed through into greater energy use, and climate change itself may induce additional emissions, in particular in relation to air conditioning.

To offset these almost inevitable emissions increases, governments will need ambitious programmes for emissions reductions. It is, however, notable that in the electricity and energy sectors, the next decade is likely to witness a capacity shortfall, only partly offset by a further dash-for-gas, augmented by new coal (which may be carbon capture-ready, but the actual capture may be at least a decade away). Existing coal power stations may need to be kept running to keep the lights on. Over the next 15 years, almost all the existing nuclear power capacity will be retired—some 20% of total capacity (and equal to all the projected renewables over the same period, making no net contribution).

³⁶ Ofgem (2005), “Ofgem’s response to the preliminary consultation on the 2005–06 review of the Renewables Obligation”.

These considerations suggest that the gap between 26–32% carbon budget reductions by 2020 and the business-as-usual baseline is likely to be very hard to close, and that without very large-scale intervention, the budgets may not be fulfilled. If and when this failure becomes apparent, the draft climate change bill provides for two responses: the powers to vary the budgets; and the impact of judicial review. The credibility of the budgets depends on a careful *ex ante* evaluation of the practical processes and consequences of such a failure, should it arise. It is not clear whether such an evaluation has been carried out.

These considerations lead to the following conclusions:

- Carbon budgets will only be credible if the policies to achieve them are credible too.
- Carbon budgets need to take account of security of supply constraints in the energy sector.
- On current policies, credible carbon budgets may have to be set at very modest levels until 2020; these would not be compatible with the 26–32% 2020 carbon budget targets.
- Much greater evaluation needs to be undertaken of the processes and consequences of failure to meet the carbon budgets.

4. THE CARBON COMMITTEE

The Committee on Climate Change brings several clear benefits to the credibility of policy: it creates a centre of expertise; it provides a public and transparent monitoring of performance; and it confronts government with (possibly uncomfortable) options to get back on track in the event of failures.

The carbon committee is not, however, similar to the Monetary Policy Committee of the Bank of England. There is no Bank of England (with all its accumulated credibility) to nest it in; it is not strictly independent of government; it does not have delegated to it the setting of policy instruments; and, finally, the climate change problem is not separable from other policy areas (such as security of supply, energy policy, transport policy and planning) in the way that monetary policy is considered to be largely stand-alone.

The combination of a host of interfaces with government departments and public agencies and regulators will provide a significant challenge to the new committee as it tries to assert the importance of climate change objectives against others, notably in energy and transport. In the energy field, there is likely to be a significant security of supply problem post-2010, requiring greater reliance on existing coal and new gas and coal stations. Contrary to much commentary, security of supply and climate change policies are not necessarily complementary (and neither of the two supply-side options—renewables and nuclear—are likely to be sufficient over the period to 2020: the former because of its inherent characteristics of scale, and the latter because few if any could be built by 2020). Indeed, post-2010, there is every chance of a collision between energy security of supply and climate change objectives.

Relations with existing environmental bodies need also to be considered—notably with the Environment Agency (which has air pollution duties and currently plays a key role in the application of the EU Emissions Trading Scheme) and with the host of other special bodies—in particular, the Energy Savings Trust and the Carbon Trust.

These considerations lead to the following conclusions:

- The powers and duties should be strengthened to create greater institutional independence.
- Credibility would be enhanced if appointments to the new body should be made on a cross-party basis.
- The Environment Agency should be correspondingly reformed, such that its priorities become water and waste. Consideration should be given as to the location of air pollution issues which are less immediately associated with the remit of the Committee on Climate Change.
- Greater consideration should be given to the consequences post-2010 of a collision between climate change and other objectives, and as to which and to what extent ministers are held accountable and in what ways.
- The government should consider creating a broader-based Energy Agency with delegation of the delivery of both security of supply and climate change objectives. This should incorporate the Energy Saving Trust and the Carbon Trust and Ofgem.

5. ENABLING POWERS AND THE RELATION TO A POSSIBLE ENERGY BILL

The draft bill provides for a host of enabling powers. These *ex ante* powers should be subject to very careful scrutiny for the obvious reason that the current political consensus on climate change makes their *ex post* application much harder to question. There is an obvious temptation to use such powers to advance emissions reductions wherever and however they can be attained, yet consideration needs to be given to the following issue:

- Many climate change measures can have negative environmental effects. Climate change is not the only environmental problem, and a number of measures to reduce emissions can have detrimental effects on biodiversity and other broader objectives. Proper scrutiny of these trade-offs is less likely if measures are pushed through by the use of enabling powers.

- Climate change measures are bedevilled by lobbying and vested interests, and the interaction with the political process and parties offers opportunities to special pleading, and can result in high cost solutions. Scrutiny is an essential weapon to reduce the impact of these pressures.

The possibility of a merged Energy and Climate Change Department, and the need to legislate for measures in the 2007 Energy White Paper and in respect to a possible return to nuclear power raise the question of whether there is room for an energy bill as well as the draft climate change bill in the 2007–08 legislative programme, from a single new department. There is clearly a temptation to take the powers for the Energy White Paper and nuclear measures under the draft climate change enabling provisions. Taking such important energy decisions—especially about nuclear power—without explicit legislation will do little to assure the public that their concerns have been properly taken into account through the democratic process, and there is an obvious danger that these energy questions will be bundled together with the climate change targets and associated measures as a whole.

These considerations suggest the following conclusions:

- The scope and scale of enabling powers should be kept to a minimum.
- Where enabling powers are utilised, there should be explicit provision for significant public scrutiny, and the Committee on Climate Change (or, better, an Energy Agency) should be as statutory consultee.
- A separate energy bill is desirable, especially if nuclear measures are to be included, and these should not be bundled into a climate change bill.

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Memorandum by Lord Hunt of Chesterton (CCB 08)

Professor of Climate Modelling, University College London; Formerly Chief executive Met Office. Other relevant posts; vice president Globe international; city councillor Cambridge City Council dealing with environmental matters; president of National Society for Clean Air; Chairman Cambridge Environmental Research Consultants (providing software in UK and internationally for air pollution, greenhouse gases, wind energy etc); author and presenter of Open University film on air pollution dispersion.

Q1. The Bill is needed to concert action on mitigation and adaptation—the latter should be stated in the purpose of the bill (beyond the cryptic ‘other purposes’). People expect governments to look after them today as well as to their descendents tomorrow. Concerting or integrating action is the key to environmental, financial and political effectiveness (as the Organisation for Economic Co-operation and Development is recommending).

Q2. Regulations are needed, but voluntary action is also effective (and can support regulation) if there are financial incentives—as Woking demonstrated with their clever finance which helped their self funding policies.

Q3. Omitting the role of local government is a big error. Climate change at a local level should have the impact of the Clean Air Act for smokeless fuels and the drive for pedestrianisation and public transport in the 60’s and 70’s. Every home will be affected, and climate change campaigns (with local targets that people can understand) driven by councillors and mayors should be at the heart of the UK effort. Local participation has been shown by surveys to lead to local support and understanding. I would suggest that the bill should allocate funds to local authorities to employ officials to implement energy saving, efficient use of transport, planning controls on energy systems in buildings etc. There should be some limited funds to the voluntary sector to help—they were very influential in the clean air campaigns (I declare an interest—see above).

The NGOs are doing a good job at monitoring and encouraging the big companies. Government funding is needed to ensure they remain independent.

Dealing with the consequences of climate change will be a massive local challenge especially to vulnerable people, from flooding, to high temperatures and high air pollution. (The practice in Chinese villages, which I have seen, of party workers helping the elderly to upstairs rooms may not be far away—though I doubt if this will involve party workers here!) Only a local authority with responsibility (eg with on-line planning and regulatory powers eventually to control the use of air conditioning and transport at certain times of the day in extreme conditions—powers incidentally that were never given in the UK when dealing with sulphur and vehicle emissions, though they were on the continent) will be able to manage and optimize these enormous problems that are looming. Of course LAs will work with government health, environment, and other agencies as well.

Q7. The Committee on Climate Change must have responsibility for monitoring, policies and facilitating finances for both mitigation and adaptation. (eg combining flood defences with wind/wave energy systems can be much cheaper and more effective than our piecemeal approach at present—see the Netherlands). It should not replicate existing agencies, but should find ways of reviewing and integrating their efforts. Clearly it should help develop strategic thinking about options for the short, near and long term; it should not prematurely close them off and should not be involved in the suppression of public information and debate, as we have seen with nuclear energy. The Committee should have on it someone who has had some public administrative/political experience to advise the Committee on what will and will not work in the public sector, and how to get it done.

Q11. I am fearful that a narrowly constructed mitigation bill, as the present one is, will not only have limited public appeal in the UK but will not be appreciated, or followed in other countries of the world. As ministers from Africa stated last week at the G8-UNESCO conference, they are desperately concerned about today's problems, exacerbated by climate change, such as more frequent natural disasters, malnutrition and desertification etc. So it is essential that the Bill and the public campaigning should show that this Bill will aim to link adaptation and mitigation through new financial, administrative and environmental measures that other countries could emulate, and benefit from.

One excellent outcome of the Bill might be the Committee for Climate Change that was genuinely cross party and open to all ideas that might be relevant. (This would be unique internationally as far as I can see. It would certainly be welcomed by international agencies which are frustrated and puzzled by the current vagaries of policy by national governments).

May 2007

Memorandum by the Mayor of London (CCB 10)

SUMMARY

- The Mayor welcomes the opportunity to respond to the Joint Committee's inquiry into the draft Climate Change Bill.
- The Mayor strongly supports the publication of the Government's Draft Climate Change Bill. The Bill represents a landmark piece of legislation in combating climate change, and the Government should be commended for its publication. The Bill sets a precedent in creating statutory obligations on a Government to reduce carbon dioxide emissions by a defined quantity. This is to be welcomed.
- The Mayor's view is, however, that the Bill needs to be strengthened in terms of targets, enabling powers and the role of the Committee on Climate Change.
- In order for the UK to achieve its carbon reduction goals, the Bill must set out a pathway for a decisive shift from an economy in which large amounts of energy are produced, and large amounts wasted, to an economy in which energy is conserved and carbon dioxide emissions reduced. At present, the Bill does not do this.
- The Mayor launched the first comprehensive plan to cut London's carbon emissions in his Climate Change Action Plan (CCAP)³⁷ earlier this year. The Action Plan demonstrates that cutting carbon emissions will also deliver financial benefits. By using energy less wastefully, London's economy will become more efficient and Londoners and London businesses will be better off through lower energy bills.
- The Bill has a powerful role in ensuring that the UK maintains its international leadership role in combating climate change. The Government's drive on promoting international carbon trading mechanisms have highlighted the UK's strong role in this area. The Mayor has taken up similar progressive initiatives at the city-level with the formulation of the C40 group. International partnerships by the Mayor with the Clinton Climate Initiative and the 40 member-cities is helping to develop powerful new carbon products and services which will rapidly improve energy efficiency and cut global carbon emissions.
- Whilst the Mayor is clear that the Climate Change Bill is a ground-breaking piece of legislation, if further measures were to be adopted, as outlined below, the Bill could set a much clearer low carbon pathway for the UK.

³⁷ Mayor's Climate Change Action Plan—*Action Today to Protect Tomorrow* GLA February 2007.

RESPONSE TO THE JOINT COMMITTEE'S QUESTIONS

1. *What the main aims and purposes of the Bill are and why it is needed*

1.1 The Mayor supports the Government's stated purposes of the Climate Change Bill, which include providing greater clarity and support for the Government's medium and longer-term carbon reduction targets, and demonstrating international leadership.

1.2 A strong domestic framework for carbon reduction is a key element in helping deliver confidence to support a credible market price for carbon. The UK Government has taken a strong lead on the cap-setting process within the EU emissions trading scheme (EUETS), however, the second phase of the scheme will only extend to 2012. Setting medium (three five-year budgets to 2022) and longer-term targets highlights the Government's commitment to reducing carbon and responds to the energy sector's call upon Government to reduce uncertainty with regard to new electricity generation investment.

1.3 The Bill will also help the Government to demonstrate strong international leadership—this is particularly important in relation to discussions later this year on establishing a post-2012 successor to the Kyoto Protocol.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed*

2.1 The Prime Minister, in his foreword to the Climate Change Bill consultation document, states that he has made combating climate change “a top priority for this Government, both domestically and internationally.” The Mayor strongly supports this. Over the past few months, both the Stern Review and the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment report have outlined the challenge of climate change in detail. Therefore it is the Mayor's view that it is appropriate to set in place legislation to create statutory carbon reduction targets. This would send a clear signal across the economy that the Government is serious in its commitment to create a low-carbon UK. The issue of compulsory and voluntary action is addressed below.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

3.1 Regional bodies are increasingly setting a lead in combating climate change. The Mayor, as highlighted above, has already set out a comprehensive Action Plan, with targeted programmes on the domestic, commercial and transport sectors within London. The CCAP builds upon the Mayor's 2004 regional spatial strategy, the *London Plan*, which set out a clear requirement upon developments referred to the Mayor to ensure that they went beyond the energy efficiency levels set out in the national building regulations, and, where appropriate incorporate decentralised energy systems ranging from combined heat and power (CHP) to renewable energy. The current review of the *London Plan* proposes to strengthen the sustainable energy requirements. The Mayor has also announced that he had reprioritised £78 million over the next three years to fund the four carbon-reduction delivery programmes within the CCAP

3.2 The Bill needs to recognise regional initiatives such as the CCAP, amongst others, which have set out to engage closely with local communities to deliver both the message of climate change, and set the priorities and actions to deliver carbon dioxide reductions. Within the target setting procedure that the Bill proposes, clear relationships with regional bodies should be established in order to determine regional carbon reduction targets and trajectories.

3.3 The Climate Change Committee also lacks any regional representation. The Mayor believes this is a significant oversight. Cities are, in fact, the largest emitters of carbon emissions and there is definite scope to repeat the Climate Change Action Plan preparation for London in other regions and cities, both nationally and internationally.

4. *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence*

4.1 The Mayor recognises the importance of limiting the impact of the non-carbon dioxide greenhouse gases. These five gases currently contribute to an equivalent of 2% CO₂ equivalent (CO₂e) within London. However, as carbon dioxide is by far the most predominant gas contributing to the rise in global temperatures, the Mayor supports the Government's focus on carbon dioxide within the Climate Change Bill. Emissions of methane and nitrous oxide are, in particular, important to monitor and therefore their emissions and impact should be monitored and reported upon by the Climate Change Committee.

4.2 In line with the London Climate Change Action Plan, the Mayor also calls on the Government to take into account the recent analysis from the IPCC and others, that a faster trajectory for the reduction in carbon emissions needs to be achieved. Therefore the Mayor calls upon the Government to set the Bill's

target and trajectories to achieve a 60 per cent carbon reduction (baseline 1990 emissions) by 2025. The Climate Change Action Plan sets out this more ambitious goal as its key target, but clearly states that it will not be achievable without national policy change.

5. What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of 5 year carbon budgets and interim targets represents the most appropriate way of doing so

5.1 The Mayor strongly supports the Stern Review's statement that "*the earlier effective action is taken, the less costly it will be.*" The trajectory set by Government should strongly reflect the wide range of opportunities that exist to deliver significant carbon reduction savings. Moreover, the Government's National Allocation Plan (NAP) under EUETS has already set a "budget" of allowances for the traded sector, which represents approximately 50 per cent of UK carbon dioxide emissions. This, therefore, sets a much clearer scope for the trajectory to be set for the remaining sectors of the economy that need to be tackled in terms of reducing carbon (ie broadly, transport, including aviation, domestic and the non-EUETS commercial and industrial activities).

5.2 The rolling five-year budget system proposed by the Government is a practical way forward. Banking and borrowing of a limited number of allowances across each of the years within a budget period is acceptable. Borrowing of allowances from future budget periods, should, however, not be allowed.

5.3 The carbon budget concept put forward by the Draft Climate Change Bill mirrors the proposal put forward by the Mayor within the Climate Change Action Plan. This states that, to stabilise global carbon emissions at 450ppm on a contraction and convergence basis, London has to set a limit for the total amount of carbon dioxide between now and 2025 to about 600 million tonnes.

5.4 The first budget period needs to reflect the Government's commitment to its manifesto target of 20% carbon dioxide reduction by 2010. The target should not be "smeared" across the budget timeline. This is a longstanding Government target of key importance and needs to remain a cornerstone of the Government's commitment to carbon reduction.

6. The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target

6.1 The Mayor has no specific response with regard to the use of carbon capture and storage, however, the Mayor is concerned with the proposal that international carbon allowances can be purchased by Government to meet its carbon budget targets. The Government seeks authority in the Bill to "*spend money on overseas credits and allowances to help the UK remain within budget if necessary*". However, no indication with regard to the limit of allowances is given in the Bill or supporting documents. In terms of these credits, the Government states that it will issue guidance on 'supplementarity'—this of key importance and needs to be resolved by the Government before any overseas credits are purchased.

6.2 In relationship to the Government's desire to highlight international leadership, the Bill should clearly place an emphasis on achieving its carbon reduction goals through domestic action, at least in the medium term. The Government should state at the outset that its use of internationally traded carbon credits to meet its statutory targets will be limited and capped.

7. Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments

7.1 The Government has experienced considerable difficulties in relation to its carbon and forecasting work (most notably in the formulation of NAP I) and therefore the formation of an independent panel to set, report and comment on the Government's progress on reducing carbon dioxide (and other greenhouse gases) is to be welcomed (similar criticisms of DTI's energy forecasting work did lead in 2005 to the creation of the Projections Advisory Group (PAG)). An independent organisation is vital: current Defra estimates of carbon dioxide emissions for 2006 state that net emissions of carbon dioxide have provisionally been estimated at around 560.6 million tonnes, about 5¼% lower than the 1990 level of 592.1 million tonnes. The Government must therefore undertake significant activities if it is to achieve its 2010 commitment to a 20% reduction.

7.2 In terms of analytical activity on carbon-reduction, Government must clearly set out a clear role for the Committee on Climate Change. The Committee's work should not be a duplication of existing effort by the Office of Climate Change, NETCEN, Met Office etc.

7.3 The proposed make-up of the Committee strongly represents scientific and economic disciplines. Whilst recognising that significant technical expertise is required in setting the carbon budgets, the Mayor is concerned that, at present, the Committee lacks representation in ensuring that appropriate policy mechanisms are put forward to ensure that carbon reduction delivery mechanisms are introduced as necessary.

7.4 The Mayor is concerned that, as currently proposed, the Committee will have limited ability to influence Government policy. Government's failure to date in terms of carbon reduction has not been in terms of target-setting, but in introducing real, long-term and effective energy policies to create a successful low-carbon economy. The Committee's annual reporting requirements appear, at present, to be analogous to those of a Parliamentary Select Committee, with the requirement on Government limited to responding to the Committee's recommendations. The Committee must not only provide advice on the carbon budget targets, and update Government on the overall trajectory it should undertake to achieve, but also identify where Government policy is conflicting in achieving the UK's carbon goals.

8. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

8.1 Any failed targets should be reflected in the trajectory of the following budget period.

8.2 The current discussions around the compliance arrangements for countries who have ratified the Kyoto Protocol also need to be taken into consideration in terms of the legal consequences of failing the statutory targets.

9. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations*

9.1 No response.

10. *Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets*

10.1 Both the 20% and 30% greenhouse gas reduction targets adopted at the March 2007 EU Presidency meeting are below the Draft Climate Change Bill's proposal for a 26–32% carbon reduction target for the first statutory target budget period (this is because the proposed UK carbon target is equivalent to a reduction of greenhouse gases of 32–37%). However, the impact of the challenging 2020 20% renewable energy target recently signed by member states needs to be studied.

11. *How the contents of the Bill will affect international climate change activity*

11.1 See answer to question 1.

12. *Whether the delegated powers contained within the Bill are appropriate and adequate*

12.1 The enabling powers within the Bill should reflect the scale of the challenge to reduce UK carbon emissions and help create the framework to ensure that all sectors of the economy can play their role in reducing emissions.

12.2 New areas of policy need to be rapidly progressed: the energy sector is already calling for significant change in the way its market is regulated in order to combat climate change;³⁸ the key role of planning in helping to reduce carbon emissions is only now being addressed; significant new targets for the growth of renewable energy have recently been agreed upon, and the role of supplying heat sustainably is only now being studied. The Committee should be able to supply strong signals to Government in terms of the regulatory and other changes needed, and the enabling powers required, in order to enact these changes.

CLIMATE CHANGE ADAPTATION

12.3 The Mayor welcomes the commitment by the Government within the Bill in supporting adaptation as a complementary strategy to mitigation and on more regular reporting on adaptation. However, the Mayor would welcome better targeted information from Government, to support adaptation to climate change at the regional and local level, as well as the development of a set of indicators to gauge impacts and progress towards improved adaptation between reporting periods, as set out in the 2005 Government Climate Change Programme.

³⁸ Help us sell less power, National Grid tells regulators, *Financial Times* 8 May 2007.

12.4 The Mayor recognises the difficulties in generating suitable metrics on adaptation, but would welcome support from Government to discuss the application of the indicators developed through preparing his adaptation strategy. The Mayor also believes that the proposal within the Bill for a quinquennial review of adaptation policies is too long, and that adaptation measures should be reviewed every two years. The Government's Climate Change Programme also committed Government to review the role and status of regional climate change partnerships (including future funding options) and this aspect of adaptation work should be included within the statutory reporting.

May 2007

Memorandum by Brian Jones (CCB 11)

1 I am a retired academic physicist who has a continuing interest in energy, climate change and environmental matters. I have been involved in the NW and Lancashire planning documents on these topics as an individual.

2 Here I wish to comment only on the question of Statutory targets. I believe this is not the most appropriate way to proceed. I will make two points.

3.1 Climate Change is an International problem which must have an international solution. The actions which will have most effect, and are essential for a solution, are those taken by the big players. That is the countries with large carbon usage, where countrywide policies can have a big effect, but perhaps better individuals with large per-capita carbon usage. Combining these there are countries with large per-capita usage. There will be little outcome to limit the carbon usage of small countries with relatively low carbon usage.—Thus the effort should be targeted.

3.2 The UK is not a major energy consumer, although large and could do better. A massive reduction in UK carbon generation will not solve the global problem but could be severely disruptive of other aspects of the quality of life including the economy.—Thus a non-disruptive approach is needed.

3.3 An argument for a stringent approach is that it will set an example. This can be true and examples can be quoted of a successful hunger strikers etc, but there are many others who destroyed themselves without the benefit of a suitable publicity machine and hence by setting an example. In my experience the wasteful livers are totally oblivious of the economical livers next door and consider them failures.—A failed but green UK economy living in the soot of its neighbours is no solution.

2.1 My experience in studying the emerging energy policies at the Regional and County level is that it is too difficult to define enforceable practical policies because the subject is too complex. That is it is not clear how a statutory target could be “enforced” or even aimed at. This is easier at the National level since legislation can strongly influence the UK, but not EU or worldwide, economies. However legislation is too coarse an approach, except perhaps for a personal carbon tax with increasing tax rates with increasing usage. The complexity of the problems that have to be solved are illustrated by that the price of transport or heating fuel can be controlled by taxes but rural dwellers need cars more than town dwellers and the poor must have some heating.

2.2 It is accepted by the Energy White Paper and others that economy in energy is the best way of reducing carbon emissions with renewable substitution following. (The better long term approach of limiting the world's population is rarely stated) There are three roughly equal primary energy use sectors: heating, transport and electricity generation. Although there are exhortations to insulate houses and to drive fewer miles, the apparent focus of carbon reduction activity and the claimed saviour of global warming is a few tens of percent conversion to renewables of that third of the energy use which goes for electricity generation. This is mainly wind farms because there are big subsidies and the technology is mature. This approach cannot work.

2.3 A statutory target requires statutory controls and these are not suitable for much of the solution since the problem is so complex, as mentioned in 2.1 above. What is needed is a non-statutory long term target with long term planning of change through fiscal means, encouragement of some new technology, help for the needy, a gradual conversion of “hearts and minds” and perhaps the introduction of some of the more practical parts of a personal carbon tax. A good comparison may be made with the national anti-smoking (or seat belt) campaign. A ban at the start would not have worked but a combination of taxes, propaganda and social pressure has resulted in a public consensus to ban the habit.

May 2007

Memorandum by Anthony Jackson (CCB 12)

This is just a short submission to draw your attention to the possibility that some of the more recent converts to the issue of Climate Change, may be using their sudden trip on the road to Damascus to protect their vested interests and promote their own pet projects.

I will not engage in an exhaustive list, but it is quite interesting (amusing?) how suddenly, formerly rejected “technologies” such as GM crops, nuclear power, and monocultures of biofuels are now going to “save the day”. At least ID cards haven’t been touted as the answer to Climate Change as yet.

To deal with such an all encompassing issue, we need to keep the public on board. It will be the decisions of individuals across the globe that will be key, and if the debate becomes tarnished by vested interests and any attempts to further “control” populations (by whatever means), I am afraid that all your good work will get nowhere.

Just a final thought, as demand for the world’s resources is at its highest ever, and increasing dramatically, whilst at the same time these resources are possibly already showing signs of depletion, could it be that Climate Change is being used by some to protect their access to whatever is left . . .?

If resource depletion, and allocation is the issue here, let us please address it directly, and not in an obtuse way via Climate Change.

May 2007

Memorandum by Natural England (CCB 13)

INTRODUCTION

Natural England was established under the Natural Environment and Rural Communities Act 2006 with the purpose of ensuring that England’s natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

EVIDENCE ON SPECIFIC ISSUES

Natural England has comments to make on issues 1, 2, 3, 4, 5, 6, 7, 8, and 12.

1. *What the main aims and purposes of the Bill are and why it is needed*

1.1 We support in principle the Government’s intention to legislate on the UK’s domestic response to climate change. We support the proactive approach taken in setting emission reduction targets. However, we have serious concerns about the approach to adaptation: it is reactive, lacking clear statutory requirements to establish measures against which progress can be monitored.

1.2 Regardless of the robustness of emission reduction targets, we are committed to several decades of climate change, arising from past emissions, the effects of which cannot now be prevented.

1.3 Although the focus of both national and international climate change policy has been on reducing greenhouse pollution, it is now accepted that planned adaptation is a necessary strategy to complement mitigation. Adaptation cuts across sectors and disciplines. Without a clear national framework, it is likely that domestic adaptation will be, at best, ad hoc, and at worst, lead to unwanted outcomes.

1.4 Whilst the Draft Bill provides for retrospective reporting of actions taken to address climate change adaptation, it does not set out a proactive approach to future adaptation. Legislation is necessary to provide a statutory requirement for Government to:

- identify the impacts of unavoidable climate change;
- develop a national framework to provide a cross-sector approach to climate change adaptation;
- include a strategy to ensure that the effects of climate change on the natural environment are minimised.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action be best achieved and assessed*

2.1 Experience in achieving emission reduction targets suggests that legislation is required. The UK is on course to meet its legally-binding commitment under Kyoto, but will fail to meet the voluntary domestic target of a 20% reduction in CO₂ emissions by 2010.

2.2 We believe the same need for legislation and targets applies to adaptation. The absence of a statutory framework for action is resulting in *ad hoc* and approaches that will not deliver sufficient adaptive capacity to ensure that the UK will be resilient to inevitable impacts of climate change.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included to secure a change in public behaviour*

3.1 Local and regional government have vital roles to play in delivering both emission reduction targets and adaptive capacity for communities. The emerging “place-shaping” agenda offers important opportunities for joined-up delivery and should be explicitly recognised by the provisions of the draft Bill.

3.2 However, it may be more appropriate for other legislation to contain the detailed delivery mechanisms and requirements to engage local government and communities in responding effectively to climate change. We believe the Local Government White Paper and the draft Climate Change Planning Policy Statement have gone a long way to clarifying the role of local councils in this challenge. We urge DCLG to ensure that the Planning White Paper and subsequent legislation will continue this progress.

4. *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence*

4.1 Natural England accepts the scientific evidence presented by IPCC³⁹ affirming the need for a policy goal of restricting global temperature rise to no more than 2C above pre-industrial levels. On the basis of the available evidence, the proposed 60% reduction target for CO₂ emissions by 2050 seems appropriate.

4.2 The proposal that emission reduction targets will only apply to CO₂ and not other greenhouse gases is a shortcoming and missed opportunity of the draft Bill. IPCC⁴⁰ states conclusively that a multi-gas approach generally reduces costs of mitigation substantially compared to CO₂ emission abatement alone. International approaches to climate change mitigation and emissions reduction have taken a multi-gas approach.⁴¹

4.3 The UK’s domestic action on emission reductions should be consistent with international multi-gas approaches. This approach would enhance synergies between the UK’s domestic and international efforts to reduce emissions and offer improved opportunities for overall reductions. As the UK has demonstrated successfully through Kyoto, it is possible to achieve reductions for all greenhouse gases not just for CO₂.

5. *What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of 5 year carbon budgets and interim targets represents the most appropriate way of doing so*

5.1 We support in principle the proposal for five-year carbon budgets. This is the same approach taken to the commitment periods of both the Kyoto Protocol and the EU-ETS so is an internationally recognised system for measuring and monitoring greenhouse gas emissions.

5.2 However, five-year budgets are a very short-time frame to be held to account when some policy decisions (eg nuclear build) will only make significant emission reductions over a longer timescale. The proposal to set three budget periods at a time is likely to be the most pragmatic approach, as it will give an element of the certainty needed to influence investment decisions over the long-term but allows some degree of short-term flexibility.

6. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target*

6.1 Farmers and land managers are uniquely placed to enhance the natural absorption of carbon in soils and vegetation, so strengthening carbon sinks. In the UK, this is particularly so for peaty soils, which store an estimated three billion tonnes of carbon and, if significantly degraded, could become major sources of additional CO₂.

6.2 As the scientific understanding of these systems becomes clearer, conservation and restoration practices that secure and sequester significant amounts of carbon should be recognised as valid mitigation measures that contribute to meeting the Bill’s emission reduction targets.

6.3 We recognise the value of using existing international flexible mechanisms available under Kyoto and the EUETS to deliver emissions reductions in other countries that can count towards meeting the Bill’s domestic statutory target. Under these international agreements, the amount of credits that can be purchased is capped, so there is no question of simply buying enough credits to meet a domestic target.

³⁹ IPCC Fourth Assessment Report Working Groups I and II (2007).

⁴⁰ IPCC Fourth Assessment Report Working Group III (2007).

⁴¹ Kyoto Protocol set legally binding targets for all major greenhouse gases, non-CO₂ gases are likely to be brought into the EU Emissions Trading Scheme (EUETS) post-2012 and the approach of the Stern Review is to include the total stock of greenhouse gases.

6.4 The importance of developing a global price for carbon was emphasised by Stern and will require processes such as the Clean Development Mechanism (CDM). By allowing the use of international carbon credits to contribute to meeting the emission reduction targets, the Bill will contribute to strengthening the emerging global carbon market. This, strategically, is more important than simply meeting domestic targets, given that the UK is only responsible for 2% of global emissions.

6.5 Furthermore, we note that some analysts have concluded that if Annex 1 countries used the CDM more widely than they are at present, developing countries could potentially receive annual revenues in the region of \$400-500 million a year between 2008 and 2012 for afforestation and reforestation schemes alone.⁴² If managed sustainably, this would represent a significant boost for global habitat restoration, in turn delivering widespread social and economic benefits from a healthy, rather than degraded, natural environment.

7. Whether the proposed consultation, remit, powers and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments

7.1 The proposals for the Committee reflect its proposed purpose: the assessment of optimum abatement pathways and subsequent monitoring and reporting on progress. However, since we believe the Bill should have a proactive approach to adaptation there is also a clear role for the Committee to establish appropriate adaptation measures. This role should be reflected in its terms of reference and its membership, including knowledge of climate change impacts and adaptation.

7.2 To achieve its remit, the Committee will clearly be in part dependent on existing departmental resources. However, the Committee should also seek out other analysis and forecasting services from non-departmental sources, including those such as Natural England.

8. The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism

8.1 It is imperative that the Bill establishes transparent and effective accountability and enforcement mechanisms to ensure public trust and confidence that targets and milestones are being met. The provision for independent third party verification of such mechanisms—beyond any by the proposed Committee on Climate Change—should be considered.

8.2 Emission reduction targets should be sector-specific and set for each five year budget period which, when combined, meet the trajectory identified by the Committee on Climate Change. This would mean that the most cost-effective mitigation measures for each sector would be identified and that there will be incentives for emission reductions across all sectors of the economy. This would avoid the risk of some sectors not contributing to achieving the statutory targets.

8.3 The consequences of targets not being met need to be outlined in more detail within the draft Bill. Financial penalties for emissions higher than the trajectory projection over a five-year budget period could be considered. This could take the form of the mandatory purchase of carbon-credits from mechanisms like the CDM that would offset the exceeded emissions.

12. Whether the delegated powers contained within the Bill are appropriate and adequate

12.1 Natural England strongly supports the enabling powers proposed. Such powers will provide the necessary incentives and regulation required for the Agriculture, Forestry and Land Management sector to make a significant contribution to climate mitigation.

12.2 There are at present no economic instruments that directly encourage or reward land managers for mitigation activities and the draft Bill, with the proposed enabling powers, is an important opportunity to address this.

May 2007

⁴² World Bank Technical Workshop, March 2006.

Memorandum by the Energy Networks Association (ENA) (CCB 14)**INTRODUCTION**

1. ENA is the industry body of the licensed electricity and gas transmission and distribution companies in the UK. We welcome the opportunity to provide our views.
2. It is our view that changes in the fuel mix should not be contemplated without due consideration of the impacts on the transmission and distribution networks.
3. One of ENA's core values is minimising the environmental impact of networks, including environmental change.

TECHNICAL AND PRACTICAL CONSIDERATIONS FOR NETWORKS

4. New forms of Renewable generation will bring a range of challenges for networks, including a need to address stability, intermittency, security and plant margin issues. At distribution level there will be an impact on how networks have to be designed and operated, potentially transforming them from largely "passively" managed to more "actively" managed systems. The ENA recognises that this is technically possible but the changes will require time to research, prove reliability in the field and then to build into the networks. There will also be a concomitant requirement for investment.
5. Increasing deployment of decentralised energy systems will also have a profound impact on the whole of the network system and will present integration and management challenges.
6. Development of nuclear power or new forms of large-scale centralised generation (including gas and coal) plant will have implications for the higher voltage transmission networks through the location and design of new power stations. There could be considerable demand for new or augmented network infrastructure.
7. There are also increasing pressures on the configuration of the transmission network arising from the EU internal market and the effect this will have on interconnection and cross-border requirements.

REGULATORY FRAMEWORK

8. We welcome the Government's proposals to move towards a longer-term approach to generation issues by establishing certainty through clear emissions targets. It is important that this permeates effectively through the regulatory framework and the objectives set by Ofgem.
9. The regulatory framework for the energy network companies will need to be adapted to accommodate the technological developments outlined above. The existing regime has been successful in removing inefficiencies, resulting in network charges to customers falling by 50% in real terms since 1990. Additional elements have been added to the simple RPI-X model to incentivise reductions in losses, improve quality of supply, and support for distributed generation and network innovation. However, it will be necessary to consider whether the current framework of incentives gives sufficient weight to long-term considerations of the environment and network development. If not, can it be adapted to accommodate them or do we need a different, more strategic approach to deliver the kind of networks which will be required in response to the long term needs of customers?
10. The implications for the networks of the proposals for the so called 'eco towns' will require a co-ordinated approach to planning and regulation which properly incentivises network development and removes barriers to its speedy implementation.

FALLING ASSETS AND SKILLS BASE

11. The bulk of the existing electricity transmission and distribution system was built in the 1960s to meet the needs of a very different electricity generation paradigm. Principal asset lives are typically fifty years.
12. A considerable deficit is developing in engineering skills, which may constrain the ability to build and operate the networks of the future.

SUMMARY

13. Successful deployment of generation by whatever technology is tied inextricably to parallel developments in networks. We are concerned that energy policy and how this is reflected in the regulatory regime for networks does not adequately deal with the need to synchronise developments in generation and infrastructure.
14. We would welcome the opportunity to take questions either in person or by correspondence to assist the committee in its deliberations.

May 2007

Memorandum by Mrs Anne Palmer (CCB 15)

1. I have been studying the matter of alleged Climate Change since President Bush said “NO” to Kyoto. For this, I looked in particular at the advice available to me from **his** scientists as well as our own and the EUs.

2. My research has been on going since that time and one of the recent articles was in the form of an “open letter” to Stephen Harper, Prime Minister of Canada, from and signed by 60 expert Scientists. Many of the scientists that have signed, are known to me from the work I have come across since 1997.

3. Here are two paragraphs from that letter. “Climate change is real” is a meaningless phrase used repeatedly by activists to convince the public that a climate catastrophe is looming and humanity is the cause. Neither of these fears is justified. Global climate changes all the time due to natural causes and the human impact still remains impossible to distinguish from this natural “noise”. The new Canadian government’s commitment to reducing air, land and water pollution is commendable, but allocating funds to “stopping climate change” would be irrational. We need to continue intensive research into the real causes of climate change and help our most vulnerable citizens adapt to whatever nature throws at us next.

4. And, “We believe the Canadian public and government decision-makers need and deserve to hear the whole story concerning this very complex issue. It was only 30 years ago that many of today’s global-warming alarmists were telling us that the world was in the midst of a global-cooling catastrophe. (I remember that too!) But the science continued to evolve, and still does, even though so many choose to ignore it when it does not fit with predetermined political agendas.”

5. Trading Credits are likely to cause more pollution. Not less. “Buying” credits from third world countries is actually removing money from rich countries to give to the poor. How many millions of pounds have we given away already? The figures are available re *Hansard*. Money that could have gone to save our hospitals? We should be helping out third world Countries, but all of us together, not through this way. If work is transferred from the UK to a third world Country, more CO₂s will be produced along with the work, using up more energy, for those countries may even work throughout the night churning out not only cheaper goods but more pollution, not “saving the planet” at all.

6. One other reason President Bush said “No”, was because it transferred sovereignty to the United Nations. As I see it, it is yet another International Treaty in which huge power, and I believe we have enough battles to fight within the European Union as it is already, for this battle is not just “power” in the sense of controlling the energy sources that drives the world economy, but political power in the sense of “who decides”; who decides how fast our economy should grow, or, if it should grow at all? This is just one more vast area we have lost control over, but it is a great and most important “area”.

7. An article by Philip Stott, on 12 April 2001 produced the following, “European politicians, who like to focus on country-by country comparisons which are, in geographical terms, meaningless, have carefully nurtured the myth that the USA is the main producer of carbon dioxide (CO₂). But how can you compare tiny counties, like the UK (only 94,227 square miles) or Sweden (173,723 square miles), with the USA (3,732,400 square miles)? Any meaningful geographical comparison has to be with Western Europe as a whole, or at least with the 15 Member States (as it was then) of the European Union (EU) and even the EU, at 1,249,000 square miles, has well under half the land area of the USA.”

8. “If we take the carbon dioxide emissions from consumption and flaring of fossil fuels for 1999 (1), we see that the countries of the EU emit around 925 million metric tons of carbon equivalent (MMTCe) per year, while the USA emits 1519.89 MMTCe per year. Correcting these figures by area gives us 0.0007 MMTCe per square mile per year for the EU and 0.0004 MMTCe per square mile for the USA. So the per unit area production in the EU is 175% that of the USA. And this does not include emissions from EU applicant states, like Turkey (49.96 MMTCe in 1999)”

9. When I look at a globe of the world and see the familiarity of the land mass and try to picture it when it was all a “joined up world”, I believe that coastal erosion has indeed been going on for millions of years. I ask, have earthquakes, volcanoes been put down to global warming? What about all the bombing of Iraq and Afghanistan and Lebanon? It is a well known fact that India and China and other countries will ignore the so called climate change.

10. I happen to believe that the earth is controlled by the activities of the Sun, and without the Sun the earth will die and there is absolutely nothing any of us can do about that. This makes far more sense to me and many are the articles on the Sun’s activities and how that affects our climate, but of course, I doubt there could have been a “climate change levy” through the Sun.

11. Not so long ago our under-arm deodorant spray was affecting the ozone layers at the North and South Pole. The ingredients were changed.

12. When another President of America comes along, or even maybe Mr Bush may see just how much money is changing hands through the Climate Change Levy, he too will jump on the band wagon, because, I am not alone in thinking that money and the gathering in of it, is what it is all about. Taxing the people yet again.

May 2007

Memorandum by Confederation of UK Coal Producers (CoalPro) (CCB 16)

The Confederation of UK Coal Producers (CoalPro) represents member companies who produce some 90% of UK coal output. CoalPro is not opposed to the development of any form of energy. CoalPro is pro coal.

CoalPro appreciates the opportunity to provide evidence to the Joint Committee and sets out below comments on those themes on which the Committee expects to concentrate its enquiry.

1. *What the main aims and purposes of the Bill are and why it is needed*

It is instructive in this context to examine what happened in 2006. In that year, carbon emissions rose as coal-fired electricity generation increased and that from gas and nuclear fell. At times during the winter of 2005–06 coal-fired generation provided 50% of the UK's supply of electricity. This did not happen for no reason. It was not just that fossil fuel price relativities changed to the advantage of coal, although that was a major factor. It was also due to the fact that gas was simply unavailable at times to supply much of the country's gas-fired generating capacity once adequate supplies had been made available to the domestic market, and because there were restrictions on available nuclear capacity. Had coal-fired generating capacity and adequate supplies of coal not been available, then the lights would have gone out not just at peak winter demand, but in every morning and early evening peak on every cold day.

Against this background, the proposal in the draft Bill to move away from specific single number targets for specific years for CO₂ reductions is sensible. Maintaining the present simplistic targetry approach would have risked having to take short-term action that would certainly have been sub-optimal in economic terms and way well have been sub-optimal in environmental terms.

CoalPro therefore considers that the draft Bill reflects a sensible compromise between the need to achieve large-scale long-term reductions in carbon emissions, with significant early reductions, and the need to ensure flexibility is available.

Providing for the UK's energy needs whilst at the same time achieving large-scale reductions in carbon emissions will require enormous investment over the next two decades. To make these investments, business will require a degree of certainty as to the future carbon regime. The proposals in the draft Bill go some way to providing this certainty but are insufficient in themselves. Applying a similar medium term regime to the EU ETS remains critical. Nevertheless, assuming that such a regime for the EU ETS will be put in place, a corresponding regime for the UK will also be required.

CoalPro has one major reservation. Whilst introducing flexibility and moving away from an oversimplified approach to a series of periodic budgets, "targetry" has not disappeared. CoalPro believes it would have been preferable to avoid the use of the term "target" altogether and replace it with, say "objective". What matters is that deep cuts in carbon emissions are attained by mid-century. Whether the level of reductions eventually achieved is, say, 58% or 62% (or 78% or 82% if a more demanding objective of 80% proves to be necessary) is very much second order. The same applies to the nearer term objective for significant reductions by 2020.

CoalPro would also wish to state an important caveat. The draft Bill's proposals for a long-term budgetary approach must not be regarded as a substitute for other action to achieve technological advance in low-carbon technologies. It will need to be accompanied by other market and regulatory instruments and other incentives to develop low-carbon technologies if the overall objectives are to be achieved. An over-reliance on a single policy instrument risks driving development towards a single solution which would be neither economically nor environmentally appropriate.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and addressed*

The legislative framework proposed provides a valuable background of long-term certainty for the large-scale investments that will be needed in future energy provision and low carbon technology. It is thus entirely appropriate to legislate for a flexible budgetary approach. It is not appropriate to legislate for targets

In itself, the draft Bill makes no distinction between compulsory and voluntary action and does not propose any additional measures in either direction. The best balance between them has to be assessed by defining which technologies can best achieve deep cuts in carbon emissions and then coming to a view as to whether compulsory or voluntary action, or perhaps some measure of both, will best ensure they are applied. CoalPro believes that market instruments will be necessary but that relying on them solely will prove insufficient and risks driving towards a single technology. Regulatory action and technology incentives will also be appropriate.

3. Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of legislation, and what measures should be included in the Bill to secure a change in public behaviour

CoalPro does not see any evidence that local government has a major influence on public support and does not believe that the omission of the role of local government will be a hindrance in this respect.

The bill is designed to introduce a system of medium term carbon budgeting at the UK-wide level. It is wholly insufficient in itself to achieve deep cuts in carbon emissions and it is not designed to do so. A whole raft of other measures will be necessary to do so including measures to secure changes in public behaviour along with many other requirements. This Bill is not the place to do this and CoalPro would be surprised if the Committee were to take that view.

It may be that there is a problem of perception here that relates to the all-encompassing title of the draft Bill. Perhaps “National Carbon Budgets” would have been a better title. Trying to deal with all climate change issues under one hat would be doomed to failure.

4. Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction is adequate, based on the most recent appropriate evidence

This theme reflects two quite different issues. First CoalPro believes that to set statutory “targets” is inappropriate; setting objectives through a flexible budgeting system is more sensible. CoalPro believes that the approach should not be restricted to carbon dioxide but the draft Bill makes provision for an extension to other gases later.

CoalPro does not have the expertise to comment on whether a 60% reduction by 2050 is adequate or not, but believes that few, if any, others will have that expertise either. Again, the draft Bill makes provision for adjusting that longer term objective should that prove to be the right course of action. The medium-term objective for 2020 is probably the best that can be achieved without excessive and counter-productive economic cost. In the meantime revising a specific objective for 2050 is premature.

5. What difficulties face the Government in controlling total UK carbon emissions and determining the optional trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so

Events in 2006 illustrate the difficulties the Government faces and illustrate why it is necessary to have a flexible approach if economically damaging short-term action (and perhaps environmentally inappropriate action) is to be avoided. It needs to be recognised that fossil fuels will continue to provide the great majority of global energy requirements for the foreseeable future and that, within that overall picture, the reserve base is such that, over time, coal will become cheaper and cheaper relative to gas. Controlling carbon emissions from fossil fuels means moving as quickly as possible to carbon capture and storage for large point sources, and that CCS must be applied to oil and gas as well as coal. Without CCS for carbon emissions from large point sources for all fossil fuels, the 2050 objective is probably unattainable, certainly on a global scale.

Any trajectory proposed by Government will never satisfy all constituents. The uncertainties mean that the medium term objective for 2020 is probably the best that can be achieved without excessive cost and represents major progress towards the 2050 objective. CoalPro sees no reason why the Government should attempt to go further at present. Within these wider issues, the system of five years budgets and interim objectives covering a limited out-turn range represents a flexible, and thus sensible, way forward.

6. The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target

The Committee needs to be realistic here. CoalPro does not believe that the attainment of the reductions in emissions required on a global basis is remotely possible without the widespread application of carbon sequestration. The Stern Report identified CCS as the second least expensive route to large-scale reductions after nuclear power, and there must be some doubt about the nuclear power costs. Whilst it may be possible for the UK to achieve its objectives without CCS, albeit at disproportionate cost, the effect on global warming overall will be minimal. There should therefore be absolutely no limit on the extent to which carbon sequestration should be permitted.

Credits from overseas investment projects is a different matter. If the projects involved are high quality, genuine, carbon reduction projects, and if they do not merely permit overseas countries to avoid making emissions reductions in other areas, then there is no reason why there should be any limit. However, these requirements will be extremely difficult to police and a restriction may therefore be appropriate. CoalPro is not competent to judge what that restriction should be.

7. *Whether the proposed constitution, remit, powers and resources of the Committee on Climate Change are appropriate and the extent to which its functions may overlap with, and be partially dependent on, forecasting and analytical activity within departments*

CoalPro would wish that security of supply issues be far more prominent in the remit of the Committee.

CoalPro has strong reservations about the proposal as a whole. Whilst an independent body has advantages, overlap is unavoidable and it is no use pretending otherwise. It could become the source of unnecessary and damaging disagreement and tension. It must not be used by any government as a means by which it can offload its responsibilities. Overall, CoalPro believes the disadvantages outweigh the benefits.

8. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

CoalPro believes this whole aspect of the draft Bill to be a nonsense. There can be no enforceable legal consequences other than subjecting the Secretary of State to judicial review. So what? What if such a review finds against him? He can hardly be asked to go back and do it again! It risks being used merely as a mechanism to embarrass the Minister/Government of the day to derive political advantage and, as such, would be thoroughly unproductive.

9. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrators*

It is a fundamental principle of devolution that the devolved administrations can go their own way on non-reserved matters. No-one should be surprised if they choose to do so. It will be for those administrations to decide if and to what extent they introduce compatible measures. If they choose not to do so, then there is no reason why the carbon budgeting approach could not be applied to England only as accounting for what must be some 90% of UK carbon emissions.

10. *Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets*

The proposals are not incompatible with the European Union's approach. The Bill contains provisions for making changes if appropriate. If any of the provisions become incompatible, then the necessary changes can be made.

11. *How the contents of the Bill will affect international climate change activity*

They will not do so. They may provide some limited moral authority but only concrete technology developments and their dissemination will have any significant impacts.

12. *Whether the delegated powers contained within the Bill are appropriate and adequate*

A fundamental principle of the draft Bill is built-in flexibility. If this principle is accepted, then delegated powers are essential, not merely appropriate. They appear adequate for what is proposed.

May 2007

Memorandum by the Minister for the Environment in Northern Ireland (CCB 17)

The Minister for the Environment in Northern Ireland has been advised of the Joint Committee's call for Evidence. She is grateful for the opportunity to contribute to the Committee's consideration of this important issue.

The Minister wishes to affirm her commitment to tackle Climate Change but with the Devolved Assembly only coming into being on 8 May local Ministers have not yet had an opportunity to consider the devolution aspects of the proposed Climate Change Bill. It is her intention that the Northern Ireland position on this issue will be determined in the coming weeks.

I am copying this to the Environment Committee of the Northern Ireland Assembly.

May 2007

Memorandum by the British Cement Association (CCB 18)

EXECUTIVE SUMMARY

1. Target setting under the Climate Change Bill should be kept under regular review in the absence of full global burden sharing to ensure that UK businesses, which operate in internationally competitive markets, are not unduly affected by domestic climate change policy.
2. The Climate Change Bill should place a requirement on Government to update annually projections/targets for the emissions from all sectors of the economy, through 2020 and 2050 and a requirement to consult on such projections with the appropriate sectors.
3. The Climate Change Bill should be amended to include aviation and shipping emissions in the targets to ensure that all sectors contribute to climate change mitigation.
4. The draft Climate Change Bill should be amended to include all GHGs. Long-term greenhouse gas (not just CO₂) targets are needed to address climate change and give all aspects of the economy certainty over policy goals.
5. Carbon budget period are an appropriate approach, however to align with industrial investment timescales three budget periods of five years each should be the minimum horizon for the Climate Change Bill.
6. The Climate Change Bill could include measures for central and local Government to address the whole life performance of buildings.
7. There should not be a limit on the use of flexible mechanism credits, either in the EU ETS traded sector or for use against the national carbon target; there should be equivalence between the two systems.
8. The Climate Change Bill should include measures to support low carbon technologies such as CCS in the non-ESI sector. Carbon Capture and Storage is a technique for the medium to long-term and should thus align with long term carbon targets and budget periods.
9. In order that the UK is a model for other member states the overlapping climate change policy measures need to be reviewed and rationalised.
10. The Committee on Climate Change will need to consider the balance of effort carefully. Industry has made significant advances in the area of CO₂ reduction and as such greater emphasis now needs to be placed upon the domestic and transport sectors.

CLIMATE CHANGE POLICY AND THE UK CEMENT INDUSTRY

1. The UK Cement Industry. The British Cement Association is the trade and research organisation that represents the interests of the United Kingdom's cement industry in its relations with Her Majesty's Government, the European Union and relevant organisations in the United Kingdom. The members of the BCA (Castle Cement, Lafarge Cement UK, CEMEX UK Cement and Tarmac, Buxton Lime and Cement) are the major domestic manufacturers of Portland Cement producing over 90% of the cement sold in the UK. Additionally, BCA supplies services concerning climate change issues to Quinn Cement.
2. Energy represents an increasing proportion of the variable costs of cement manufacture (> 35%) and it is therefore a primary concern of the industry to take all cost effective measures to improve energy efficiency and thereby reduce its emissions of carbon dioxide.
3. The cement industry supports the principle of emissions trading. Through their parent companies, Lafarge Cement UK, Castle Cement, and CEMEX are committed to carbon reductions through the World Business Council for Sustainable Development Cement Sustainability Initiative, (WBCSD CSI). In addition, Tarmac, Buxton Lime and Cement has undertaken to adopt the commitments within the WBCSD CSI.

4. SPECIFIC INQUIRY ISSUES

4.1 *Targets and carbon budgeting*

- 4.2 Climate change is the most important international environmental issue. It is crucial that all countries contributing to climate change set targets to reduce greenhouse gas emissions. The Kyoto protocol has encouraged many countries to engage in efforts to reduce GHG emissions, but has failed to involve the largest emitters. The UK is well on target to meet its Kyoto commitment and as such does not need make radical changes to its climate change policy in order to show leadership. Unilateral action by the UK Government will damage the UK economy in the long term and as such multilateral long-term action is required so that all contributors to climate change form part of its mitigation. Target setting under the Climate Change Bill should be kept under regular review in the absence of global burden sharing to ensure that UK businesses, which operate in internationally competitive markets, are not unduly affected by domestic climate change policy.

4.3 Long term business certainty is preferable to the current uncertain commercial environment and it is important that long term targets are established with interim goals. The UK could achieve many of its climate change targets by displacing manufacturing industry to non-carbon constrained economies with a consequential net negative impact on the environment and disastrous impacts on the economy. For example third party imports of cement have been steadily increasing over recent years; Cembureau (European Cement Association) has calculated that the transport of cement imported into Europe can add 10% additional carbon dioxide to 1 tonne of cement. These additional emissions would not appear in the UK National Greenhouse Gas Inventory showing domestic targets are being met but with the net effect of increased global GHG emissions.

4.4 The draft Climate Change Bill targets are ambitious and will need action from all sectors of UK society. Early action has already been demonstrated in the UK Cement Industry where emissions are already more than 28% below the 1990 level. Furthermore, in accordance with the CCA agreements, the industry has already committed to meeting targets on fuel efficiency and waste derived fuel use, demonstrating the cement industry's commitment to climate change and waste recovery. Such early action should be noted when the consideration is given to the areas of the economy that can potentially contribute to the savings needed by 2020 and 2050. Although shipping and aviation emissions are excluded from Kyoto CO₂ accounting there is no reason why domestically these sectors should not contribute to emissions savings. The Climate Change Bill should be amended to include aviation and shipping emissions in the targets.

4.5 The targets in the draft Bill relate only to CO₂. Global warming is a function of all greenhouse gases and as such the UK should target all GHGs because focussing on CO₂ means there is a potential danger of ignoring other, more damaging, gases. The conversion of GHG (greenhouse gas) releases into CO₂e (CO₂equivalent) is well understood and as such the Government should base its climate change targets on all GHGs. The draft climate change bill should be amended to include all GHGs.

4.6 The proposed five year carbon budgets are short in the context of industrial investment. In an industry such as cement five years is very short, where it takes around 7 years to design, build and gain the necessary permits for a kiln that will then operate for around 30 years. Consequently three budget periods of five years each should be the minimum horizon for the Climate Change Bill.

4.7 A single national carbon budget would not be useful for industrial or commercial investment planning. All sectors of the economy will need to know their expected contribution to the carbon savings ie it is important to know the contribution by the traded (EU ETS)/non-traded sectors in sufficient detail that industrial sectors such as steel, cement, glass etc can effectively plan. Consequently the Climate Change Bill should place a requirement on Government to update annually projections/targets for the emissions from all sectors of the economy, through 2020 and 2050 and a requirement to consult on such projections with the appropriate sectors.

4.8 However, flexibility in the system is essential in order to adapt to an environmental issue that will demand significant adaptation in future years. As such the budgets should be subject to regular review and adjustment.

4.9 *Devolution and the role of local government*

4.10 The role of local government will be important in gaining public support for climate change mitigation. One way in which the local authorities can is through the planning process. The majority of emissions from buildings are not from the manufacture of construction materials like cement, concrete, steel and glass but from the energy use during the "in use" phase of the building over its whole life. Government, through the planning and building regulation process, can capitalise on energy saving improvements in buildings, especially in the field of thermal mass. Thermal mass is a term used to describe the ability of a material to absorb and release heat. It can be used to good effect in the fabric of a building by allowing it to absorb excess heat gains during the day and subsequently releasing them at night with the aid of natural or mechanical ventilation, this is particularly relevant in a warming climate. This process has the effect of moderating the temperature swing within the building and lowering the peak temperatures experienced during the summer by approximately 3°C.⁴³ The use of thermal mass techniques can mitigate the use of energy consuming techniques such as air conditioning. As temperatures are forecast to rise in the coming years, the use of thermal mass to reduce operational emissions is vital.

4.11 As the largest procurer of construction industry services, Government is in a privileged position to set the benchmark for sustainable construction projects for schools, hospitals, other public buildings, as well as transport infrastructure projects. Setting benchmarks in the built environment that can be exported to developing nations will signal the UK as a leader in climate change issues. These too should not be short term solutions, but look to the longer term and be based on whole life performance not just initial or lowest cost. The same principles should be extended to local government. The Climate Change Bill could include measures for central and local Government to address the whole life performance of buildings.

⁴³ Building Research Establishment. Information paper IP6/01. *Modelling the performance of thermal mass*. N Barnard, P Concannon, Denise Jaunzens. April 2001. 12 pp.

4.12 *The use of project credits and carbon sequestration*

4.13 Climate change is a global issue and the use of flexible mechanisms will allow the climate change challenge to be addressed in the most cost effective areas. There should not be a limit on the use of flexible mechanism credits, either in the EU ETS traded sector or for use against the national target; there should be equivalence between the two systems.

4.14 However, domestic action is also necessary and domestic projects should be promoted. In the cement sector, the climate change agreements promote the use of alternative waste derived fuels, but the CCAs have a limited life and new systems are needed to promote alternative fuel use. Domestic projects could be one way of helping to shift the use away from fossil fuels toward alternatives. In doing so, the emissions from landfill sites and incinerators, which are not part of the EU ETS, will be avoided.

4.15 The cement industry is committed to a clear path of carbon dioxide reduction⁴⁴ and has begun to investigate the opportunity for Carbon Capture and Storage (CCS). Following recent “state of the art” technology investment in the UK cement industry, CO₂ abatement in the future will be limited due to the laws of chemistry.⁴⁵ Consequently, CCS presents one of the few opportunities to make further substantial reductions, and the industry is currently exploring the feasibility of applying this technique.

4.16 There is significant potential⁴⁶ in the application of CCS to cement manufacture, and the industry is actively engaged in a programme to quantify the technical and commercial aspects of this technique. Any sector’s use of CCS will involve significant investment and certainty that the commercial and financial assumptions justifying such an investment will be realized. Furthermore, the planning and installation of large capital items requires a significant lead time. As such, Carbon Capture and Storage is a technique for the medium to long-term.

4.17 There is a role for government in supporting research to accelerate the development of new carbon abatement technologies, whether in research institutions or private industry. At present, research into CCS is dominated by the Electricity Supply Industry (ESI) and oil companies. As one of the largest single point emitters of carbon dioxide with a higher carbon dioxide concentration in the exhaust gases than other industries the cement industry provides an ideal opportunity for CCS research. Government should do more collaborative research to investigate CCS options for industrial emitters such as the cement industry and not concentrate its research funding on the ESI and oil sectors. The value of this work would be to ensure that the UK becomes a world leader in CCS. This would allow the export of technologies and knowledge to assist developing countries adapt to climate change. The Climate Change Bill should include measures to support low carbon technologies such as CCS in the non-ESI sector.

4.18 *Delegated Powers*

4.19 The enabling powers that allow the Secretary of State to establish greenhouse gas emission trading schemes by means of secondary legislation should be used with caution. At present the CCA and EU ETS are directed towards the same goals and provide a clear example of the “double banking”, contrary to the EU and UK aim of “Better Regulation”. This was highlighted by BCA in its response to the Hampton and Davison enquiries. These two trading schemes are incompatible, place burden on industry, and generate carbon credits that require unnecessary double accounting arrangements. The advent of additional GHG trading schemes, such as the proposed Energy Performance Commitment could further add complexities in an already complex legislative framework. It is particularly important that the proposed EPC, that is intended to capture emissions from non-energy intensive commercial uses, does actually target them specifically and avoids capture of energy intensives already contributing significantly to climate change mitigation. In order that the UK is a model for other member states the overlapping climate change policy measures need to be reviewed and rationalised.

4.20 *The committee on climate change*

4.21 BCA agrees that an independent body should be set up to oversee the carbon budget. The independent committee on climate change should include a range of representatives of stakeholder groups and experts with a 5-10 year remit. Industry should be well represented because industry experts will be able to provide crucial information on abatement potential of industrial sectors that will be contributing significantly to the reduction targets.

⁴⁴ *Working Towards Sustainability*—a report from the UK cement industry on its progress towards sustainability.

⁴⁵ By its nature, cement manufacture generates substantial quantities of carbon dioxide from the fuels burned in the kiln, (“fuel CO₂”), and from the decomposition of limestone, (“process CO₂”)—even if the fuel component were reduced to zero, the emissions of CO₂ would only be reduced by ≥40%.

⁴⁶ Exhaust gas from a cement kiln contains about 24% CO₂—appreciably higher than in power generation—and as such the industry is better placed for efficient recovery.

4.22 In devising emission reduction targets the Committee will need to consider the balance of effort carefully. Industry has made significant advances in the area of CO₂ reduction and as such greater emphasis now needs to be placed upon the domestic and transport sectors.

May 2007

Memorandum by the Fuel Poverty Advisory Group (CCB 20)

INTRODUCTION

1. This is the response to the consultation from the Fuel Poverty Advisory Group. The Group has some similarities to the proposed Climate Change Committee, although there are also differences. We are submitting evidence on two sets of issues. The first is the impact on fuel poverty of the proposed Climate Change Bill and the relationship between the two statutory targets—climate change budgets and targets and fuel poverty targets. The second issue is our experience of the fuel poverty statutory target and of the role of an external Group like FPAG. The Climate Change Bill is introducing targets for Climate Change. It seems sensible to draw on the lessons from the Government Fuel Poverty targets over the last six years.

2. Referring to the Committee's terms of reference, this note thus deals with themes 2, 6, 7 of the Committee's inquiry and some of the issues in implementing the proposed targets.

FUEL POVERTY ADVISORY GROUP (FPAG)

3. The Fuel Poverty Advisory Group is a Group consisting of representatives of external organisations, set up by the Government to provide advice on the practical measures needed to meet the Government's targets of eradicating fuel poverty in England. The Group was established broadly at the same time as the statutory targets were put in place. A wide range of organisations is represented on the Group—from Energy Companies to fuel poverty NGOs and broader consumer and housing groups and experts. The membership and terms of reference of the Group are set out in Appendix 1.

CLIMATE CHANGE BILL AND FUEL POVERTY

4. We recognise the importance of combating climate change and hence of the Bill. We also appreciate that there are both important synergies and some tensions between the climate change and the fuel poverty targets. We have noted the clauses relating to social considerations and fuel poverty:

- In Clause 5, 2(e), Page 3 the Secretary of State and the Committee on Climate Change in coming to any decision and in considering advice must take into account, amongst a list of matters, "Social circumstances and in particular the likely impact of the decision on fuel poverty".
- In Schedule 1, 1(3)(h) the Secretary of State in appointing the Climate Change Committee must have regard to the desirability of securing that the Committee has experience in, or knowledge of (among a list of things) "climate change policy and in particular the social impacts of such policy".

It is, however, our view that:

- There are not enough safeguards in the Bill on fuel poverty.
- The Government will have two separate sets of related Statutory Targets—Climate Change and Fuel Poverty—without recognising adequately the interaction between the two.

5. It there seems to us to be sensible that in Clause 5 discussed above there should be more explicit reference, not just to the impact on fuel poverty, but to the impact on the fuel poverty targets. Specifically the Secretary of State, in coming to a decision and the Climate Change Committee in considering its advice, should take account of the impact of the decision and advice on the ability to meet the statutory fuel poverty targets. There should also be a requirement for the Secretary of State and the Climate Change Committee to report explicitly on this. The Secretary of State and the Climate Change Committee might in doing this be asked to take account of the views of FPAG.

6. Similarly it does seem to us that consumer and low income group interests are likely to be under-represented on the Climate Change Committee. Experience and knowledge in these areas should be a separate requirement and should not be a subset of knowledge of climate change policy.

EXPERIENCE OF THE FUEL POVERTY TARGETS AND FPAG

7. The Government has a statutory duty to end fuel poverty. The exact targets differ between the different administrations, but in England the duty is end fuel poverty for vulnerable households and non-vulnerable households living in social housing as far as reasonably practical by 2010 and to do the same for all households by 2016. The establishment of the Fuel Poverty Advisory Group for England was announced

at around the same time as the Fuel Poverty Strategy to meet the targets was published in November 2001, and the Group started its work in April 2002. Defra and DTI Ministers choose the organisations to be represented on the Group and appoint the Chair.

8. As noted, our job is to advise the Government on the practical measures needed to meet the targets. FPAG publishes an annual report and our 2006 report was published in April 2007. The Government also publishes an Annual Progress Report on Fuel Poverty.

9. There are some analogies to the proposals for the Climate Change Bill. There is a statutory target, annual reporting and an external group. There are also differences as there is no direct reporting to Parliament and the process is less formalised. The Fuel Poverty Advisory Group focuses on the measures needed while the Climate Change Committee's main task relates to the carbon budgets.

10. Our views on the impact of the statutory fuel poverty target and of the Fuel Poverty Advisory Group are as follows:

- The statutory target has made a difference—there have been more resources for fuel poverty and more helpful measures than would have been the case in the absence of a target. The target has helped to provide focus and drive.
- However, the 2010 statutory target now looks extremely difficult to achieve and the shortfall could be considerable. Admittedly the circumstances have been difficult as a result of rising energy prices—but this still raises issues about the best way of securing effective targets, as there will always be difficult circumstances on the road to tough targets. It is not clear what the sanctions for failing to meet the targets are. It seems therefore likely that the targets and arrangements put in place will prove to have been insufficient to secure achievement of the targets.
- When the targets and strategy were established there were no estimates of the resources required to meet the target. FPAG has secured, with help from DTI and Defra officials, that the costs have now been estimated and this has been helpful in securing extra resources for the Fuel Poverty Programmes.
- FPAG has made a large number of recommendations. As expected a number have been accepted and some have not. Appendix 2 sets out the key areas where FPAG Advice has had an impact and those where it has not.
- Defra and DTI have the main responsibility for the targets and they have to a degree focussed on the issues. Some other Government Departments have been helpful, especially in recent months, but in broad terms the existence of a statutory target has made a small, but not a major, difference to the actions of certain key departments. Similarly Ofgem has, on some issues, been helpful but the statutory target has not made as much difference to Ofgem's activities as perhaps might have been expected. The issues of binding other Departments and Agencies across Government into the Climate Change targets will thus be an extremely important one.

11. In summary the target and the associated arrangements have been helpful and have unquestionably resulted in more progress than would have been made in their absence. But it is likely—sadly—that they will not be anything like adequate to secure the objective.

12. On the issue of resourcing and independence, FPAG has been serviced by DTI and Defra officials, who have also been doing other jobs. The officials have provided us with a very good service—given the constraints on their time. These arrangements have not materially affected our independence. For instance DTI/Defra have been willing to carry out work on the resources required for the fuel poverty targets to our specifications, even though the results were likely to be sensitive and to show that the level of resources being provided was not sufficient.

13. On the other hand because of the pressure on resources there have at times in the past been delays in carrying out our work and there have been one or two pieces of in-depth work which we have not been able to do. We have also relied on quite a substantial amount of work by a few Group members on a voluntary basis. However we have not sought to change these arrangements because we thought it more important for resources to be devoted to fuel poverty measures rather than support for the Group!

14. However we imagine that the arrangements will need to be somewhat different for the Climate Change Committee as more support work will be required and FPAG has been dependent on the goodwill of Ministers and officials.

15. Finally FPAG would be very happy to provide further information and to give oral evidence.

APPENDIX 1

FUEL POVERTY ADVISORY GROUP MEMBERS

| | | |
|--------------------------|---|---|
| Peter Lehmann | Chair | |
| John Chesshire | Vice Chair | Chair—Energy Efficiency Partnership for Homes |
| George Mayhew | Director of Corporate Affairs | National Grid |
| Jill Harrison | Director of Energy Efficiency and Social Responsibility | Centrica Plc |
| Nick Horler | Managing Director Retail | Powergen Retail Ltd |
| William Gillis | Chief Executive Officer | National Energy Action |
| David Threlfall | Chief Executive Officer Retail | RWE Npower |
| Gill Owen | Chair | Public Utilities Access Forum |
| Sarah Webb | Director of Policy and Practice | Chartered Institute of Housing |
| Dr Noel Olsen | Public Health Physician Trustee | National Heart Forum |
| Jerry Robson | Chairman | Association for the Conservation of Energy |
| Mervyn Kohler | Head of Public Affairs | Help the Aged |
| Adam Scorer | Director of Policy and Research | Energywatch |
| David Pickles | Local Government Association | Energy Agency Manager |
| John Clough | Chief Executive | Eaga Partnership Ltd |
| Teresa Perchard | Director of Policy | Citizens Advice |
| Eva Eisenschimmel | Chief Operating Officer | EDF Energy |

TERMS OF REFERENCE

The Fuel Poverty Advisory Group is an Advisory Non-Departmental Public Body sponsored by Defra/DTI. Its primary task is to report on the progress of delivery of the Government's Fuel Poverty Strategy and to propose and implement improvements to regional or local mechanisms for its delivery.

The role of the Group is:

- to consider and report on the effectiveness of current policies in delivering reductions in fuel poverty and the case for greater co-ordination;
- to identify barriers to the delivery of reductions in fuel poverty and to the development of effective partnerships, and propose solutions;
- to consider and report on any additional policies needed to deliver the Government's targets;
- to enthuse, and encourage, key players to tackle fuel poverty; and
- to consider and report on the results of the work to monitor fuel poverty.

APPENDIX 2

IMPACT OF THE FUEL POVERTY ADVISORY GROUP

Clearly there are a number of influences on policies. This Appendix sets out a few key areas where FPAG made a difference (although others have obviously played a role as well), and other areas where FPAG's advice has not been followed.

POSITIVE IMPACT OF FPAG

- Significant increase in funding for the Fuel Poverty Programmes, especially Warm Front in the light particularly of the estimates provided by FPAG of resources required to meet the fuel poverty targets. Some of these increases were funded by increasing upstream taxation as proposed by FPAG.
- Helpful changes to Warm Front in April 2005.
- Introduction of Social Tariffs by a number of suppliers following positive guidance from Ofgem, which had been encouraged by FPAG.
- Incentives for Gas Network Extension likely (although not yet certain) in Ofgem's Gas Distribution Price Control.
- DWP willing to share information to help in targetting fuel poor and generally positive approach from DWP.

FPAG ADVICE NOT FOLLOWED

- Very large and increasing gap between Direct Debit prices on the one hand and prepayment and other prices on the other. Ofgem (and DTI) have not been willing to act on this and there has been no drive to capitalise on new technologies, which could help to resolve the problem, and other possible schemes for cheaper payment arrangements to low income customers have not yet been pursued.
- Increase in energy prices generally and lack of transparency about the energy companies' margins.
- Defra decision to reduce the share of low income groups in EEC—the Energy Suppliers' Energy Efficiency Programmes.
- Inadequate energy efficiency part of the Decent Homes Standard that leaves some households in fuel poverty.
- Failure on the whole to engage CLG and its predecessors and also to persuade Ofgem on a number of key issues.
- It seems unlikely that the 2010 target will be met unless there are radical policy changes.

May 2007

Memorandum by Drax Power Limited (CCB 21)

INTRODUCTION

1. Drax Power Limited (“Drax”) is the owner and operator of Drax Power Station, the largest, cleanest and most efficient coal-fired power station in the UK. Drax trades its electricity in the wholesale electricity market and at current output levels it supplies some 7% of the UK’s electricity needs.

2. Drax is pleased to have the opportunity to participate in the Committee’s inquiry, as a major emitter of carbon as well being a company with ambitious plans for lowering its emissions, we consider that we are well placed to comment on some aspects of the Draft Climate Change Bill (the “Draft Bill”).

COAL-FIRED GENERATION AND CLIMATE CHANGE

3. The challenge for coal-fired generation is environmental and the major constraint is carbon. As the country moves towards a low carbon economy the focus must be on reducing emissions of carbon dioxide (“CO₂”). There is considerable scope for improving the environmental performance of coal-fired plants, which means that the security of supply benefits of coal-fired generation need not be enjoyed at the expense of the environment.

4. In order to achieve this potential there are certain barriers to overcome. Above all, a stable and predictable long term energy policy framework is essential to provide investors with the confidence to make the significant investments that are necessary to address the environmental challenge. Critical to achieving such a framework is clarity and certainty in the EU ETS beyond 2012.

5. Equally important is that energy and environmental policies, in their widest sense, should be fully integrated and consistent, and targets and objectives clearly stated; the market should then decide and deliver efficient solutions.

6. Drax, therefore, welcomes much of the Draft Bill in that it provides a framework and clear targets for CO₂ reduction.

EVIDENCE

7. Drax has recently submitted written evidence to the EFRA pre-legislative scrutiny of the Draft Bill which comments on specific aspects of the Draft Bill. The Joint Committee is invited to consider this submission, which is attached as an appendix.⁴⁷

8. In summary the following conclusions are drawn:

- (i) The Draft Bill addresses a number of the key requirements necessary to deliver certainty, predictability and long term focus to the energy policy framework. Drax has long advocated that these requirements of the policy framework are essential to secure the confidence to allow major investment decisions to be taken and to enable market players in the energy sector to address the environmental challenge and to make a meaningful contribution to moving the UK towards a low carbon economy.

⁴⁷ Not Printed—see Ev 144, HC 534-II, Fifth Report from the Environment, Food and Rural Affairs Committee on the Draft Climate Change Bill also www.publications.parliament.uk/pa/cm200607/cmselect/cmenvfru/534/534ii.pdf

- (ii) The potential for conflict between EU driven and domestic targets needs full consideration. Imposing unnecessary burdens on certain sectors must be avoided.
- (iii) The EU ETS has a critical role to play and should form the mainstay of the policy mechanism to deliver against targets.
- (iv) The scope of the enabling powers should carefully balance the downside of reducing regulatory certainty with the upside of allowing timely change.

May 2007

Memorandum by Merseytravel (CCB 24)

INTRODUCTION

Merseytravel welcomes the work of the Joint Committee on the Draft Climate Change Bill. The Draft Bill is an important initiative and support with the principles behind it: moving the UK to a low-carbon economy and showing global leadership in this area. We also welcome the joined-up approach that is being taken to this debate. For those of us involved in the development and delivery of local transport, to have the importance of the environment and Climate Change recognised in the Planning White Paper and the Draft Local Transport Bill is an enormous step forward.

The themes selected by the Joint Committee appear to summarise the main points of the Bill well. Rather than commenting on all the themes highlighted by the Joint Committee we have restricted our comments to what we see as the key points.

ABOUT MERSEYTRAVEL

Merseytravel is two separate statutory bodies comprising the Merseyside Passenger Transport Authority (MPTA) and the Merseyside Passenger Transport Executive (MPTE), acting together with the overall aim of providing a single integrated public transport network for Merseyside which is accessible to all.

In planning and procuring major elements of the public transport system, Merseytravel funds socially necessary bus services, oversees local rail and bus services, owns and operates the Mersey Ferries and the Mersey Tunnels, provides a range of prepaid and concessionary tickets, produces and distributes timetables, and prepares and implements the local transport plan for Merseyside with our district council partners.

We have a good record of delivery across all aspects of the transport system in Merseyside and have been recognised for our high level of customer care, professionalism and innovation.

We remain the only PTA/E to have gained accreditation to a recognised Environmental Management System (EMS), ISO 14001, achieved in June 2003. We have targets in place for renewable energy procurement, work closely with local businesses and schools to reduce their carbon footprints through the use of sustainable transport, and have introduced compulsory environmental awareness training for all staff. We produce Environmental Sustainability annual reports to show all our stakeholders not only the progress made but also the challenges that remain.

Merseytravel developed its first Environmental Sustainability Strategy following the Rio Earth Summit in 1992, making it the first PTA/E to do so. One of our core beliefs is that the provision of a sustainable transport network will promote regeneration, improve air quality, promote good health and improve accessibility across Merseyside and the wider region.

Merseytravel published its Third Strategy document in April 2006 (covering 2006–11) to sit alongside our second Local Transport Plan. The strategy's remit is wider than its predecessor's; covering social, technological, environmental, economic and political drivers for change within the context of sustainability. We are committed to ensuring that the strategy's policies, which fit the Government's Sustainable Development Strategy, will all be implemented within the five year period. We have a dedicated team of officers in place to advise the organisation and assist in the delivering of the strategy.

COMMITTEE THEMES

1. *What the main aims and purposes of the Bill are and why it is needed*

We believe that transport, and particularly public transport, has a key role to play in tackling the issue of Climate Change. We fully appreciate that the Draft Bill attempts to set out a framework for all of us to follow but an explicit recognition of the importance of some sectors may be useful. It is only through a clear identification of the contribution of individual sectors that action can be properly targeted.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

Locally delivered, public transport can play a leading role in reducing CO₂ emissions from the transport sector. However public transport can also play a wider role in meeting the targets within the Climate Change Bill. Public transport bodies can deliver:

- high quality, sustainably designed and well maintained infrastructure;
- active encouragement to use public transport which delivers environmental benefits and reduces the use of more individual modes such as the car; and
- integration in transport which help to minimise environmental impacts.

Merseytravel's aim to provide a single integrated public transport network for Merseyside which is accessible to all has, and will continue to have, the environment at its heart.

PTEs and PTAs provide a valuable wider educational role in encouraging sustainable forms of transport. We believe that local champions are required if individual behaviour is to be changed.

For example, Merseytravel's £32 million, state-of-the-art rail/bus interchange at Liverpool South Parkway opened in 2006. It represents cutting edge interchange design and is Europe's most modern transport interchange, integrating road and rail, and linking public transport to Liverpool John Lennon Airport. Environmental considerations were at the heart of the design—waste blast furnace slag was used instead of cement, as was recycled aluminum and Forest Stewardship Council (FSC) certified wood. The development also contains a giant rainwater harvesting system, saving 700,000 litres of mains water per year, geo thermal heat pumps for heating and solar photovoltaic cells on its south facing windows, which provides some of the electricity supply to the building.

The provision of a high quality, safe and secure environment for passengers at Liverpool South Parkway has seen patronage grow to double the expected figure, in less than a year, aiding modal shift. This is a clear demonstration that passengers respond favourably when integrated transport schemes are available and that modal shift can be achieved.

As well as encouraging people to use public transport, well designed infrastructure can raise awareness of sustainable buildings. Liverpool South Parkway has been awarded the 2006 Network Rail Innovation Award, the HSBC Rail Business 2006 Station Excellence of the Year award, the Community Award 2007 from the Institute of Civil Engineers North West and was a National Champion in the transport and freight category of the Green Apple Awards.

We also hope that by providing examples of buildings that incorporate renewable energy technologies, homeowners will be encouraged to apply similar concepts to their own homes.

The inclusion of specific measures to support public transport would provide a link between the Draft Bill and action "on the ground". Transport is a highly visible part of everyday life and the general public's appreciation of transport's impact on climate change is greater than for other sectors.

For many people consideration of travel modes will be the first time that they begin to think about their climate change impact. This process can then lead to the examination of the potential to reduce CO₂ emissions in other key areas too, such as the home. Public transport plays a key role in raising the profile of climate change and in providing a method to reduce CO₂ emissions—a role that has not been fully exploited so far. Strengthening the role of public transport, through PTAs/PTEs, within the Climate Change Bill will enable these links to be strengthened.

The new duty to consider climate change in carrying out the functions of PTAs/PTEs, as included in the Draft Local Transport Bill, would be very welcome and Merseytravel has already been carrying this out in practice for some time.

However, we also believe that whole of the public sector, chief amongst them Local Authorities, need to be placed under similar obligations. Our experience, as demonstrated by Liverpool South Parkway, is that people respond to encouragement and if we are to have a real impact on behaviour then we need local "champions".

PTAs/PTEs should potentially fulfil this role but Local Authorities should as well. However, for this to be effective we need best practice to be shared and for local delivery partnerships to be established where necessary. The Government's plans for City Development Companies (CDCs) have been welcomed by Merseytravel but these too should be enhanced to encourage the CDCs to champion local business opportunities centred around environmental improvements both in terms of design but also economic growth.

Merseytravel believes that the development of sustainable communities means promoting social inclusion (through greater access to work), regeneration (where required), providing leisure facilities, schools etc, but also the delivery of an integrated transport solution (covering both urban and rural locations). For this to happen, PTAs/PTEs need to be included in the planning process (and we will be making representations on the Planning White Paper). In particular, new developments in town centres (as well as those out-of-town)

need to fit within the proposed Integrated Transport Strategies and accompanying implementation plans (from the Draft Local Transport Bill). Related to this, Section 106 funds or funds from the proposed Planning Gain Supplement should make a contribution to the delivery of these strategies.

Merseytravel and its Local Transport Plan (LTP) Partners commissioned a Strategic Environmental Assessment and Health Impact Assessment (HIA) of the second LTP. Whilst an HIA is not legally required, we believed that the links between health and transport were so important that we needed a check to ensure that were proposing all we could. It is this type of action that delivers sustainable communities.

Green travel plans should be made statutory for all major employers and organisations as well as proposed major projects.

7. Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments

We do believe that membership of the Committee on Climate Change should include sectoral experts, such as those involved in transport. If targets are not achievable then the whole process will be undermined and faith lost in the Committee. Much of this process has to be about gaining people's trust and showing that we are all in this together. We cannot be seen to be in a position where we have "winners" and "losers" otherwise sectors will simply jockey for position.

9. How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations

We believe that devolution should be at the heart of the Draft Bill not just to the devolved parliament and assemblies but also to local delivery agents such as Local Authorities and PTAs/PTEs. Delivery "on the ground" is the only way to achieve behavioural change.

The Draft Bill comments on the Renewable Transport Fuel Obligation but schemes such as the Bus Service Operators Grant (BSOG) need to be reviewed to place them on an environmental footing. It may be that the Draft Bill suggests that all Government grants place the environment at their heart, wherever feasible.

OVERALL

Community and local action is needed if Climate Change is to be tackled effectively. This bottom-up approach can be led by local bodies such as PTA/PTEs, especially as the Government has signaled a willingness to see such structures expanded across the country (see the Draft Local Transport Bill).

May 2007

Memorandum by the Campaign to Protect Rural England (CCB 25)

1. CPRE, the Campaign to Protect Rural England, promotes the beauty, tranquillity and diversity of rural England. We advocate positive solutions for the long-term future of the countryside. We have 60,000 supporters and a branch in every county. As a member of the Stop Climate Chaos Coalition, CPRE recognises that climate change presents an unprecedented threat to our common future and requires strong leadership by the UK Government. We endorse the Coalition's goal of preventing global temperatures from rising by more than two degrees centigrade by 2015. We want a robust Climate Change Bill that will allow the UK to make its contribution to meeting that goal.

2. We wish to focus on the Committee's questions 1, 2 and 4. On question 1, CPRE supports the main aims and purposes of the draft Bill. We strongly endorse the Bill's main principles of making carbon dioxide (CO₂) targets legally binding and setting out a CO₂ reduction pathway by means of five-year carbon budgets and a statutory CO₂ reduction target of 26–32% by 2020 and a 60% reduction by 2050.

3. On question 2, regarding the appropriate balance between compulsory and voluntary action, we favour statutory sectoral targets. Energy efficiency should be the starting point, in accordance with the Government's 2003 Energy White Paper which identified energy efficiency as the safest, cleanest and most cost-effective way of reducing CO₂ emissions. The White Paper's assessment of the contribution of household energy efficiency savings leads to a target of 20% of household energy efficiency improvement by 2020 compared to 2010.

4. In response to Parliamentary Question No 243 in November 2005, the Government stated that the following commercial and public services target would not entail excessive costs:

for the commercial and public services sector (excluding industry), by December 2010, the general level of energy usage should be reduced by at least 10% compared with that of 2005, and by December 2020, it should be reduced by at least 10% compared with that in 2010.

5. The Climate Change Bill should include both these targets. In addition, it should include the 2003 Energy White Paper's target of 10 GW of combined heat and power (CHP) by 2010. Whilst we advocate including the 10% target for electricity from renewable sources by 2010 and 20% by 2020 in the Bill, this should be matched by a legally-backed CHP target. As a source of low-carbon heat and electricity, CHP has an important role to play in reducing CO₂ emissions from the energy supply sector, and has not received the requisite support.

6. On question 4, regarding the use of emissions trading schemes and other policy instruments to regulate total UK emissions, CPRE does not favour the use of the European Union Emissions Trading Scheme (EU ETS) for emissions arising from aviation. These emissions are projected to increase fourfold between now and 2050, according to the Environmental Change Institute's report *Predict and Decide: Aviation, Climate Change and UK Policy* (2006). The report concludes that the 2050 target of 60% CO₂ reduction can only be met if aviation growth is checked.

7. We are concerned that the aviation industry could use the EU ETS to buy its way out of emissions reduction by buying surplus carbon credits from other industrial sectors. We regret that as a result of intense lobbying by the aviation industry, the separate closed trading scheme for aviation emissions proposed by the European Parliament did not go forward. We are also concerned that aviation industry could buy its way out of responsibility for its share of emissions, and perhaps any involvement in EU ETS, through the Clean Development Mechanism. This would allow aviation growth to continue.

8. If the Government is committed to achieving its 2050 target, it must revise its airport expansion policy and take action to manage the demand for air travel, in conjunction with EU partners, by applying VAT to air travel tickets and beginning to apply and progressively increase an aviation fuel tax to levels similar to road fuel tax.

May 2007

Memorandum by the World Development Movement (CCB 26)

SUMMARY

1. The World Development Movement (WDM) campaigns to tackle the root causes of poverty. With our partners around the world, we win positive change for the world's poorest people. We believe that charity is not enough. We lobby governments and companies to change policies that keep people poor. WDM is a democratic membership organisation of individuals and local groups.

2. Climate change is a justice issue. It has overwhelmingly been caused by the richest countries and people in the world, yet it is the poorest who will suffer soonest and most from its effects. Below we respond to some of the specific questions of the Joint Committee's inquiry into the draft climate bill. We address issues which are most important in ensuring that the draft climate bill effectively limits climate change to prevent the most catastrophic consequences for the world's poor.

3. The key points we make in this submission are that the climate bill should:

- Ensure that the UK takes the necessary action to keep the average global temperature increase to 2°C. Current science implies this means a 40% cut in UK emissions by 2020, and 80–90% by 2050.
- Include the UK's share of international aviation and shipping CO₂ emissions, and the non-CO₂ emissions of aviation.
- Include three- rather than five-year budget periods, with annual milestones to ensure there is an emissions reduction trajectory.
- Ensure an 80–90% emission reduction is achieved through actual emission cuts in the UK, not through "buying" emission cuts elsewhere in the world. Funds for low carbon development in developing countries should be provided *in addition* to cuts in UK emissions, not instead of cuts in UK emissions.
- Include an expert on the impacts of climate change on poor people in developing countries on the Committee on Climate Change.

1. *What the main aims and purposes of the bill are and why it is needed*

4. The government is right to set unilateral targets for reducing UK emissions. While it is true that climate change cannot be solved by UK action alone and that action by other countries is required, it is also true that the UK has historically been a significant cause of the problem and thus has a moral obligation to take the lead in reducing emissions.

5. There is a further political imperative for unilateral action which is the need to secure an international agreement on greenhouse gas emissions reduction. Such an accord needs to include more advanced developing countries (eg, China) who will be reluctant to sign-up unless they see those principally responsible for the problem in the industrialised world demonstrating a willingness and ability to take action.

4. *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence*

Target 60% by 2050 and a further interim legal target for 2020 of 26–32%

6. The UK Government has rightly stated that its goal must be to prevent what has become known as “dangerous climate change”; in other words preventing average global temperatures from rising more than 2°C on pre-industrial levels.⁴⁸ This 2°C threshold is widely regarded as a point beyond which the impacts of climate change, particularly on the poorest people in the world, will become truly catastrophic.

7. The objective of staying within the 2°C threshold should be clearly stated and made a central part of the bill. The rest of the bill should be constructed as the framework for making the UK’s contribution to achieving this overarching objective. Therefore, the size of the cuts needs to be in line with the latest science relating to what action is required from industrialised countries like the UK in order to keep global temperatures from rising more than 2°C.

8. While supporting the concept of setting both long-term and interim legal targets, WDM is concerned that the actual targets included in the draft bill are already out of date. Beyond political expediency, it is hard to find a justification for the “26–32% by 2020 and 60% by 2050” formula.

9. The May 2007 IPCC summary report on mitigation outlined that for the average global temperature increase to be kept to 2.0°C–2.4°C requires stabilisation at 445–490ppm of CO₂ eq in the atmosphere. This in turn requires global yearly emissions to be reduced by between 50 to 85% by 2050, on current levels.⁴⁹ Because the UK emits more than double the worldwide average CO₂ per person, the UK has to reduce emissions by between 80 and 90% by 2050, on current levels. This translates into a 40% cut by 2020.

10. There is a powerful rationale for ensuring that the bill includes a more realistic, science-based, target from the outset. It is likely that once the bill is passed, and the first five-year budget set, there will be a high degree of political inertia when it comes to amending it. If the political will then exists to revise the target after the first period, this will create the need for much steeper cuts during the second and third budget periods. For all stakeholders concerned (including political parties) it makes better sense to include a more accurate target in the bill from the beginning.

Targets do not cover all CO₂ or non-CO₂ emissions

11. The draft climate bill does not cover all UK contributors to climate change. The draft bill excludes CO₂ emissions from international aviation and shipping, based on the premise that these emissions are not part of the existing Kyoto Protocol, and that disagreement exists internationally over whether and how to account for and reduce these emissions. Provision is made in the bill to include these emissions at some future date if such an international deal can be struck.

12. The draft climate bill also excludes non-CO₂ contributors to climate change, such as emissions of nitric oxide, nitrogen dioxide and water vapour by aviation at altitude. These emissions cause aviation to make a greater contribution to climate change than CO₂ alone. The Treasury’s pre-budget report in 2006 stated that aviation makes a contribution to climate change 2 to 4 times greater than CO₂ emissions alone.⁵⁰ The Department for Transport uses a figure of 2.5 times more warming from UK aviation than CO₂ alone.⁵¹

13. In the attached report “Emissions invisible: The impact of excluding international aviation from the climate bill”, we show that:

Aviation is already a large part of the UK’s contribution to climate change:

- Aviation currently accounts for 12.4% of the UK’s contribution to climate change.
- This is more than cars (9.3%), home heating (11.1%) or manufacturing and construction (11.3%).

⁴⁸ HM Government. (2006). *Climate change: The UK programme 2006*. March 2006.

⁴⁹ IPCC. (2007). *Climate Change 2007: Mitigation*. Summary for Policymakers. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. 04/05/07.

⁵⁰ HM Treasury. (2006). *2006 Pre-Budget Report: Investing in Britain’s potential—Building our long term future*. HM Treasury. London. 06/12/06.

⁵¹ Department for Transport. (2004). *Aviation and global warming*. Department for Transport. London. January 2004.

The climate bill will only result in a small reduction in the UK's contribution to climate change:

- The climate bill targets a reduction in UK CO₂ emissions of 60% by 2050 on 1990 levels. This does not include most aviation emissions.
- The UK government is currently supporting a massive expansion in UK aviation.
- By 2050, the climate bill as currently drafted will only result in a 17% reduction in the UK's contribution to climate change on 2005 levels (24% reduction on 1990 levels).

The climate bill expects reductions in emissions from all other sectors of the UK economy, but allows aviation to continue increasing its emissions:

- Aviation will account for almost half the UK's contribution to climate change by 2050.
- Aviation's contribution to climate change will have *increased* by 213% by 2050.
- Road transport's contribution to climate change will have *decreased* by 56% by 2050.
- The richest 18% of the UK population are responsible for 54% of flights. It is unjust to exclude aviation from being required to cut emissions while requiring emissions reductions in other sectors.

Excluding aviation from the climate bill does not make scientific, economic, social or political sense:

- Scientific evidence points towards the urgency of reducing emissions in the next decade so planning to increase aviation emissions is foolish.
- There is no economic justification for requiring other sectors to reduce emissions while encouraging an increase in aviation emissions.
- Aviation is used predominantly by more wealthy people in the UK. Curbing the increase in aviation emissions could be more socially progressive than other actions.
- Delaying action until the aviation sector is larger and employs more people will only make future political decisions harder.

14. All of the UK's CO₂ and non-CO₂ greenhouse gas emissions must be included within the scope of the bill from the outset. The government must take action to curb the growth in these emissions rather than postponing full inclusion of aviation until some future date when a possible international accord might have been reached and UK aviation emissions are significantly larger and need to be cut.

5. What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so

15. WDM supports the idea of budget periods in order to provide a degree of certainty relating to government action on climate change. However, we are concerned that the proposal for a five year carbon budget cycle has several flaws.

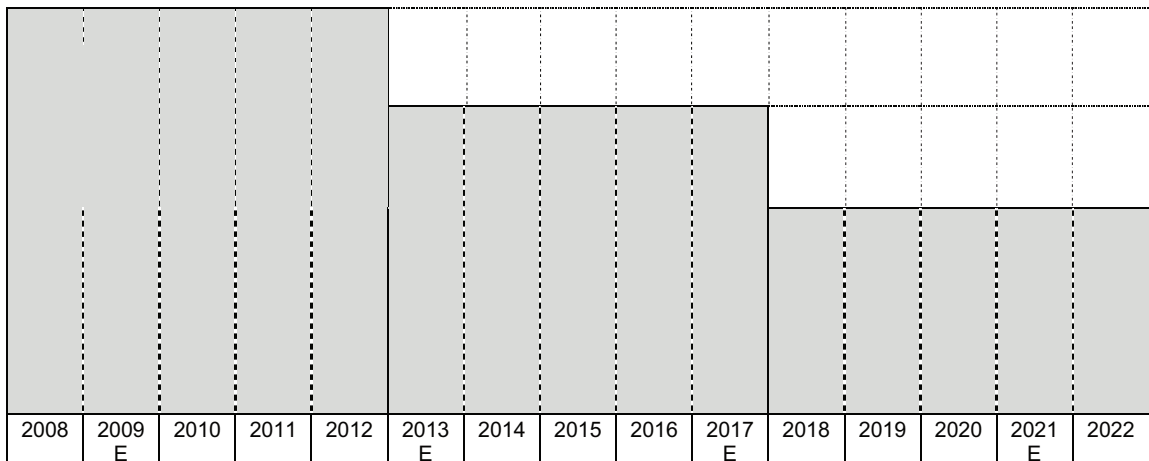
16. The first is that the UK's mitigation effort is more likely to be effective if public interest and political momentum can be maintained. WDM is concerned that five-year budget periods could result in difficult decisions being postponed. With the budget period spanning the electoral cycle there is some potential for buck-passing from one administration to another. Also, in terms of accountability, changes of Minister, Secretary of State or even Prime Minister can be important and five-year budget periods increase the likelihood of what could effectively be buck-passing between individuals within government.

17. A second flaw is that five-year budget periods make it more difficult to quickly incorporate the evolving science of climate change into decision-making. Although the bill rightly creates a review mechanism, once a five-year budget has been set there is likely to be a degree of political inertia in changing it. This would probably mean that responses to enhanced scientific evidence (if that evidence points to the need for deeper emissions cuts) are delayed until the next five-year budget period.

18. This also relates to the third flaw (see Figure 1). The proposed five year budget period, with a target to achieve lower average emissions over that period, results in an odd emissions reduction trajectory. After every five-years a sudden and significant emissions cut is needed. Creating a system that requires such large steps in emission reduction seems unnecessary and unrealistic.

Figure 1

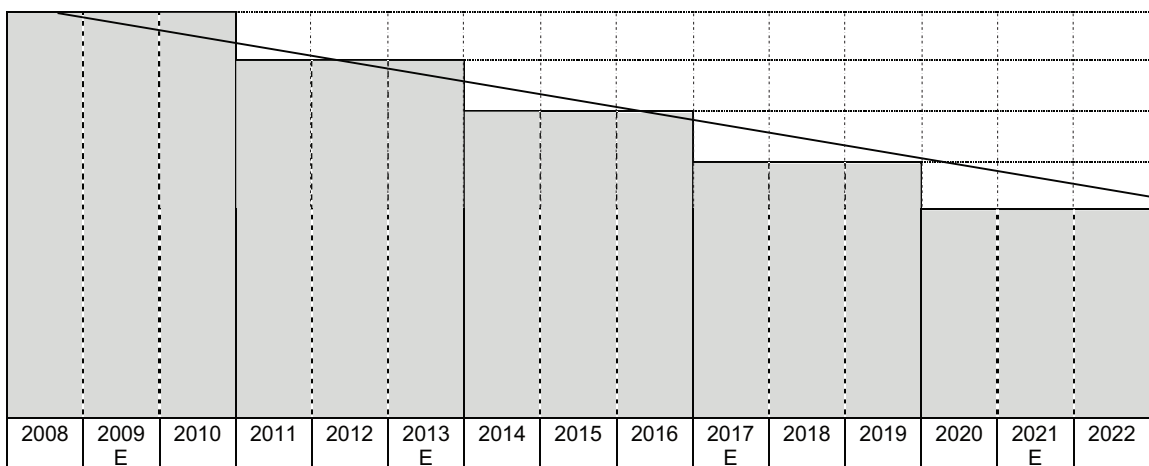
TYPOLOGY OF FIVE-YEAR CARBON BUDGET PERIODS (BASED ON THE GOVERNMENT'S CONSULTATION DOCUMENT)⁵²



19. As a way to ameliorate these three flaws, WDM argues that a more sensible route to pursue would involve three-year budget periods and a requirement to set annual milestones that produce a trajectory of emissions reduction.

Figure 2

TYPOLOGY OF A PROPOSED THREE YEAR CARBON BUDGET PERIODS WITH AN EMISSIONS REDUCTION TRAJECTORY SET THROUGH ANNUAL MILESTONES



20. The type of budget system suggested above would be more likely than a five-year budget system to mean that:

- The same government will see through at least one full budget period.
- Within a government, the same individuals (Minister, Secretary of State, Chancellor, Prime Minister) see through one or two budget periods.
- The emissions reduction trajectory and future budgets can be more easily modified to suit the evolving science.
- The emissions reduction trajectory is smoother.

⁵² The “E” under the date refers to a likely election year.

6. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target*

Use of credits from overseas investment projects

21. The draft climate bill proposes that the UK could purchase carbon credits from abroad in line with the limits set out under international law. The “limits” set out under international law are that the UK could purchase up to 50% of its greenhouse gas reduction effort from overseas. Therefore, within the proposed framework of the bill (which we argue needs to change) the UK should reduce its CO₂ emissions from 556.2 million tonnes to 235.7 million tonnes by 2050. But up to half of this effort (160.25 million tonnes) could be purchased from abroad.

22. The argument that it is cheaper, easier and thus more efficient to buy CO₂ emissions reductions in developing countries and that this is legitimate because it makes no difference *where* emissions reductions are made sounds fine in theory but in practice is riddled with problems.

23. It is notoriously difficult to monitor and verify emissions reductions in the developing world. Under the Kyoto protocol’s Clean Development Mechanism (CDM) the largest number of carbon credits have been generated by projects claiming to reduce the gas HFC-23, rather than CO₂. One study has found that the value of credits given to HFC-23 projects at current carbon prices is €4.7 billion. However, an estimate of the cost of technology needed to capture and destroy the same amount of HFC-23 is €100 million.⁵³ Around €4.6 billion has been generated in profit by HFC-23 generating plants, which could then further expand their operations with the reinvestment of this profit.⁵⁴

24. One Indian chemical company, SRF, made €87 million from the sale of carbon credits in 2006–07. Ashish Bharat Ram, managing director of SRF, claimed “Strong income from carbon trading strengthened us financially, and now we are expanding into areas related to our core strength of chemical and technical textiles business.”⁵⁵

25. Mandatory regulations should exist stating that companies have to capture and destroy HFC-23, especially given the relatively low cost of doing so. However, if such regulations exist in a country, then a company cannot claim carbon credits as they would not be viewed as ‘additional’. The existence of the carbon market creates a perverse incentive for governments *not* to regulate HFC-23, so that companies can make a windfall profit by selling credits.

26. Such problems mean that incorporating ‘purchasing overseas effort’ within the bill is creating a major loophole that could render the bill ineffective in addressing the UK’s contribution to climate change.

27. WDM is also concerned that, if towards the end of a budget period, the government is off-track, this loophole will enable it to divert a portion of the aid budget into schemes overseas. This creates a political “get out” clause that enables Ministers to delay or even avoid completely the decisions necessary for the UK’s transition to a low-carbon economy.

28. WDM argues that the UK needs to make reductions in UK emissions of up to 90%. The UK’s historical contribution to climate change means that this country has a moral responsibility to reduce its own emissions. On top of, rather than instead of, this emissions reduction it is vital that the UK plays its part in creating the conditions for low carbon development in developing countries, including through technology and financial transfers.

Carbon sequestration

29. In addition, there are serious flaws associated with afforestation and reforestation projects which mean they should not be counted as projects which can generate carbon credits.

30. Afforestation and reforestation do not provide net cuts in emissions *at the same point in time* as the activity being offset. Converting land to forest only has a net effect on taking carbon out of the atmosphere over the time in which it takes the forested area to grow.

31. Once an area has been afforested or reforested, it has to remain so forever to keep the original CO₂ saving. No guarantee can be given that this will happen. Local political decisions may be taken to change land usage, the forested area could burn and not be replaced, or increased temperatures from climate change could lead to the disappearance of forests. Afforestation and reforestation can never guarantee particular emissions savings.

⁵³ Harvey, F Bryant, C and Aglionby, J. (2007). Producers, traders reap credits windfall. *Financial Times*. London. 26/04/07.

⁵⁴ Smith, K. (2007). *Pollute and profit: So when will Brussels admit that its emissions trading scheme is not only not working, but has proved a disaster?*

⁵⁵ Smith, K. (2007). *Pollute and profit: So when will Brussels admit that its emissions trading scheme is not only not working, but has proved a disaster?*

32. There may be other affects on the carbon cycle from humans making changes to land use by afforestation or reforestation. In Ecuador, one study has found that afforestation plantations caused soil quality to deteriorate, releasing carbon trapped in the soil. The net impact of these plantations may well have been to *increase* the concentration of CO₂ in the atmosphere.⁵⁶

33. One recent scientific study found that outside a thin-band around the equator, forests trap more heat from the sun than they help to get rid of by removing CO₂ from the atmosphere, and thus are no use as an offset.⁵⁷

34. For all of the above reasons, afforestation and reforestation should not be counted as projects which can generate carbon credits.

7. Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments

35. WDM believes that the Committee should comprise experts from different fields and that no particular area of expertise, especially those unrelated to the science of climate change (eg, economics), should be over-represented. The key to a successfully functioning committee will be achieving the right balance of expertise to achieve the objective of advising the government on emissions reductions targets, budgets and pathways based on the science of climate change.

36. WDM thinks it would be unwise to create seats on the committee for representatives of particular interest groups (eg, business representatives, unions or NGOs). This would potentially detract from the focus of the Committee. It is up to government to weigh up different points of view and then act in the broader public interest when it comes to implementing policies to achieve the necessary emissions reductions.

37. Climate change is a global issue and, while people in the UK and other European countries will certainly be affected, the imperative for mitigating climate change is much greater and more urgent when considering the potential impacts on poor people in developing countries.

38. WDM suggests that the Committee on Climate Change should include an expert on the impacts of climate change on poor people in developing countries. We believe this would go some way to ensuring that the latest evidence on climate change impacts in the global south would be reflected in the Committee's deliberations and conclusions.

39. Also, WDM is concerned that the focus of the draft bill leans heavily towards the use of emissions trading schemes. Not only could this make reporting on actual emissions reductions very complex and confusing (due to the inclusion of credits purchased overseas in some emissions trading schemes), it could undermine the achievement of the bill's targets given the poor performance of emissions trading in delivering greenhouse gas reductions to date.

40. This focus on emissions trading is reflected in the fact that an emissions trading expert is proposed for inclusion on the Committee while experts in other areas of climate mitigation policy are not. In addition to an expert on emissions trading, WDM would like to see included on the Committee an expert on environmental taxation, an expert on environmental regulation and an expert on the use of subsidies/incentives.

11. How the contents of the Bill will affect international climate change activity

41. Effective international climate policy requires rich countries to take a lead in reducing emissions. The unilateral action which the draft climate bill commits the UK to can help secure international agreement on emission controls and reductions.

42. As already outlined, there are a number of ways in which the bill needs to change in order to be an effective example:

- It must include all international transport emissions, and the non-CO₂ impacts of aviation on global warming.
- It must put the need to keep to 2°C at the forefront of policy, and base reduction targets on what is required for the UK to do its fair share in meeting global emission reduction targets. On the basis of current science, this means a target of an 80–90% reduction by 2050.
- It must set-out an accountable budgeting system and a trajectory for emissions reduction. A three-year budgeting system and annual milestones would enable this to happen.

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⁵⁶ Vidal, V. (1999). *La Aplicacion de Politicas sobre Cambio Climatico en el Sector Forestal del Ecuador*. Autonomous University of Barcelona. October 1999.

⁵⁷ Jha, A. (2006). Planting trees to save planet is pointless, say ecologists. *The Guardian*. London. 15/12/06.

Memorandum by Salix Finance (CCB 27)

INTRODUCTION

The Joint Committee on the Draft Climate Change Bill has invited submissions of written evidence from interested parties on the role of local government in the drive to reduce carbon emissions and combat climate change.

Salix Finance's response relates to its remit of energy efficiency and has been put together using evidence collected from an extensive local authority client engagement exercise carried out between January and May 2007.⁵⁸

ABOUT SALIX FINANCE

Salix is an independent, publicly funded company that provides interest-free match funding to the public sector to invest in energy efficiency. Set up in 2004, Salix has Government funding of £20 million and is an integral part of the UK Climate Change Programme. We are now working with nearly 70 clients in local government, NHS Foundation Trusts, universities and central government.

Salix was set up to move public sector energy efficiency investment from a marginal activity to the mainstream. We set up ring-fenced recycling funds, matched by local authorities (LAs), to invest in specific, cost-effective energy efficiency and renewable projects. The funds are designed so that the energy saved pays back the fund over time. With our support, LAs can capture the value of energy efficiency directly through energy and cost savings, helping them free up resources for front-line services and offset rising energy prices.

Salix launched its Local Authority Energy Financing (LAEF) pilot scheme in 2004. The 19 local authorities in the pilot have commissioned over 500 projects with a total value of £3.4 million. The announcement of a further Government £20 million in funding for 2006–08 has allowed the pilot to be rolled out into a full programme and we are now working with 53 LAs across England and Wales with committed funding from Salix of £10.1 million.

WRITTEN EVIDENCE

Drivers

1. The main drivers acting on local authorities to tackle climate change through energy efficiency are:
 - *Financial*—There is a fear that energy costs will divert funds away from the local authorities' core activities, compromising front-line services. Related to finance is cost and resource efficiency. This is amplified in local government by the asset management agenda. The impact of the Gershon agenda is being felt in local and central government, and both the health and university sectors are under pressure to use resources more effectively.
 - *Public policy and regulation*—The Government wants the public sector to give strong leadership signals to voters and business by setting an example and using procurement leverage. The policy framework is tightening (mainly through the new performance framework and the Carbon Reduction Commitment) and the view is emerging that that it pays to be ahead of the game, because regulation will only get tighter.
 - *Reputation*—Pressure to “do the right thing” is growing across the public sector. Climate change is now a cross-party issue and users of services are beginning to demand change. Climate change is now rarely out of the newspapers, and already senior managers are considering not whether to take action, but the risks of being seen not to.

Barriers

2. The main barriers preventing local government investment in energy efficiency are:
 - *Lack of focus*—This is the most important barrier we face working with local government. Energy management is not a strategic issue and therefore it does not always get the necessary management attention and resource. Coupled to this, energy efficiency projects tend to be scattered around the organisation. This means that the energy manager is fighting a number of small battles to get the projects implemented.
 - Even if an organisation has been through the Carbon Trust's Carbon Management Programme (CMP), we have found that barriers to investment remain, for example poor links between sustainability teams and finance, or new barriers appear, such as the need to comply with procurement rules.

⁵⁸ Case studies can be found at <http://www.salixfinance.co.uk/home.html>

- *Lack of people*—There is a chronic lack of energy managers in local government, mainly through retirement and the attraction to the private sector through better remuneration packages. A useful rule of thumb is that it should be around ≥ 1 FTE energy manager for every £1 million of energy spend. Also, as public policy on climate change begins to bite more demands are being made of existing energy managers resulting in them being seriously overstretched.
- *Lack of money*—Capital budgets are under severe pressure and it is difficult for councils to obtain financing internally in competition with core activities. Furthermore, “spend to save” third party funding is often the only way marginal projects can be supported.
- *Accounting barriers*—Mobilising the necessary resources can be difficult due to barriers that prevent revenue budgets being used to pay back capital investment in energy efficiency.
- *Lack of information*—Energy managers are faced with a lot of third party information available but it is difficult to identify that which is relevant and authoritative. They also tend not to have the right skills to implement projects, for example with procurement and finance.

Solutions

3. Evidence from our local authority clients shows that in addition to providing finance, it is the fact that a fund has to be set up that drives investment and change in the LA. With our support, individual energy efficiency projects are brought together into a fund that has the critical mass needed to attract Board and Cabinet attention. Energy Managers tell us that this allows them to establish themselves in the organisation and in time to attract resources and funding from elsewhere. Our clients have said a Salix revolving fund helps:

- *Provides focus:*
 - The fund allows consolidation of a number of projects that would fail individually in competition with “core” spending.
 - This also allows energy management to rise to be a strategic issue for the Board.
 - The fund introduces a discipline around energy management and establishes formal links between energy and finance teams? The fund can also attract further internal resources—both capital and people.
 - The fund allows the energy manager to build a team and enhance their reputation within the organisation.
 - The structure of the fund requires a review of whether enough energy management resource is in place.
- *Provides or releases funding:*
 - Our funding protects marginal energy efficiency budgets that are usually the first to be cut when capital budgets are under pressure.
 - Energy price shock still persists with those “locked in” to contracts—energy savings help offset price rises.
 - Energy savings are seen to free up resources for core services.
 - External funding significantly increases the likelihood of Cabinet agreement to project commitment.
- *Helps with compliance and reputation:*
 - The risk of not investing in climate change action is quickly becoming a Board issue.
 - Savings demonstrate good asset/business management to Councillors and voters.
 - Fund and projects are a tangible demonstration of green credentials because glossy strategies have become discredited.
 - There is the potential to help with compliance, eg Gershon, Carbon Reduction Commitment, Comprehensive Area Assessment.
 - Additional funding allows targets to be met more quickly.
- *Provides advice and support:*
 - There is enormous value in sharing experience and benchmarking with others.
 - Technical advice is important but help with implementation (i.e. tendering) is often more relevant.

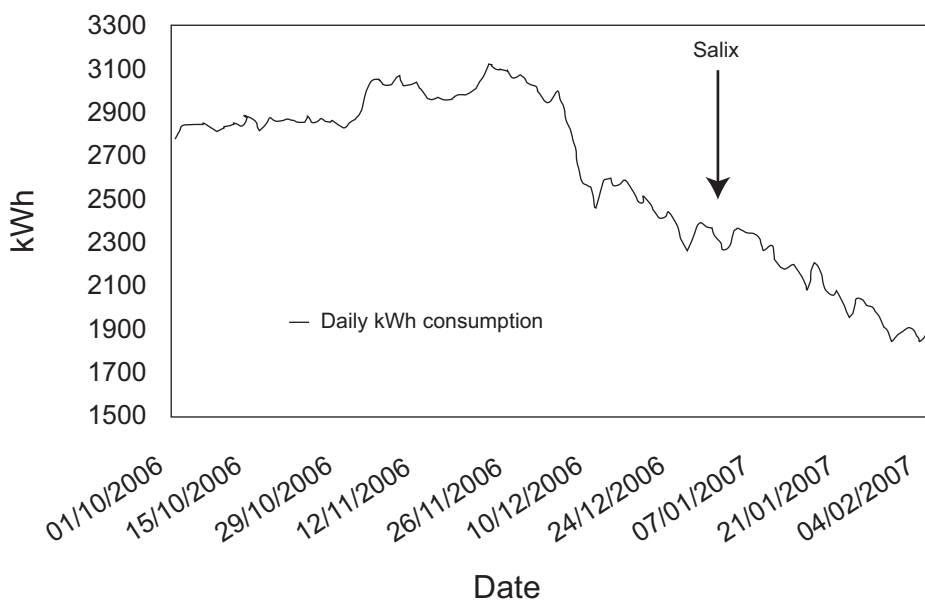
4. The incorporation of performance indicators on climate change in the 2009 Comprehensive Area Assessment (CAA) should embed a “climate change focused” culture in local authorities and drive local action on climate change as it will cease to be a voluntary act. Councils must be provided with the necessary support to tackle carbon emissions in the run up to the new CAA. They need to be supported in finding significant capital resources to implement energy efficiency projects and find enough energy management resources to make this all happen.

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Annex

BRISTOL CITY COUNCIL—RETROLUX CAR PARK LIGHTING

Bristol City Council made a £41,000 investment to install Retrolux energy efficient lighting conversion kits and occupancy/daylight sensors. The project has a minimum expected annual saving of £19,000 and 95 tonnes of CO₂, although electrical consumption monitoring is indicating actual savings may be much higher. Additional benefits brought about by this work include lower maintenance costs due to longer lamp life and an increase in public safety due to brighter lighting and increased visibility. The graph below shows the significant energy savings made by the car park following the installation of Retrolux lighting.



SOUTH TYNESIDE COUNCIL—LEISURE CENTRE ENERGY CONSUMPTION

In July 2005, Temple Park Leisure Centre was consuming on average 315,000kWh of electricity per month. This equates to £204,120 per annum.

Over nine months—with funding secured from Salix Finance and internally by the Council—energy consumption was reduced by just over 40% to 180,000kWh per month. This equates to an annual saving of £87,500.

This success was achieved by implementing and adopting simple and effective energy saving techniques. For example, occupancy lighting controls were fitted in areas that are not always in use, after-hours surveys were conducted to discover what equipment was being left on, and staff training was undertaken to encourage energy saving behaviour.

CAERPHILLY COUNTY BOROUGH COUNCIL—MARKHAM PRIMARY ECO-SCHOOL

Since November 2005, Markham Primary School—one of Caerphilly’s Eco-Schools—has taken on four LAEF projects on the advice of Caerphilly County Borough Council’s Energy and Waster Conservation Team. The school linked the boiler to a SeaChange controller and thermostats within the building, insulated exposed valves and pipework and installed window and door draught proofing and loft insulation.

The combined effect of these projects has reduced the amount being paid on the school’s gas invoices by £3,514 per year. There has also been a dramatic reduction in annual CO₂ emissions by 40.4 tonnes.

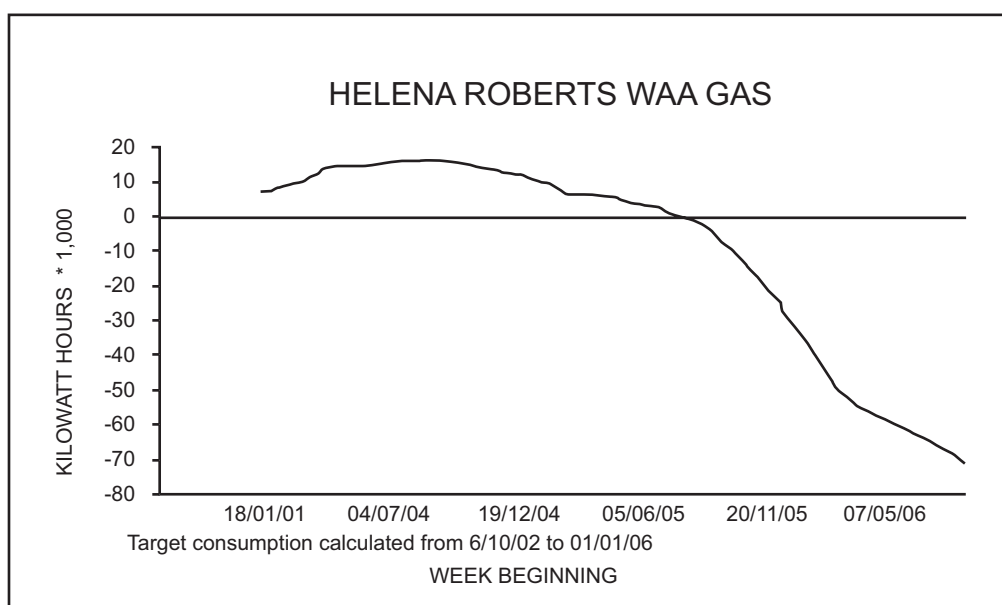
The fund provided the focus to look at other areas so that by working closely with the school, the Energy and Water Conservation Team was also able to save almost £5,000 by claiming back from Welsh Water sewerage charges relating to water consumption arising from a plumbing leak.

LEICESTER CITY COUNCIL—BOILER REPLACEMENT IN SHELTERED HOUSING

Leicester's Housing Department replaced obsolete Atmospheric Hamworthy's gas-fired boilers at Helena Roberts House—one of 15 sheltered housing schemes across the city—with modern Hovel gas-fired condensing boilers. This type of boiler achieves typical fuel efficiencies of up to 95%. In addition, the harmful atmospheric emissions from condensing boilers are far lower than those produced by conventional boilers. Through Salix funding, the additional cost of investment of £6,750 has a payback period of five years in the form of lower heating bills.

This project was further enhanced with improved insulation in the plant room through fitting customised jackets and covers to valves at a cost of £627. This method of insulation produces an excellent return on investment, typically under two years, in the form of lower heating bills.

The graphs show that a relationship was established between gas consumption and degree-days for the 12 months immediately preceding the installation. The difference between the prediction and the actual usage shows that gas usage had been reduced by over 18%, representing a saving of over 70,000 kWh and 13 tonnes of CO₂ over 12 months.



Memorandum by the Light Rail Transit Association (LRTA) (CCB 28)

THE ROLE OF LIGHT RAIL IN TACKLING CLIMATE CHANGE

1. A vital component of planning to combat climate change must include the overall increase in the efficiency of transport overall. In particular, situations where transport energy use is inefficient must be minimised.

2. Transport is a significant contributor to the emission of carbon dioxide, but this is of course not to say that the provision of transport services should be arbitrarily curtailed. Nonetheless, inefficient and unnecessary vehicular movement is clearly both a waste of resources (in financial, material, human and energy terms) and an unnecessary contributor to emissions of carbon dioxide.

3. The Eddington Study identified that 89% of congestion occurs in urban and suburban situations (*Eddington Transport Study*, HM Treasury and Department for Transport, 2006). Road vehicles in congested road conditions are less fuel efficient than in other situations and therefore the emissions of carbon dioxide (as well as other pollutants) arising from road transport in urban and suburban areas are disproportionately high.

4. The range of transport modes collectively referred to as “light rail transit” (LRT), which include modern tramways and systems such as the Docklands Light Railway, have shown themselves to be more effective than other modes in attracting car drivers to public transport. Typically 18–20% of LRT passengers previously used cars (*Improving Public Transport in England through Light Rail*, National Audit Office,

2004), whereas the proponents of enhanced bus services claim a figure of 7% (*Buses as Rapid Transit—A Transport Revolution in Waiting* [promotional booklet], BRT-UK, 2007). The House of Commons Transport Committee has recognised the higher levels of modal shift achievable by LRT than diesel buses (*Integrated Transport: the Future of Light Rail and Modern Trams in the United Kingdom*, Tenth Report of Session 2004–05, House of Commons Transport Committee, 2005).

5. It is also to be noted that bus use has been in long term decline in the UK, whereas ridership on LRT systems has risen consistently since the introduction of modern LRT in the last two decades (*Transport Statistics for Great Britain 2006*, Department for Transport, 2006).

6. LRT is inherently better-optimised and more efficient as an urban and suburban transport mode than the vast majority of the UK's car fleet, which is designed to suit long-distance journeys (and cars are advertised as less fuel efficient in urban conditions).

7. Reducing inefficient road vehicle use is primarily an urban and suburban issue; while bringing about “modal shift” is dependent on the provision of attractive alternatives in the form of public transport. The outcomes of studies into the effects of different forms of public transport consistently show that LRT is the best mode for achieving this objective.

8. Item 3 of the scope of the Joint Committee's inquiry identifies the need for measures that will secure a change in public behaviour.

9. The public is well aware of the relative merits of different modes of transport in terms of the emission of carbon dioxide. Indeed, this has become a principal point of public debate regarding the reduction of one's personal carbon footprint. As a result there is a keen appetite to use efficient forms of transport and transport operators are now advertising their services accordingly. However, a frequent complaint is that practical “green” transport alternatives are not available.

10. The increased provision of a mode of transport that is both a practical alternative to urban car use and is publicly recognised as “environmentally-friendly” will be popular. Importantly, successful implementation will allow the public individually to take action to reduce their own carbon footprints, and will encourage public engagement in other measures to reduce emissions of greenhouse gases.

11. There is a “virtuous circle” combining increased provision of attractive public transport, increased efficiency of local transport (especially in urban and suburban areas), increased use of public transport, reduction in inefficient car use, beneficial effects on the local environment and economy, public acceptance of measures to address climate change, and reduction in the UK's emissions of carbon dioxide.

12. The LRTA contends, based on the evidence of studies of different modes of transport, that this virtuous circle can only be achieved in significant measure by the implementation of public transport replicating the perceived quality of modern LRT systems.

13. Furthermore, the power required for electric systems can be generated in from sustainable and renewable sources local to the point of use, as is already practised in several locations, eg solar power generation in Karlsruhe (Germany) and wind power in Calgary (Canada). Pursuing this course of action will further reduce emissions of greenhouse gases by the transport sector.

14. It is to be noted that replicating the quality of modern LRT systems does not automatically imply exact technological replication. For example, the public appreciates the modern image and quiet operation of electric tramways, but the electric technology is a means to achieve these desirable ends (as well as providing the potential for local power generation—see 13 above).

15. The LRTA recognises that conventional electric LRT systems are inappropriate for urban centres of small size. However, we do not accept that this means that smaller towns and cities cannot benefit from attractive rail-based public transport.

16. As a concrete example, “ultra light rail” and “lightweight rail” are recently-developed modes that aim to replicate the benefits of LRT at much lower cost and for lower levels of patronage. Passengers on the recent experimental service of a Parry People Movers lightweight rail vehicle have been reported as indicating that the experience was akin to the conventional LRT Midland Metro. In other words, the perceived quality had been replicated by an unelectrified system suited to lower passenger flows. This vehicle also demonstrated significant energy efficiency and lower operating costs.

17. The LRTA therefore proposes that ultra light/lightweight rail is a suitable mode for smaller urban centres, with the potential of repeating the positive achievements of conventional LRT in larger cities and conurbations. The “virtuous circle” referred to above can therefore be replicated in towns that are too small for realistic implementation of conventional LRT, with the concomitant benefit of reduced carbon dioxide emissions.

18. LRT brings further environmental benefits on top of the reduction in carbon dioxide emissions and can contribute significantly to improvements in air quality in town centres.

 CONCLUSIONS

19. A disproportionately large reduction in carbon dioxide by the transport sector can be brought about by reducing urban and suburban road vehicle use.

20. Light rail is the transport mode most likely to bring about this reduction.

21. Transport has a high profile in the “climate change debate” and the provision of “green” transport will bring about wide public acceptance of measures to prevent climate change.

22. Variants of light rail are available that are suited to implementation in smaller urban/suburban areas, and will multiply the benefits achieved.

ABOUT THE LIGHT RAIL TRANSIT ASSOCIATION

23. The LRTA has campaigned for improved public transport for 70 years. Its members, both professional and amateur, are spread across the world. The LRTA publishes a monthly magazine, *Tramways & Urban Transit*, which includes news and features from around the world on urban transport developments and the latest information about tramways and light rail.

24. The principal policy of the LRTA is to promote the use of tramway and light rail as a mode of urban local public transport in appropriate situations.

May 2007

 Memorandum by Dr John Rhys (CCB 29)

Personal details. Most of my career has been spent in energy policy and energy sector regulation, in the UK and in EU countries, and also working as an adviser with the World Bank and other bodies on energy sector reform in Eastern Europe, Africa, India and China. I was for many years Chief Economist at The Electricity Council, responsible for energy policy work, forecasting and the industry’s consumer research programme. Before becoming Managing Director of NERA UK Economic Consulting, I developed its energy consultancy, leading work on electricity privatization (including nuclear) in the UK, as well as competition policy and state aids issues in both the UK and Europe, and reform programmes worldwide. I have therefore had continuous exposure to many of the energy policy, and related market and regulatory issues, now taking new forms in the context of climate change policy.

I am now, inter alia, a Visiting Fellow with the Energy Group at Sussex University, and a member of the British Institute of Energy Economics (BIEE) Climate Change Policy Group,⁵⁹ acting as secretary to that group. The BIEE group has recently produced papers on climate policy issues, including one in response to the Government’s own consultation, and I have quoted from these in my evidence below, as well as annexing to this submission. I have previously submitted evidence on related questions to the House of Commons Environmental Audit Committee. My comments are addressed to the themes of the Committee’s inquiry.

1. THE MAIN AIMS AND PURPOSES OF THE BILL AND WHY IT IS NEEDED

A recent BIEE Climate Change Policy Group paper⁶⁰ summarized the case for urgency of action on climate change. The following extract provides a neat summary of at least part of the case for action in relation to the institutional framework.

“Policy has over the last two decades been set in a “liberalised market framework”, with a mixture of competitive markets and regulation, and many economists and politicians continue to rely exclusively on market driven solutions. While recognising the fundamental importance and powerful advantages of markets, we believe the current framework, unamended, is unlikely to be capable of promoting large scale investments in new low carbon technologies or fundamental long-term change in complex UK (or for that matter international) energy systems, since:

- “Climate change represents the greatest market failure the world has seen” (Stern).
- “Carbon valuation”, to internalise the costs of CO₂, is not embedded in the economic system, and it has so far proved very difficult to implement in a manner that will give confidence to investors in long term assets, eg in power generation, by ensuring that the reward for carbon reduction will remain over the life of the asset.
- R&D investment may be particularly susceptible to market failure problems in industries where it is difficult for individual firms to capture the benefits. The energy sector has been notable for low and declining R&D in recent years, and the potential for market failure is enhanced by the absence of a clear and stable framework to put a value on the benefit of “low carbon”.

⁵⁹ The group consists of a number of energy experts, but does not claim to represent the views of the BIEE membership as a whole.

⁶⁰ *Bringing Urgency Into UK Climate Change Policy*. BIEE Climate Change Policy Group, December 2006.

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- Solutions based on the creation of market structures, such as for the trading of carbon, must play a hugely important role; but, to be effective, they will require not only Government endorsed targets for emission reduction, but also carefully designed policy interventions and regulatory supervision.
 - In a number of cases decisions on infrastructure may have a profound effect on the economic and commercial choices of preferred technology, eg on the form of the electricity grid or on a pipe network for CO₂ capture and disposal, requiring some degree of centralised decision making.

All these factors suggest the need for some amendment to existing regulatory and competitive market structures. Indeed small-scale incremental adjustments to existing market and institutional frameworks are unlikely to suffice and additional policy instruments are likely to be required.”

Club of Rome

Lord Lawson, in his recent evidence to the Committee, drew parallels with the “alarmist” projections of the Club of Rome. The failure to materialise of these early prophecies of doom led, unsurprisingly, to their characterisation as neo-Malthusian fallacies. However global warming in relation to man-made climate change has one economic characteristic which destroys any possible analogy. In the main the Club of Rome addressed the subject of natural resources, such as oil and minerals, for which actual or potential shortages are translated rapidly into price movements. Higher prices can and do induce substitution and both supply and demand responses. However when the scarce resource is a common good, like many aspects of what we choose to call “environment”, it does not, absent intervention, have a market price and users do not have to bear or respond to the external costs of their own consumption. The normal checks and balances of prices related to costs, and of supply and demand response, simply do not operate. In the absence of mechanisms to internalise the externalities of excess usage of an environmental resource, in essence what CO₂ emissions are, there is nothing to curb demand or increase supply.

2. APPROPRIATE TO LEGISLATE? BALANCE BETWEEN COMPULSORY AND VOLUNTARY ACTION

We should recall that “voluntary” action on energy conservation has been a feature of the energy policy landscape since the mid-1970s’ and that its achievements have been at best limited and partly undermined, perhaps, by falling real energy prices. Given the urgency that now attaches to real action to reduce emissions, it is clear that a new framework is required, and that legislation is likely to be necessary for many of the market based or regulatory initiatives that will be required. Climate change legislation also provides an opportunity to inject momentum into CO₂ policy.

The balances that will need to be found in the future are between “compulsory” and “voluntary” measures, when so described in relation to individual choices by consumers or other economic actors. The most important distinction that can be drawn is between “voluntary” action in response to market pressures and new market signals, admittedly helped and reinforced by public education, and “compulsory” measures based on regulation, relevant examples of which might be building standards, planning requirements or motorway speed limits.

While there may be a general preference for “market” solutions, and the scope for new markets is covered in the Bill, it is likely that there will be a significant dimension of “regulation” required in future policy. One question to address therefore is whether possible future measures in respect of regulation are adequately covered by the Bill.

4. INCLUSION OF GHG; AND THE ADEQUACY OF THE PROPOSED 60% REDUCTION

In principle, and in the longer term, it will be important to move to a broader and more comprehensive system of greenhouse gas control. This should therefore be kept under review. The practical case for maintaining the immediate focus on CO₂ is that it allows earlier progress to be made on the largest single element of the problem. To wait on resolution of the scientific, technical and political questions associated with a full GHG system might result in unnecessary delay to essential action that can be taken now.

The position on the adequacy of a 60% target is analogous, in that:

- the most recent scientific consensus⁶¹ indicates the need to aim for atmospheric concentrations of CO₂ of less than 550 ppm; and
- with the lack of progress in reducing emissions over the last decade there are real doubts⁶² as to whether a 60% target would deliver cumulative emission reductions adequate to achieve even the less demanding target of 550 ppm in 2050.

⁶¹ The recent IPCC report for example suggests that lower concentrations, of between 445ppm and 490ppm, would keep the temperature rise in a range of 2.0-2.4C. This compares with EU policy of seeking to avoid rises of more than 2C.

⁶² Tyndall Briefing Note 17, March 2007.

The BIEE Climate Change Policy Group has expressed the view that “we should at least consider the implications of a more challenging 80% target, as well as the more conservative 60% UK reduction considered hitherto”.

The essential issue is that a limit based on an 80% reduction would be a further major reduction in carbon emissions, implying only half the allowable emissions of CO₂ in 2050 compared with a 60% reduction. As such it almost certainly implies significantly higher adjustment costs, and is also likely to imply measures which would impinge on the nearer term targets. It would therefore be harder to justify an 80% reduction as a UK *unilateral* measure at this juncture.

Thus, if risks of delay to the passage of the Bill are to be avoided, the most appropriate compromise or practical approach is to proceed for the time being with limits based on the 60% target as outlined in the Bill, but to recognise the probability that the UK will wish or indeed need to move to a tighter limit in the future, most probably as part of a coordinated international response. This does not appear to call for any obvious major adjustments to the Bill, other than to ensure that both Government departments, in their monitoring and policy development, and the Committee on Climate Change, in its advisory role, do take into account the implications of tighter international objectives as exemplified by an 80% path.

Finally it is important that CO₂ targets align with the true underlying objective. This is to minimise *cumulative* emissions, not to achieve a particular level by a given date. A target such as 60% reduction in annual emissions by 2050 may be a useful indicator of what is required, but it should not obscure the primary objective, reinforced by Stern, of keeping *cumulative* emissions within “safe” limits. Exclusive preoccupation with ultimate 2050 targets ignores the importance of the path of emissions reduction both in determining ultimate emissions and the “exemplary value” of UK action. There is therefore a case for expressing targets in terms of cumulative emissions.

5. WHAT DIFFICULTIES FACE THE GOVERNMENT IN CONTROLLING UK CARBON?

The carbon budgeting system, and its associated accountability and monitoring arrangements, should facilitate public scrutiny of the whole corpus of policies and measures concerned with the low carbon issue. Effective accountability will need to consider not only recent emissions against budget but also those steps being taken to create the conditions for necessary long term technological and system changes.

The carbon budgeting system should therefore have space for detailed descriptions, endorsed by Government, on how the emission targets (both short and long term) are to be achieved, subject to necessary flexibility and with due regard to “urgency”. The concern here is not only with direct action by Government but also with action by other agents for change operating within policy frameworks set or influenced by Government

In this context the ideas set out by the BIEE Climate Change Policy Group⁶³ on time critical pathways, essentially documents that set out expectations on how sectoral targets are to be achieved, could play an important role in making the proposed carbon budgeting system fully effective. There are two specific points of entry.

- (i) Section 6 requires the Government, whenever a carbon budget is set, to produce a report setting out its proposals and policies for meeting the carbon budgets for current and future budgetary periods. Note 34 to the Bill states that “this clause aims to enshrine transparency in the system so that Parliament is clear about how the Government intends to achieve its new obligations”.
- (ii) Section 21 requires that the Committee on Climate Change report annually to Parliament its views on progress being made towards meeting not only the carbon budgets already set, but also the long term target for 2050.

It is difficult to see how these duties could be discharged satisfactorily without reference to something like Government-endorsed “time critical pathways” for the main sectors of electricity, transport and buildings.

Economic Costs of Adjustment

While one should not underestimate the scale of the task, I believe that the purely economic costs of adjustment, either to GDP or to consumers, are frequently overstated. As an example, the electricity sector accounts for some 35% of UK CO₂ emissions and clearly has to become virtually carbon-free by 2050 if even a 60% target is to be achieved. However this is a sector in which a very large replacement programme would in any case be required over the next 20–30 years just to replace aging nuclear and coal stations.

Just to get a feel for the magnitude of the economic impacts for this sector, it is instructive to look at the French economy, which effectively converted electricity to carbon neutrality in two decades, from c 1980 on, while at the same time maintaining some of the most competitive power prices in Europe. France, apparently, made at least half the progress associated with a 60% target, within two decades, without any obvious excessive cost burden or adverse economic consequences.

⁶³ *Bringing Urgency Into UK Climate Change Policy*. Paper by the BIEE Climate Change Policy Group, December 2006, and also *Time Critical Pathways For UK CO₂ Reduction*, Supplementary Note, February 2007.

6. USE OF CREDITS FROM OVERSEAS INVESTMENT PROJECTS SHOULD BE PERMITTED

The BIEE Climate Change Policy Group has addressed this question directly in its submission to Government.

“We recognise that emissions reduction is properly regarded as a global issue, and this requires in principle that there should be no restriction or disincentive to UK agents making genuine cost effective investments to reduce CO₂ or GHG emissions in other countries, especially where these may be more cost effective than UK investments. However the use of overseas credits does raise a number of serious practical questions that need to be resolved.

First, the integrity, credibility and additionality of such schemes needs to be assured, as any revelations of schemes of dubious validity will serve to undermine both the domestic political consensus for action on CO₂, and any exemplary value of UK action internationally.

Second, if the purchase of even soundly based international credits was on a scale that left only minimal “domestic” reductions, then the exemplary value of UK action would be severely damaged.

Third, analysis suggests that the availability of international credits will be very difficult to predict, as it will depend both on the implementation of projects in countries with sometimes difficult regulatory regimes, and also on the demand from other developed countries whose policies are still evolving. Unconstrained use of such credits could create significant uncertainty about the level of domestic emission reduction that is required, and undermine the stability of the CO₂ price, with a damaging impact on investment.”

7. CONSTITUTION, REMIT, POWERS, AND RESOURCES OF THE COMMITTEE ON CLIMATE CHANGE

Remit

There is a good case for separating the design and implementation of climate change policy, on the one hand, from monitoring and accountability on the other; this would increase the credibility of the monitoring agency and thus improve the enforcement of emission targets. However the Committee is likely to develop considerable expertise and may be drawn into an advisory role on policy. This may create tensions for its main role.

Factors to consider (section 5.55)

While all these factors are relevant, they are rather all-encompassing and should not all have equal weight in the Committee’s deliberations. The Committee needs primary objectives more narrowly defined in terms of climate, technological, and energy policy issues within a sound framework of economic analysis.

Composition

The focus should be primarily on expertise. Stakeholders would not carry credibility and would inevitably be drawn into protection of special interest positions.

Resources and expertise

In 5.57 of the consultation document, part (e) should be redefined as energy production, supply *and utilisation*. Energy policy should also be included explicitly as an area of expertise. Most importantly, the list should include expertise in regulatory or regulatory economics issues. The Committee itself needs considerable strength on these issues as well as some sound grounding in climate science and technology. Some areas will inevitably need to be supplemented in the supporting staff and perhaps in commissioning additional research.

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Memorandum by Renew Tees Valley Ltd (CCB 30)

Renew Tees Valley Ltd exists to promote and assist the development of a viable and vibrant renewable energy and recycling economy in the Tees Valley. The idea is to exploit the assets and skill base that grew up around petrochemicals, steel making, offshore engineering etc. to attract new companies into the area and to help existing companies expand and diversify. We are particularly active in the liquid biofuels, carbon capture and storage and biomass.

1. We support the government’s intention to set long term legal targets as described in the draft bill. All sections of society and government need to accept a new model for an economy based on a low carbon strategy.

2. Our industry and economy work with market distortions at present. Existing cap and trade schemes such as the RO and RTFO do not value carbon directly so what is proposed in the form of trading schemes will produce extra distortions whose effects are not completely understood. The committee proposed in the draft bill will need to monitor the economic tensions so as to not destabilise key economic mechanisms.

3. The economy will have to fund developments to replace our fleet of power stations and energy efficiency measures and these projects will have to compete with other national strategies for funds such as the Olympics, NHS, schools etc. Industry buy-in is a key issue as they will have to bear much of the burden in funding the projects on the back of the market situation created by government. The draft bill does not seek to involve stakeholders which is a concern to us.

4. The trading schemes to be instigated by secondary legislation in this bill and the existing EU ETS lend themselves to the trading of other greenhouse gasses and emissions. Methane is 23 times more potent as a greenhouse gas than CO₂ and is emitted from coal seams and agriculture. It seems relatively straightforward to develop a market in Methane abatement which would be a useful adjunct to the CO₂ Market.

5. We are in favour of including aviation and shipping in this framework proposed in the draft bill at the earliest opportunity. It was always envisaged in the drafting of the EU ETS that polluters would be providing resources for abatement action to be implemented elsewhere possibly in other industries. It may not be possible to find technical improvements within aviation and shipping but they would be a very useful funding source for carbon abatement projects in other industries.

6. The Bill does not clearly state so but it is implicit that Political leadership is a key element. The link between CO₂ emissions and global warming and the question of the right to a quality of life both in our developed economy and in the aspiring developing economies are both issues to be debated at a political level. The lack of buy-in to a low carbon economy at a social, international or industrial level could all seriously undermine the whole strategy.

7. We accept the analysis given under para 5.17 of the draft bill with the following suggestion. The natural limit of resources in the economy as well as industries ability to expand into new markets and skills shortages will be severe constraints on the rate of development of the sectors of the economy necessary to achieve the necessary abatement.

8. The twin factors of security of supply and energy costs are a priority to industry and all stakeholders. We have had for many decades a mixed portfolio of generation types and have had our own indigenous energy sources. Our own ability to develop a range of technologies to provide a broad range of alternatives would benefit us in the forms of security of supply and spreading of risk. But it would also relate to other countries adoption of different mixes of the available technologies and we should as a major provider of best practice and technology develop those technologies such as Clean Coal. We can thus enhance our own balanced portfolio and be active in these export markets going forward to best effect in carbon abatement terms and in international trade. Generally our electricity costs will rise as fully depreciated coal power stations are taken out of service.

9. We agree with having a committee to monitor the performance of government in climate change issues. We are concerned however that there is not enough stakeholder involvement in this body in the form of business and industry who will be the main implementers. We do not see the need for the involvement of local government in a bill which is about putting in place primary legislation to underpin future strategies.

10. The following extra technical issues need to be considered by the committee because of their cost to the economy or because of their nature as enabling technologies to enable the low carbon economy to be realised—Grid Stability, Waste usage, Energy efficiency, Distributed Energy, Hydrogen economy, Fuel cells, Adaptation to Climate Change.

11. We applaud the governments intention to rationalise the mechanisms for legislating for the low carbon economy. The centrally held model for trading schemes for instance, incorporating the avoidance of all the problems incurred with the previous schemes, is definitely better than ad hoc schemes generated within diverse ministries. We would assume that the existing cap and trade schemes run by the government have generated useful data and models to facilitate the creation of effective and equitable schemes from time to time in the future.

Memorandum by The Society of Motor manufacturers and Traders (SMMT) (CCB 31)

INTRODUCTION

The Society of Motor Manufacturers and Traders (SMMT) is the leading trade association for the UK automotive industry, providing expert advice and information to its members as well as to external organisations. It represents more than 500 member companies ranging from vehicle manufacturers, component and material suppliers to power train providers and design engineers. The motor industry is a crucial sector of the UK economy, generating a manufacturing turnover of £47 billion, contributing well over 10% of the UK's total exports and supporting around 800,000 jobs.

The SMMT welcomes the opportunity to contribute to the pre-legislative scrutiny process for the Draft Climate Change Bill. The UK automotive industry recognises its role in addressing carbon dioxide (CO₂) reduction across the life cycle of its products. It is considered that the principal objective of the Draft Bill is to reduce CO₂ emissions and this must remain its focus. At this stage however, some parts of the Draft Bill and accompanying documents lack clarity. The SMMT has formulated this response through consultation with its membership and has endeavoured to keep its comments brief.

COMMENTS ON THE COMMITTEE'S INQUIRY

1. *What the main aims and purposes of the Bill are and why it is needed*

The main aim of the Draft Bill is to reduce emissions through the use of a long-term objective target and the SMMT supports this. It is an ambitious Draft Bill that is needed in principle because the detrimental effects of climate change are now widely accepted and have considerable environmental, political, social and economic implications. However, there is concern that this is a unilateral response to a global problem. International action is essential in the longer-term. Responsibility for reducing the effects of climate change must extend to a wide range of stakeholders. Engagement and acknowledgement of responsibility as recognised in the Bill is important. The automotive industry recognises the need to address climate change in an integrated way. We have been progressive in reducing the carbon emissions of our products, and fully support an Integrated Approach to CO₂ which has been pioneered by our sector through the Competitive Automotive Regulatory System for the 21st century (CARS21) multi-stakeholder process which includes the fuel industry, automotive, policy-makers and NGOs.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed*

The diversity of stakeholders it is necessary to involve in reducing CO₂ makes any system of targets and budgeting complex. The automotive industry is well-placed to respond to the concept of targets and monitoring, and has experience of several energy efficiency regimes, unlike some other sectors and also the individual. We need greater clarity and transparency with regard to the accountability and enforcement mechanisms, particularly on how they might apply and to whom, for an overall UK target before commenting further.

4. *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence*

- The Draft Bill should remain focused on reducing CO₂ emissions.
- The 60% emissions reduction in the Draft Bill is ambitious, as are the interim targets, however essential flexibility exists because of the medium-term 26 to 32% range. Interim targets should provide opportunity to review the 60% target, as new factors may impact on emissions reduction, such as international objectives beyond 2012.
- Sound scientific evidence should provide the basis for any emissions reduction target.

5. *What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of 5 year carbon budgets and interim targets represents the most appropriate way of doing so*

- Controlling CO₂ emissions is a complex task involving many stakeholders.
- The experience of the automotive sector demonstrates that CO₂ reduction strategy does not necessarily develop in a linear way. Government should therefore be reminded that there may be early gains from a reduction strategy. Any gains will need to be maintained through greater investment and resources.
- Five-year budgetary alignment with European Union Emissions Trading Scheme (EU ETS) is a rational approach, however starting a five-year period in 2008 would not give a clear message in 2020. The mechanisms in the Draft Bill must be subject to rigorous impact assessment.

6. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target*

- Decisions on carbon sequestration should be made with robust scientific evidence.
- The commercial impact of carbon budgeting goes beyond the UK. A mechanism for recognising and rewarding CO₂ reduction outside the UK, such as through overseas investment projects, appears logical, as climate change is a global issue. However, establishing boundaries and ensuring quality carbon reduction projects may make the scheme more complicated. The Government's 2000 Climate Change Programme stated JI/CDM credits would count towards a national CO₂ target. The SMMT supports this approach because of the liquidity it gives the market, however appropriate standards of monitoring, reporting and verification of the mechanism are essential.

7. *Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments*

- We agree with the configuration of the Committee as outlined in the Draft Bill—it should be a tightly focused and lean group. It is unclear from the Draft Bill how long tenure will be for individual Committee members, but whilst a limit may be inappropriate, it is important that there are robust mechanisms in place to assess the work of each member. The Committee should consist of experts working with sound scientific and economic evidence, be independent, and avoid being politicised. The Committee's function should be an advisory one—and not be overburdened with bureaucracy. It must be able to advise the relevant Secretary of State, other Ministers and officials in an efficient and effective manner about the progress of reducing carbons and any changes that need to be made to improve the rate of reduction. The Draft Bill includes clauses on sub-committees—more detail on their purpose and relationship with the main Committee is essential. The remit and composition of these Committees must be decided in a transparent and clear manner. The functions of the Committee outlined in the Draft Bill are specific, however the 'duty to provide advice or other assistance on request' and supplementary provisions seem to give some flexibility to the Committee's functions. Ultimately, it is difficult to assess adequacy until the composition and representative nature of the Committee is known.
- It is impossible to assess how the Committee and departments functions will overlap until the Committee is fully functional. Issues arising should be resolved and reviewed as part of a stringent monitoring process.

10. *Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets*

Any provisions should be aligned with the EU framework—the 60% reduction by 2050 matches EU objectives. As mentioned earlier, alignment with the EU ETS budgetary period is appropriate. However, there must be recognition of the differences between EU greenhouse gas emissions (GHG) target and UK CO₂ target. The SMMT is also concerned with the potential breach of EU common market principles with a UK unilateral trading scheme.

11. *How the contents of the Bill will affect international climate change activity*

International action—whether at global or regional (ie EU) level is preferable to unilateral action—however, the SMMT recognises the leadership approach by UK government in this Draft Bill. Climate Change must be addressed globally, and the UK should continue work in global forums on this issue. This Bill should present itself as just one of the package of measures needed to address climate change and also as an Integrated Approach. It must provide a rational, long-term, realistic approach to CO₂ reduction, whilst not negatively impacting on UK competitiveness. The determined leadership and any action by the UK should have strong scientific evidence, and acknowledge the recommendations of the Stern Report which details the need for success of global market mechanism to ensure climate change is addressed in a cost effective way.

Memorandum by the Commercial Boat Operators Association (CCB 32)

1. WHO WE ARE AND WHAT WE DO

1.1 The Commercial Boat Operators Association (CBOA) is a trade association representing firms which carry cargo and provide engineering services on Britain's inland waterways. We have 175 members, including associates.

1.2 Department for Transport statistics showed that 48.7 million metric tonnes were carried on the waterways in 2005 including the inland part of major estuaries.

1.3 Cargoes carried include aggregates, fuel oil, grain, rice, steel industry materials and products, residual domestic waste, abnormal indivisible loads (such as power station generators) and bagged domestic coal.

1.4 Many operators' craft can carry 500 tonnes or more—taking the equivalent of 25 20-tonne capacity lorries off the road.

1.5 Water transport can play an important role in reducing lorry traffic. It is far more environmentally friendly:

- Emits 80% less CO₂ per tonne kilometre than road haulage.
- Is a far better user of energy resources.
- Further information is given in the appendix.

1.6 Road congestion is an increasing problem for industry, regardless of pollution aspects. In congested urban areas in the conurbations and elsewhere, water transport can help to relieve congestion.

2. THE CBOA'S EVIDENCE

2.1 As an Association we struggle to understand the thinking that drives Defra Ministers. The Secretary of State has made it clear his own department and all government departments have to do more to tackle climate change.

2.2 David Miliband has stated that Defra must to develop more policies itself to tackle climate change and yet, in his own department, he has failed to implement policies that would make a significant impact now.

2.3 Defra has Departmental responsibility for British Waterways who manage some 2,000 miles of navigations. These include 340 miles designated for commercial use and which link to the major estuaries. They also include long lock free sections going through congested urban areas, such as London, Birmingham and the Black Country, Liverpool and Coventry.

2.4 West Midlands officials put the cost of road congestion at up to £2.3 billion a year. As a result, they have commissioned a study on how goods can be put back onto water.

2.5 It seems to the CBOA that there is little point in the grandiose flagship schemes if you have not tackled small but significant areas that are in your remit and do not require legislation. An immediate action would be to reinstate the funding required for the reinstatement of the freight marketing team at British Waterways; this has been costed at only £150,000.

2.6 In its recent Inquiry into British Waterways the EFRA sub committee heard evidence that waterborne freight is six times more environmentally friendly than road borne freight and yet the recent actions of Defra have led to more lorry movements rather than more waterborne movements.

2.7 Defra must take a lead by incentivising the Navigation Authorities and the private sector to use the inland waterway network as a means to carry freight.

2.8 There is significant scope to increase the amount of freight carried on UK inland waterways, much of which would lead to an actual reduction in lorry journeys. Many of these would be taken off our already congested city centres or motorways.

2.9 In addition, it appears to us that the Climate Change Bill does not consider how to reduce pollution from the transport sector. This is surprising in view of David Miliband's comments early in March 2007 that

- (a) transport emissions account for 24% of CO₂ emissions;
- (b) transport emissions are rising faster than any other industry, rising 10% between 1990 and 2004;
- (c) rising emissions from road transport are the main reason why the UK will fall short of its 2010 target to get CO₂ from 1990 levels; and
- (d) rail and road transport should be included in the EU emissions trading scheme after 2012.

3. IN CONCLUSION

3.1 The CBOA supports much of what is being proposed within the Climate Change Bill. However, we do believe that Defra should get its own house in order by taking some small but significant steps within its own area of influence, such as taking the lead before it starts agitating for others to change their actions.

3.2 The CBOA would like to see the Bill focus more on covering how transport emissions can be reduced through investment in the use of water transport.

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APPENDIX

ENVIRONMENTAL BENEFITS

The environmental transport impacts for each mode, road, water and rail are shown in Table 4.

Table 4

MODAL FREIGHT TRANSPORT—AVERAGE CO₂ EMISSIONS IN GRAMS PER TONNE KILOMETRE⁶⁴

| <i>Mode</i> | <i>CO₂ g/tkm</i> |
|-------------|-----------------------------|
| HGV | 180–160 |
| Water | 25 |

The environmental impact of goods being transported by HGV's on the environmental emissions is about 7 times greater than that of goods being transported by water.

PUBLISHED INFORMATION ABOUT THE ENVIRONMENTAL BENEFITS OF USING BARGES, NOT ROADS

In 1994 the Royal Commission on Environmental Pollution produced a report which demonstrated and highlighted the environmental benefits of water transport. It was the first report from a substantial scientific and official body to warn of the unsustainable trends in transport policy. (Institute for European Environmental Policy report April 2002). Subsequent reports have shown the environmental advantages of water transport over road transport. Examples include:

- A European Union 2001 report comparing external costs (pollution, climate, noise, accidents, congestion/delays etc) of:
 - road—92%.
 - rail—2%.
 - water—0.5%.
- The same report showed that one kilogram of fuel over one kilometre could move:
 - 50 tonnes by road.
 - 97 tonnes by rail.
 - 127 tonnes by water.
- In a 2004 report, Royal Haskoning, the international environment consultants, reviewed energy use. In terms of energy used per tonne-kilometre (tonnage carried multiplied by distance travelled), they reported that:
 - water transport uses 0.2MJ;
 - rail transport used 0.4MJ; and
 - road transport used 0.8MJ.
- In 2004 the Flemish Institute for Technological Research reported that transport by inland waterway was the most environmentally friendly means of bulk transport. The external costs of environmental effects, accidents and traffic congestion were seven times lower than for road transport.

⁶⁴ Data assembled from two sources: Water Freight Review (2005): Sustainable Transport, Sea and Water, <http://www.seaandwater.org/content/waterfreightreview> and Sustainable development indicators, Department for Environment Food and Rural Affairs (2005)

- In March 2006 Sea and Water, the Department for Transport (DfT) sponsored but industry led group, reported that:
 - Moving freight by water reduced the amount of carbon put in the atmosphere by about 80%.
 - Moving freight by water reduced the amount of nitrogen oxide put into the atmosphere by about 35%.
 - Transport (excluding aviation) caused about 25% of the UK's total CO₂ emissions with road accounting for 22%; of this 40% come from lorries and buses.
 - Carbon emissions were expected to grow by 10% between 2000 and 2010 whilst the Government's (DfT) target is to work towards a 60% reduction by 2050.
 - Transport emissions contribute towards poor air quality. The Department of Health estimated that between 12,000 and 24,000 deaths each year arose from poor air quality.
-

Memorandum by the John Lewis Partnership (CCB 33)

INTRODUCTION

The John Lewis Partnership has its origins in an Oxford Street drapers store established in 1864. It is now one of the UK's top ten retailers, with 26 John Lewis department stores and 183 Waitrose food shops, and annual sales of over £6 billion. The business has recently announced plans to double sales over the next ten years. It is currently building an additional 11 new John Lewis department stores, and Waitrose has equally ambitious plans for growth.

The Partnership is owned by its staff, known as "Partners", and is governed by a constitution which gives all 68,000 Partners a say in how their business is run.

The Partnership has developed its businesses to have the highest regard for Partners, suppliers, the environment and the communities of which it is part.

The Partnership has commitments to improve energy efficiency by 5% by 2008 and 10% by 2013 (against 2003–04 baseline). The Partnership has already made significant progress and is currently exceeding this target. In Waitrose, average branch energy consumption per square foot of trading floor area has improved by 19% since 2003, and in John Lewis by 15%.

In terms of CO₂ emissions, our aim is to reduce them as a percentage of our sales by 10% by 2010 (against 2001–02 baseline). Although the Partnership's absolute carbon dioxide emissions have increased by 19% over the last five years, largely as a result of significant business growth and expansion (sales have risen by 29% over the same period), we have already reduced emissions relative to sales by 8% and we are confident that we will exceed our long-term emission reduction target.

We are now looking to revise these targets, with a view to bringing forward the energy efficiency target, and stretching our CO₂ reduction target for the period beyond 2010. Our recently launched Sustainable Construction Framework will underpin these objectives by setting out a methodology for all new buildings that maximises their energy efficiency. A new Sustainable Transport Policy will also support our targets by promoting "green travel" to and from our stores.

CALL FOR EVIDENCE

The Committee has expressed a desire for evidence to be succinct and to concentrate on the major issues for respondents arising from the Draft Bill. Therefore, this response has focused on the ability of the Government to introduce new trading schemes through secondary legislation and importantly what features such schemes would need to ensure that they are effective.

The theme of the inquiry this is most relevant to is:

"To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved."

APPROPRIATENESS OF LEGISLATION REGARDING CARBON TARGETS AND BUDGETING

We welcome the positive lead taken in the Draft Bill. There is currently a level of uncertainty surrounding international climate change policy post-Kyoto, which is hampering private sector investment in low carbon technologies and innovation. We are pleased that the Bill seeks to counter this trend.

Above all, business needs stability and certainty in order to prosper. A legislative framework with reduction commitments set out well in advance gives us this certainty.

As a member of the Corporate Leaders Group on Climate Change, we have lobbied hard for a better legal framework for climate change. We support the Bill's aims to reduce CO₂ emissions by 26–32% by 2020 and by 60% by 2050.

Consultation with business will be vital in setting and implementing these targets. We look forward to working with government to develop sector specific targets which recognise the progress made by certain sectors to date, their overall CO₂ contribution, and their growth potential.

THE BALANCE BETWEEN COMPULSORY AND VOLUNTARY ACTIVITY

Significant progress has already been made by a number of businesses, and the issue of climate change and CO₂ emissions has become prominent in the public mind. Intervention to capitalise on these developments must be carefully designed. For example, we would discourage the use of a compulsory scheme that might be seen as a "stealth tax". However, we recognise that voluntary schemes are unlikely to achieve the emissions reductions required without sufficient incentives to sign up.

Therefore we would draw attention to a number of existing schemes such as the CCA which incentivise business to achieve reductions. Our recommendation is that there must be a genuine incentive for companies to join—for example, by reducing the Climate Change Levy for those companies that sign up, or introducing penalties for those that do not come on board.

MAKING A CARBON REDUCTION SCHEME EFFECTIVE

Businesses must work together closely with policy makers to develop a system which has the support of the sector and is effective, efficient and sustainable. In particular, the Partnership has identified a number of issues to which Government should give consideration. These include:

- A scheme must be easily certifiable and auditable—Its implementation should be overseen through light touch auditing. However, this needs to be achieved by using certifiable data (ie there must be agreed standards and an agreed way of monitoring) and there have to be penalties for those that do not abide by it. A system is required which contributes to reducing CO₂ emissions without introducing a huge burden of proving compliance.
- A scheme must have the flexibility to accommodate growth—This is a key point for the John Lewis Partnership. As a business we have expanded in recent years and helped to stimulate regeneration in a number of town and city centres in the UK. This growth should not be compromised by an absolute cap. Carbon credits should be transferable, so that if a business such as the Partnership were to purchase additional stores or another business, carbon credits are transferred. A carbon credit system must encourage and reward energy saving practices without inhibiting growth.
- A scheme must be able to recognise significant achievements in carbon reduction prior to its introduction—Companies that have already implemented energy efficiency schemes must not be penalised. Achievements to date must be recognised by the scheme. Failure to do so will mean those companies that have done little to increase energy efficiency will benefit at the expense of others, as they will be likely to make the most savings initially.
- A scheme must encourage off-site generation—Businesses need to be able to offset their emissions by installing or supporting renewable energy generation off-site (eg wind farms). Any stipulation in favour of micro-generation on-site is uneconomical and unsustainable, forcing companies to install inefficient generators on-site where it would be better to encourage them to build or pay for off-site renewable energy generation.

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Memorandum by Tearfund (CCB 34)

1. Tearfund is a Christian relief and development charity working with local Christian organisations and churches in 70 countries. We undertake policy and campaigns work on climate change adaptation (including disaster risk reduction) and mitigation. We undertake operational work on climate change adaptation and disaster risk reduction. For more information about Tearfund please see www.tearfund.org

A. THE MAIN AIMS AND PURPOSES OF THE BILL AND WHY IT IS NEEDED

2. The Bill is a crucial opportunity to put the UK on an ongoing trajectory to reduce UK domestic greenhouse gas emissions. Climate change is one of the biggest threats facing the world today. Voluntary measures are insufficient to generate the scale of cuts required. The current science makes it explicit that global temperatures should not exceed 2°C above pre-industrial levels if dangerous climate change is to be avoided. This is a position that the EU supports. The UK must play its fair share in the global effort to reduce emissions so that global temperature rise over 2°C is avoided. Therefore, the main purpose of the Bill should be to reduce the UK's carbon dioxide emissions by at least 80% by 2050. This is the level of cuts, indicated by the science, that are required to be consistent with a 2°C limit. If the UK fails to set targets at this level then domestic commitments will be inconsistent with the position the UK already supports within the EU.

3. Internationally there has been reluctance to introduce domestic legislation to address emissions; thus the Bill has a secondary purpose in acting as a blueprint for other nations to develop their own domestic framework, and encouraging other nations to follow the UK's lead.

4. Tearfund, as a relief and development charity, consider that the most critical reason for introducing the Bill is in response to the impact that climate change is having, and will continue to have on the world's poorest people.

5. The world's poorest people living in places where the climate is already at its most extreme—such as the Inuit in the Arctic; pastoralist people in northern Kenya and across the Sahel; or indigenous people and settlers in the Western Amazon—are already feeling serious impacts of climate change upon their lives and livelihoods. These are the communities least responsible for greenhouse gas emissions and who, because of poverty, isolation and political marginalisation, are too often those least equipped to adapt.

6. If temperatures increase above 2°C up to 4 billion people could experience growing water shortages. Agriculture will cease to be viable in parts of the world and millions will be at risk of hunger. This rise in temperature could see 40–60 million more people exposed to malaria in Africa. The threshold for the melting of the Greenland ice-sheet is likely to have been passed and sea-level rise will accelerate. Above 2°C lies the greater danger of “tipping points” for soil carbon release and the collapse of the Amazon rainforest. 2°C is a clear limit that cannot be exceeded—the world must act with urgency.

7. The UK has a unique opportunity to be at the forefront of playing our part in reducing emissions in line with a 2°C target and leading by example for other nations to do the same.

B. THE TARGET OF 60% EMISSIONS REDUCTION BY 2050 SET IN THE BILL IS NOT ADEQUATE, BASED ON THE MOST RECENT APPROPRIATE EVIDENCE

8. The target of 60% cuts by 2050 is insufficient on the basis of the latest scientific evidence. In 2001 the Inter-Governmental Panel on Climate Change (IPCC) produced a diagram to illustrate how the risks of adverse impacts from climate change increase with the magnitude of climate change. The research upon which this was based, and further studies since, led policy makers to the conclusion that staying below 2°C, while by no means “safe”, would likely limit the worst effects of climate change and therefore avoid the most “dangerous” climate change. This is also the official position of the EU. The science makes it clear that to ensure temperature rises do not exceed 2°C, atmospheric concentrations of greenhouse gas emissions must ultimately be stabilised at 400 parts per million CO_{2e}.⁶⁵ The Tyndall Centre for Climate Change Research has carried out research which suggest that emissions in the UK (and by association other industrialised countries) will need to be cut by 90% by 2050 to stay within the limits of 2°C. These levels are also supported by other studies.⁶⁶ Therefore, 60% cuts are insufficient to ensure that the UK makes its fair contribution to keeping global temperature increases to 2°C or less. To suggest that a 60% cut could be commensurate with 2°C is inconsistent. It is essential that the figures in the Bill reflect the science.

9. The forecasts for the economic cost of climate change in Sir Nicholas Stern's review are based on stabilising emissions at 550 parts per million of CO₂ and its equivalent gases in the atmosphere (ppm CO_{2e}).⁶⁵ But the narrative in his report draws on a wide range of studies and concludes that this level—an effective doubling of CO₂ over pre-industrial levels—carries an unacceptably high risk of exceeding 2°C of global warming.

10. Therefore, cuts of at least 80% by 2050 are essential as a bare minimum for the UK to play our part in preventing dangerous climate change. Evidently, unless action is taken worldwide to dramatically curb emissions, the UK will not be able to act alone in preventing a 2°C rise. However, Tearfund considers that it is critical that the targets contained within the Bill are commensurate with the latest science which clearly point to at least 80% cuts.

11. Tearfund, together with Christian Aid, Oxfam and Practical Action, has produced a briefing paper laying out the impacts of a rise in temperature above 2°C. This survey of available literature makes for stark reading and provides a strong case for doing everything conceivable to limit warming to 2°C or less.

12. A section of this paper is directly quoted below (and can be read in full in the report *Two Degrees, One Chance*.

⁶⁵ Meinshausen M (2006). “What does a 2C target mean for greenhouse gas concentrations?”. Avoiding Dangerous Climate Change, Chapter 28. Cambridge University Press, 2006.

⁶⁶ For example: Baer and Mastrandrea (2006). *High Stakes*, IPPR, 2006.

MATERIAL QUOTED FROM TWO DEGREES, ONCE CHANCE:

Water

13. Above 2°C South Asia, parts of northern Europe and Russia could well experience an increase in water flow of 10–20% and more as temperatures move up towards 4°C. An estimated 1–5 billion people in South and East Asia may receive more water. A lot of the extra water will come during the wet season when it is likely to lead to more flooding. It will only be useful in the dry season if it is stored well.⁶⁷ Much of East Africa is set to get wetter, with countries from Somalia to Mozambique experiencing more flooding from extreme rainfall.

14. In the Mediterranean, southern Africa and parts of South America rainfall will continue to decline. At 2°C, models predict up to a 30% reduction in water in rivers in these places, with a shocking potential 50% decrease around 4°C.⁶⁵ This spells water shortages for millions. One study predicts for a 2–3°C rise, 1–4 billion people will be experiencing growing water shortages.⁶⁵ Much of this will be the result of devastating drought. The UK Hadley Centre warns that the proportion of land area experiencing extreme droughts at any one time could increase from around 3% today, to 8% by 2020 and to an incredible 30% by the end of the century.⁶⁸ Drought will probably last all year round in most of southern Africa by the time 3°C is reached. And in southern Europe serious droughts could be occurring every 10 years instead of every 100.⁶⁵

15. At 5°C large glaciers in the Himalayas may disappear, affecting a quarter of China's population and hundreds of millions in Asia.⁶⁵ Some rivers will dry up completely. National food security will be jeopardised in countries like Pakistan with growing populations and high dependence on agriculture. Energy shortages will follow in countries like India that have a significant dependence on hydroelectric power.

Food

16. Even in areas that have benefited from temperature rise previously, crop yields are likely to begin declining in the 2–3°C range. Rainfall reduction in many parts of Africa is likely to come in the middle of the growing season and modelling studies reveal massive declines in wheat, corn and rice production in the tropics. Increasingly severe droughts in some areas will make crop production impossible. Even if some crops still benefit (for example in Canada where water is plentiful), billions of people would be suffering from drought elsewhere.

17. Above 3°C, China's agriculture production is likely to be severely undermined and agriculture could become non-viable in several whole areas, for example in parts of southern Africa and parts of Australia. At 3–4°C, yields of predominant crops across Africa and Western Asia may fall between 15–35% (depending on the effect that increased CO₂ has on plant productivity).⁶⁵ In parts of India, land temperatures could be too hot for crops to survive, even if rainfall increases as a result of a more intense monsoon.⁶⁹ Even with inevitable adaptation and technological development, it is hard to see how losing vast areas of agricultural land will not be crippling. Once temperatures increase above 3°C, 250–550 million additional people may be at risk of hunger, over half of them in Africa and Western Asia.⁶⁵

Health

18. 2°C rise in temperature could see 40–60 million more people exposed to malaria in Africa according to one study. This figure increases to 70–80 million at temperatures around 4°C, based on the current level of control efforts.⁶⁵ There may also be places where there will be a decrease in malaria prevalence, but in all scenarios Africa sees more people exposed. At 4°C an extra 1.5–2.5 billion people could be exposed to Dengue fever because of climate change.⁶⁵ These and other health effects (for example, malnutrition as a result of decreasing food security) will lead to immense increased suffering.

Land

19. Highlighted below are the number of people potentially affected in developing countries at different levels of sea-level rise as melting of ice-sheets accelerates:⁷⁰

| <i>Sea-level rise</i> | <i>Numbers affected in developing countries</i> |
|-----------------------|---|
| 1 metre | 56 million people |
| 2 metres | 89 million people |
| 5 metres | 245 million people |

⁶⁷ Stern et al (2006). *Stern Review of the Economics of Climate Change*, HM Treasury.

⁶⁸ Burke et al (2006). "Modelling the recent evolution of global drought and projections for the 21st century with the Hadley Centre climate model." *Journal of Hydrometeorology*, 7: 1113–1125.

⁶⁹ Lynas, M (2007). *Six Degrees: Our Future on a Hotter Planet*. Fourth Estate, March 2007.

⁷⁰ Dasgupta, S (2007). "The Impact of Sea Level Rise on Developing Countries: A Comparative Analysis." World Bank Policy Research Working Paper (WPS4136), February 2007.

20. In addition to the Pacific Islands, which will be disappearing at 1 metre rise, the Bahamas will be severely affected in terms of land-loss. Egypt will be hard hit, especially the Nile Delta where most of its population lives. The impact on agriculture there would be particularly severe, ranging from 13% to 35% losses with rises of 1–5 metres. East Asia is at very high risk, with Vietnam being particularly vulnerable. In South Asia really serious impacts are likely above a 3 metres rise and escalate dramatically. Bangladesh would experience major impacts on agriculture, population, urban area and GDP.

21. Around 30% of global coastal wetlands could be lost as temperatures rise over 3°C. Wetlands are natural sponges that provide vital protection against floods and storm surges, as well as people's livelihoods. Increased intensity of storms will add to the problem of sea-level rise.

Ecosystems

The Amazon and the carbon cycle

22. The widespread drought that hit the Western Amazon in 2005 has been linked by experts to warming of sea surface temperatures in the tropical North Atlantic compared to the South Atlantic. As this temperature gradient is expected to steepen, similar droughts will become more likely. One model predicts that with current levels of emissions, the chances of such a drought will rise from 5% now to 50% by 2030, and 90% by 2100.⁷¹

23. Furthermore, drought encourages fires which themselves can fuel further burning as half-dead wood is left behind. Forest fires pour massive quantities of carbon dioxide into the atmosphere which in turn drives more global warming. In 1998 forest fires during a drought period released 400 million tonnes of carbon in the Amazon basin, equivalent to 5% of human emissions from fossil fuels for that whole year.⁶⁷

24. Warming can generate its own momentum because as soils warm, bacteria speed up the breakdown of carbon, releasing it back into the atmosphere as CO₂. With warming around 3°C the carbon cycle could be effectively reversed—as vegetation and soils release millions of tonnes more CO₂ into the atmosphere. Land would move from being a net carbon sink (taking up carbon and storing it) to a net carbon source (releasing carbon). This positive carbon cycle feedback would lock the planet into faster warming, with models suggesting that warming of 5.5°C could be possible by 2100.⁶⁷

25. The world's great rainforests are already being destroyed by human exploitation, especially logging for the global timber trade and for growing export crops like palm oil which is ironically being promoted as a biofuel. But the Amazon is a particular concern and may be pushed over a tipping point. Some models predict that most of the Amazon rainforest will die and become impoverished grassland in between 50–100 years.⁷²

26. The Amazon is home to half the world's biodiversity and the Amazon river contains 20% of all the water discharged into the world's oceans. The energy released by rainfall in the Amazon is a major component of regional and even global weather systems. The Amazon rainforest contains about 10% of all carbon stored in land ecosystems. Its downfall would have widespread global ecological implications beyond the contribution to climate change.

Ice

27. Studies suggest that as the world approaches a temperature rise of 3°C, 80%—maybe 100%—of the sea ice at the Arctic will have been lost. Above 3°C rise even the more conservative computer models predict that it disappears completely, the first time for 3 million years.

28. On land, ice-caps and glaciers will continue to shrink. Once over the 2°C rise mark, the threshold for irreversible melting is much more likely to have been passed.

29. As the melting of frozen ground (permafrost) accelerates, large areas of Siberia, Alaska, Canada and even southern Greenland will be affected. Even at low temperature changes unstable soils will damage infrastructure and Arctic ecosystems will be severely disrupted. As soils defrost, another positive feedback mechanism kicks in. With around 500 billion tonnes of carbon currently locked up in frozen soils, more greenhouse gases will be released and global warming will be further accelerated. Where soils are wet bacteria will produce more methane, a greenhouse gas with 23 times the global warming potential of CO₂. The extent of this feedback effect on climate change is not yet known and so isn't included in current projections.⁶⁷

⁷¹ BBC (2007). "Amazon 'faces more deadly droughts'." Friday 23 March 2007: <http://news.bbc.co.uk/1/hi/world/americas/6484073.stm>

⁷² See reports from "Conference: Climate change and the fate of the Amazon." Oriel College, University of Oxford, 20–22 March. Available from Environmental Change Institute website (<http://www.eci.ox.ac.uk>).

30. It is imperative that that the UK government takes stringent enough action in the Bill to play our part in reining in global warming and to stop global temperatures rising by 2°C. The impacts outlined above will be catastrophic and 60% cuts are simply not sufficient to achieve this. The potential consequences of a temperature rise exceeding 2°C must be avoided at all costs and therefore 80% cuts by 2050 must be included in the text of Bill.

C. THE IMPACT THE CONTENTS OF THE BILL WILL HAVE ON INTERNATIONAL CLIMATE CHANGE ACTIVITY

31. Tearfund considers it absolutely vital that this Bill delivers the cuts in emissions necessary for the UK to play its fair share in ensuring global emissions do not exceed 2°C. As the first example worldwide of domestic legislation to curb emissions it is critical that the Bill leads the way internationally. A weak Bill that fails to deliver sufficient cuts sets a poor example for other countries and endangers other domestic processes—the UK government must lead by example. If we fail in this unique opportunity poor people around the globe will suffer devastating consequences.

32. However, the Bill is a unique opportunity to provide a blueprint for other nations and it is hoped that other countries will follow the UK in introducing similar appropriate legislation to curb emissions. With a target of at least 80% cuts by 2050 the Bill would also offer the UK government greater legitimacy in negotiations in international fora.

33. If the UK sets its sights too low there is a real danger that other countries will follow this precedent in setting targets that lack ambition, are inconsistent with the science, and fail to recognise the urgency of the problem.

May 2007

Memorandum by the London Assembly Environment Committee (CCB 35)

1. BACKGROUND TO THE LONDON ASSEMBLY ENVIRONMENT COMMITTEE

1.1 The London Assembly Environment Committee has a strong track record of taking forward the environmental agenda in London. It has reviewed progress on the implementation of the Mayor's five environmental strategies for London (air quality, biodiversity, energy, noise and waste) and has also conducted reviews on issues such as climate change, flooding, managing London's waste, green spaces, graffiti and nuclear waste on trains.

1.2 Its membership and terms of reference are as follows:

| <i>Name</i> | <i>Party</i> |
|-----------------------------------|--------------|
| Darren Johnson Chair | Green |
| Tony Arbour | Cons |
| Angie Bray | Cons |
| Murad Qureshi Deputy Chair | Lab |
| Valerie Shawcross | Lab |
| Mike Tuffrey | Lib Dem |
| Peter Hulme Cross | One London |

Proportionality:

2 Conservatives, 2 Labour, 1 Liberal Democrat, 1 Green, 1 One London

Terms of Reference

(a) To examine and report from time to time on - the strategies, policies and actions of the Mayor and the Functional Bodies- matters of importance to Greater London as they relate to the environment and sustainable development in London.

(b) To examine and report to the Assembly from time to time on the Mayor's Air Quality, Biodiversity, Energy, Noise and Waste Strategies, in particular their implementation and revision.

(c) To consider environmental matters on request from another standing committee and report its opinion to that standing committee.

(d) To take into account in its deliberations the cross cutting themes of: the health of persons in Greater London and the promotion of opportunity.

(e) To respond on behalf of the Assembly to consultations and similar processes when within its terms of reference.

2. THE ENVIRONMENT COMMITTEE'S RESPONSE

The Environment Committee's response will concentrate on Questions 3 and 5.

Question 3: Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour

Questions 5: Whether the target of 60% emissions reduction by 2050 set in the Bill is adequate, based on the most recent appropriate evidence

One Aim; Two Targets (Question 3)

2.1 The London Assembly offered its qualified support to the devolution of additional strategic powers to the Mayor from central government in relation to sustainable development across London, especially with regard to climate change.⁷³

2.2 This support was offered partially on the grounds that the Government would be conducting a wider review of public authorities' statutory duties to promote sustainable development. The Draft Climate Change Bill, the legislative framework intended to tackle a significant part of this issue up to 2050, neither addresses local government's ownership of, nor obligation to, the targets laid out in the Bill.

2.3 The Mayor's Climate Change Action Plan, published in February 2007, put into place a raft of measures—including planning obligations—that seek to reduce London's carbon emissions by 60% by 2025, not 2050 as set out in the Bill. The Mayor's Action Plan and the Government's Draft Bill therefore possibly leaves London's local authorities with a two-speed approach which compromises the potential effectiveness of the more ambitious regional solutions set out in the Mayor's Climate Change Action Plan.

2.4 The London Assembly Environment Committee would seek that at best the Bill is adjusted so that the 60% CO₂ emission target is brought forward to 2025; or at least builds into its implementation the potential for revision of the target date.

Flexibility required (Question 5)

2.5 The UK-wide target of a 60% reduction in CO₂ emissions by 2050 as set out in the Bill was based on a recommendation from the Royal Commission on Environmental Pollution in 2000 that atmospheric concentrations of CO₂ should be stabilized at 550 parts per million (ppm).

2.6 The Stern report concludes that the 550 ppm scenario gives only a 1%-23% chance of avoiding a 2-degree rise in temperature.

2.7 The differences in emission scenarios over the next decade for the three CO₂ levels (450, 550, 650ppm) are not very great according to the London Energy Partnership, with the potential for significant divergence beyond 2010.⁷⁴ The 550ppm CO₂ goal may represent an attainable challenge over the next decade, but as the Bill sets obligations up to 2050, the Bill should make provision for compulsory, periodical reviews of the Bill's targets.

May 2007

Memorandum by the Local Government Association (CCB 36)

1. EXECUTIVE SUMMARY

1.1 Councils are already on the frontline in the climate change challenge, leading the way on energy and water conservation, waste, flooding and reducing greenhouse gas emissions. The LGA has appointed leading energy economist Professor John Chesshire OBE to chair a Climate Change Commission to investigate how councils can best cut emissions in their own buildings and services, lead local action, and plan for and build capacity to adapt to climate change.

⁷³ In the London Assembly's response to the ODPM Review of GLA Powers published in February 2006, the Assembly supported the GLA being given a climate change duty to tackle London's contribution to climate change.

⁷⁴ London Energy Partnership, 2006, "London Energy Scenarios to 2026"
http://www.lep.org.uk/uploads/london_carbon_scenarios.pdf

1.2 LGA key messages on draft Climate Change Bill:

- Councils are already taking action on climate change. The LGA is now looking to go further with an independent **Climate Change Commission for Local Government** to investigate how councils can best cut their emissions, lead local action, and plan for and build capacity to adapt to climate change.
- The LGA strongly supported proposals in the Local Government White Paper for a national outcome on climate change within the new performance framework for councils that will form part of the Comprehensive Area Assessment. The creation of statutory national targets and carbon budgets to aid progress to a **60% carbon reduction by 2050** is another positive step. Defra must now work with us to support councils and their partners in setting targets through the Local Area Agreements that are consistent with this national ambition.
- Ministers must guarantee that any **carbon trading scheme for local government** will be developed in partnership with council leaders. It is critical that such a scheme complements the new local performance framework rather than merely duplicating its effects at higher cost.
- The LGA urges the Government to make a firm commitment to providing **a place for local government on the proposed Climate Change Committee**. Given the central role in delivering this agenda and on-the-ground expertise, local government representation is essential if the Committee is to effectively “present the economics of the costs, benefits and risks of abatement decisions.”
- Government must now place a **much greater emphasis on adaptation**, with support to councils in identifying risk and mapping vulnerabilities if we are to minimise the costs resulting from failure to plan for change. The proposed five yearly reviews of progress on adaptation must make an initial report as soon as possible if the process is provide leadership and support action at the local level.
- It is essential that **authorities have the flexibility to apply locally appropriate standards** above the minimum set out in the building regulations to ensure that progress on sustainable buildings happens quickly.

1.3 Local Government’s role in tackling climate change

There are number of specific actions that councils are already undertaking to mitigate against and adapt to climate change. These include:

- taking action to reduce council greenhouse gas emissions through improved energy efficiency and use of green energy. For example, Brighton & Hove City Council uses electricity from 100% renewable sources to service its main council buildings. Shropshire County Council has reduced CO₂ emissions from corporate buildings by 57% between 1990 and 2005;
- tackling transport related emissions through green travel plans and local transport plans that promote low carbon fuels or alternatives to car travel. These include public transport and community planning to reduce the need to travel. For example, Sutton LBC is working with Transport for London to deliver personal travel planning to its residents;
- partnership working with all sectors of the community, including business, the voluntary sector and government and other agencies working on the environment—for example using Local Area Agreements and Local Strategic Partnerships to deliver climate change priorities;
- using the planning and building control system to promote sustainable buildings in new developments and an increase in onsite renewables and microgeneration. Merton LBC is responsible for the “Merton Rule”, a planning policy that requires all new developments above a certain size to meet at least 10% of the energy needs from renewable sources;
- setting procurement strategies to green the acquisition and use of council goods and services and to influence community choices towards greener goods and services, such as locally produced food. Northumberland County Council has set a target for local procurement;
- tackling fuel poverty through adopting affordable warmth strategies that also help tackle climate change;
- tackling waste to reduce absolute levels and improve recycling and reuse rates, and looking at waste to energy options;
- using the education system to raise an environmentally aware generation and to link to parents and other sectors of the community through schools, colleges and other learning settings; and
- building capacity for and planning strategies for adapting to climate change. Hampshire County Council have set up a Commission of Inquiry to examine the potential impacts and responses to climate change in Hampshire.

1.4 The LGA’s **Climate Change Commission** was launched on 9 March 2007 and is chaired by Professor John Chesshire OBE with six other commissioners from leading roles across the public, private and voluntary sectors.

1.5 The Commission's objectives are to:

- Review and critically evaluate local government's track record on climate change, and identify the factors which have contributed to and hampered local government's effectiveness.
- Make recommendations for local government, central government and other organisations on how the local government response could be improved.
- Raise the local government profile in responding to climate change, to all local authorities, central government and the public.

1.6 Professor Chesshire and the Commission are expected to publish a short, interim publication in July and a full set of findings by the end of 2007. The Commission will also consult with councils in Scotland, Wales and Northern Ireland. The Commissioners are looking forward to engagement with government and parliament.

2. TARGETS

2.1 The LGA supports the creation of statutory national targets and carbon budgets for progress to a 60% carbon reduction by 2050. This will provide certainty over government intentions and re-affirm the UK's commitment to taking real action to meet our climate change goals. The appropriate timescale for setting and reporting on targets must be based on the need to drive harder and faster action, in partnership with local authorities, against climate change.

2.2 The Local Government White Paper proposed a simplification of the performance framework with a clear set of national outcomes reflecting national priorities, a maximum of 200 performance indicators, and targets negotiated through Local Area Agreements. Local Government is confident that this will ensure that effective action is taken on climate change at the local level. It will, in effect, provide a mandatory scheme for the sector with published, audited results and public transparency on performance at individual council level.

2.3 The LGA hopes that Government departments and offices will now work with us to support councils and their partners in setting targets through Local Area Agreements that are consistent with this national ambition.

2.4 Local authorities can play a central role in partnership working with all sectors of the community, including business, the voluntary sector and government and other agencies working on the environment.

2.5 *Kirklees Metropolitan Council has set up "energy services companies" with revolving loan funds to enable installation of energy efficiency and renewables measures in the homes of local residents. By providing appropriate pay-back periods they created a win-win for the environment and for the end users who get cheaper energy bills.* The council has also announced this spring that it is funding schemes to enable all householders in the area to benefit from cost effective insulation.

2.6 *Southampton, Nottingham and Sheffield Councils have installed extensive "district heating schemes" serving council buildings, retail, industrial and residential areas. Such schemes are energy efficient in both generation efficiencies and in taking a step towards a more decentralised energy network.*

3. CARBON BUDGETING

3.1 For carbon budgets to be meaningfully translated into action there needs to be an accurate measurement of emissions and ability to understand where it is most appropriate to focus action to reduce emissions, so that budgets are not exceeded. Issues such as banking or borrowing from budgets need to be resolved so that perverse incentives are not inadvertently engineered.

3.2 The new performance framework for Local Government proposed in the Local Government White Paper will drive an outcome on climate change that can help to meet national targets through action at local level. We now need agreement on which areas of control and influence are appropriate for assessing council performance.

4. ADAPTATION

4.1 Government must now place a much greater emphasis on adaptation, with support to councils in identifying risk and mapping vulnerabilities if we are to minimise the costs resulting from failure to plan for change. The proposed five yearly reviews of progress on adaptation must make an initial report as soon as possible if the process is to provide leadership and support action at the local level.

4.2 Councils can provide coordination for planning and building capacity to adapt to climate change, not only through service delivery but also as community leaders. Councils now need to be supported in planning for change through:

- building on Local Government White Paper proposals for a greater council focus on climate change both in their own performance and in their work with their Local Strategic Partnerships;

- implementation of the White Paper proposals for a duty on specific partners to co-operate with councils in partnership arrangements;
- a greater focus on risk and mapping vulnerabilities, and the need to minimise exposure to costs from failure to plan for change; and
- support for best practice schemes and national bodies working with councils to develop models for adaptation.

4.3 *Devon County Council* is already undertaking a local vulnerability mapping approach to ensure that it and its citizens are aware of, and have the capacity to respond to, potential extreme weather events.

5. COMMITTEE ON CLIMATE CHANGE

5.1 The LGA supports the establishment of an independent Committee to provide expert advice to government on the reduction of CO₂ emissions. It is vital that the impact of policy decisions is fully and expertly evaluated and that robust advice underpins the budget setting process.

5.2 The LGA will be urging the government to ensure that the on-the-ground experience of councils is represented, with a place for an individual with council experience on the Committee. This will be vital if the Committee is to effectively “present the economics of the costs, benefits and risks of abatement decisions.” Local government is not only a key partner in delivering real cuts in emissions but also provides access to expertise and experience. It has a real focus on the ability to deliver at sub regional and local level on national objectives.

6. ENABLING POWERS

6.1 The LGA will be seeking a commitment from Minister to ensure that any carbon trading scheme for local government will be developed in partnership with council leaders. It is critical that such a scheme complements the new local performance framework rather than merely duplicating its effects at higher cost.

6.2 The Local Government sector must have the opportunity to give in-depth consideration to any new instruments for reducing emissions in order to ensure that they do not duplicate other instruments already in operation.

6.3 Councils can deliver a step change in reducing carbon emissions from their own buildings and fleet, but, in addition to new mechanisms, the 2007 Comprehensive Spending Review must provide for significant expansion of up-front finance to put in place energy efficiency measures and renewables. Also, if councils are going to be able to maximise the impetus of the proposed Comprehensive Area Assessment performance framework they need to be able to have sufficient relief from resource pressures to build in-house capacity and expertise as well as funding to deliver measures.

6.4 *Shropshire County Council* is already developing bio-fuels for use in its own fleet of vehicles. It has also become the first council to offer for sale 100% biodiesel from public forecourts. *Poole Unitary Council* was the first local authority to introduce a waste collection lorry powered by vegetable oil while in *Bury St Edmonds* the council is paying its staff 20p per mile to use bikes for work travel.

7. INTERNATIONAL IMPLICATIONS

7.1 Local government has consistently engaged with the UN and EU on the future of post-2012 policy through a range of fora. More emphasis should be placed by Government on developing a co-ordinated position with local government when detailed negotiations are taking place on future climate policy.

7.2 A more comprehensive approach is needed across policy negotiation at the EU level. This should work to ensure that the whole raft of EU policies—from vehicle emissions to energy efficiency criteria—affecting how we impact on the climate post 2012 creates a more comprehensive policy package that meets the needs of local communities.

7.3 Local government should be a key partner in this process. Resources should also be given to helping local authorities engage with counterparts internationally to drive forward action to adapt to and mitigate climate change.

7.4 UK local government strongly encouraged leaders of the EU’s 27 member states to endorse European Commission proposals for emissions to be cut by 20-30% by 2020 when they met in Brussels earlier this year. The deal reached was part of a major package of climate and energy proposals which had been put forward by the European Commission in January.

8. GENERAL

8.1 Councils also need a set of reliable, up-to-date data to work from and a framework and methodology for emissions baseline monitoring. At present elements of data sets are available but other data sets need to be compiled and a framework to enable comparability is needed.

8.2 Councils also need wider access to existing data sets collected for specific purposes, such as data on energy efficiency of existing homes which will be collated for all marketed homes under the Home Information Packs scheme (the Energy Performance Certificates). This valuable data will not be available to bodies such as Las trying to engage with householders to raise domestic energy efficiency levels which is a wasted opportunity to develop joined up approaches at least cost.

9. THE LGA

9.1 The Local Government Association (LGA), formed on 1 April 1997, promotes the interests of English and Welsh local authorities—a total of just under 500. These represent over 50 million people and spend around £74 billion a year on local services.

9.2 The LGA exists to promote better local government. We work with and for our member authorities to realise a shared vision of local government that enables local people to shape a distinctive and better future for their locality and its communities. We aim to put local councils at the heart of the drive to improve public services and to work with government to ensure that the policy, legislative and financial context in which they operate, supports that objective.

9.3 Our members include county councils, metropolitan district councils, English unitary authorities, London boroughs, shire district councils and Welsh unitary authorities. We also represents fire authorities, police authorities, national park authorities and passenger transport authorities. The Welsh Local Government Association (WLGA) is a constituent part of the LGA, but retains full autonomy in dealing with Welsh affairs.

May 2007

Memorandum by the British Property Federation (CCB 37)

The British Property Federation welcomes the Climate Change Bill as we believe that bringing CO₂ emissions reductions targets onto a statutory footing will provide the certainty that industry requires to develop and invest in carbon reducing and energy efficient technologies and practices.

The consultation document states that sectors will get specific targets that will feed into the overarching CO₂ targets that will be governed by the Independent Carbon Commission.

The built environment as a whole is responsible for 47% of emissions in the UK, with commercial property responsible for 20% of this number. It is therefore correct that the sector which the BPF represents will be called upon to reduce its emissions and have targets set by the ICC.

The BPF believe that the savings to be made in the way buildings are managed and occupied are potentially huge and therefore welcome the Government's commitment to spread the requirement to produce Display Energy Certificates, required under the Energy Performance of Building's Directive, to commercial buildings in the near future.

In support of this we at the BPF have also been developing a sector specific carbon management tool that will help landlord's measure, benchmark and reduce energy use in the buildings the own and manage. This tool is called the Landlord's Energy Statement. This tool will measure the amount of carbon that is being emitted by the services for which the landlord is responsible and will potentially provide significant supporting information that could be used to determine the sector's reduction target.

JOINED UP POLICY

If the commercial property sector is to make great steps forward then a joined up strategy from government is required. The reporting that is required for the Display Energy Certificates and the cap and trade scheme as outlined in the Carbon Reduction Commitment have the potential to be based on the same information and would therefore reduce the burden on industry, equally they could potentially clash. There is an opportunity for central and local government to offer a unified approached based on the same foundations and the BPF encourage this.

Equally, when it comes to the standards that new buildings are required to meet there is a current clash in policy. At one level we have building regulations that are demanding, we have a Code for Sustainable Homes in place that elaborates on the future path for building regulations for homes and an equivalent for commercial buildings being developed by CLG. Whilst at the same time regional and local authorities are making extra and competing demands.

This originates because of a lack of clear guidance on the interaction between planning and Building Regulations which has led to a blurring of the lines responsibility. This has most prominently been achieved by demanding the provision of onsite renewables planning authorities are in actual fact producing individual standards above Building Regulations. In order to minimise the amount of energy demand required by a building, developers are improving the performance of the shell and core of a building to minimise the anticipated demand for energy and therefore the amount of renewables required on-site.

The BPF believe that improving the performance and reducing emissions from buildings is entirely correct, and is essential if the UK is to meet its climate change targets. We believe that the planning system is not the correct regime to govern this.

Those authorities that have a set a renewables criteria rely on their development control officers to understand and make informed judgements regarding a developer's proposed energy reduction measures and on-site provision of renewables. There is a question as to whether these officers will have both the skills set and the time required to effectively judge such reports. Technical detail to do with the energy performance of a building falls under the remit of Part L and should be analysed by building control officers.

Furthermore, we are convinced that the holistic approach adopted by Part L of the Building Regulations and in the Code for Sustainable Homes is the best way of reducing emissions from buildings. By requiring developers to provide onsite renewable energy equipment it significantly reduces their options and therefore their ability to achieve the goal of reducing CO₂ emissions from their developments. The Part L approach gives the developer this freedom to innovate, and deliver the most cost-effective means of meeting CO₂ reduction targets.

As stated above the BPF strongly advocate that if local authorities are able to set standards for building performance, they must accord with a national framework, such as the Code for Sustainable Homes.

May 2007

Memorandum by Dr Andrew Dlugolecki (CCB 38)

ABOUT DR ANDREW DLUGOLECKI

Andrew Dlugolecki worked for 27 years in Aviva insurance group, with senior technical and operational duties in UK and internationally, retiring from the post of Director of General Insurance Development in December 2000. He was the chief author on Financial Services for assessments of climate change by the UK (1991, 1996), the Intergovernmental Panel on Climate Change (1995), and the EU (1998), and has been an author, reviewer or review editor in later Assessment Reports. He chaired three studies of climate change by the Chartered Insurance Institute (1994/2001/2007).

He is now a director of the Carbon Disclosure Project and a Visiting Research Fellow at the Climatic Research Unit, University of East Anglia. He consults on climate change and insurance, including institutional investment, for a wide range of clients including United Nations Environment Programme, World Bank, Association of British Insurers, United Nations Framework Convention on Climate Change, and individual firms. He holds degrees in Pure and Applied Mathematics, and Economics.

EVIDENCE

1. *Main aims of the Bill*

1.1 The prime aim of the Bill is "to introduce a clear, credible, long-term framework for the UK to achieve its goals of reducing carbon dioxide emissions". This is essential. The Finance Initiative of the United Nations Environment Programme (UNEPFI) stated in June 2004 that "policymakers should adopt tough targets and schedules for the adoption of renewable energy, on a rolling 15 year programme, within a framework for the stabilisation of global greenhouse gas concentrations". This will give confidence to financial decision-makers that the energy economy will change, and will stimulate relevant funding and risk management.

1.2 UNEPFI also noted that it was essential to "align other policies, particularly transport, development, education with climate change policy". This aspect must be made explicit.

1.3 On adaptation, it is important that attention is focussed on the rapid increase in frequency of extreme events now, as well as planning for decades ahead. Scientific projections give the impression that problems are far away, and that uncertainty prevails. In fact, my research shows that the return period of extreme events is shrinking very fast e.g. temperatures which used to occur once in a century, are already eight times more likely.

1.4 The second aspect of adaptation is that the worst impacts for UK will happen overseas, partly due to the potential inflow of climate refugees from low-lying megacities like Cairo, and partly because supply chains depend increasingly on vulnerable locations in South-east Asia. This has important implications—such risks can be averted or reduced by integrating UK's foreign aid policy with its climate change policy to ensure that economic development is truly sustainable.

1.5 In two respects the Bill is too timid. It emphasises the costs that will be involved in reducing emissions. This is a fallacy; The Carbon Disclosure Project has recorded many examples where improved efficiency has reduced emissions and reduced costs. Also, there are many benefits in terms of energy security, clean air and reduced impacts and international risks.

1.6 Secondly, the Bill refers to potential competitive problems, due to added costs, but ignores completely the vast opportunities that will open up by being a leader on low-carbon technologies and practices!

2. *Balance between voluntary and compulsory measures*

Compulsory measures to reduce energy, either through physical standards or fiscal measures are essential. Experience in the private sector shows that relying on consumers' or managers' better nature to take environmentally-friendly action is unrealistic. There is enormous pressure to use price as a decision criterion. If there is a cheap but more carbon-intensive alternative, that is what will be chosen. It is possible to overcome this with consumer education or brand marketing, but that requires expensive, continuous and co-ordinated "marketing", and can easily be undermined if the communicator does the opposite eg Mr Blair speaks strongly about climate change, then advocates foreign holidays by air, and new airport construction. Much energy consumption is private consumption, so that peer pressure is less useful as an instrument.

3. *Public engagement*

3.1 Protests over petrol prices and road-pricing show that it is essential to win public support. I spoke at a private meeting and dinner on climate change chaired by Robin Cook and Michael Meacher for senior Fleet Street editors some years ago. It had a good effect for some time on the press treatment of the issue. Media engagement is important, but needs to move on to solutions, not problem definition.

3.2 To engage the public, it is clearly better to use the carrot, rather than stick approach, and to explain things in terms that matter to the individual. One way is to encourage professional education and vocational training to include climate change as an integral theme.

3.3 Local government has a vital role to play in cutting emissions because of its involvement in many activities that involve emissions and/or vulnerability to climate impacts eg waste disposal, and planning and building consents. The Bill should cover this aspect.

4. *The most effective way to regulate UK emissions*

4.1 The finance sector welcomes emissions trading and other economic instruments to manage the emissions problem, and has said so frequently eg in numerous briefings from UNEPFI. To be truly effective, these should be linked with other economic regions, and not restricted to solely the UNFCCC regime.

4.2 The concept of a rolling programme of three 5-year budgets is an excellent approach that fits closely with what UNEPFI has recommended.

5. *The target of 50% cuts in emissions*

A cut in emissions of 50% by 2050 is inadequate. This target is rooted in the report on energy and climate change by the Royal Commission on Environmental Pollution in 2000. Science has progressed, and it is now perceived that even a rise of 2°C is dangerous. This is likely to occur even if the level of greenhouse gas in the atmosphere is just 10% above today's values. Since emissions are rising at a rate of 0.5 to 1.0% per year, this entails that the global level of emissions needs to fall by 50 to 60%. Arithmetically, since UK is a high-emitting country, it will have to do more than that, at around 80%. It is significant that France has already adopted a target of 75%.

6. *Independence and effectiveness of the Committee on Climate Change (CCC)*

CCC should be able to give strong and objective advice, because the committee members will have their own sources of information in addition to the input from government departments. There are already various independent research teams which provide projections and analyses. This will become more prevalent as emissions policy grows in importance.

7. *Legal implications of failure to achieve targets*

7.1 Since major emissions cuts can only be achieved by actions across all sectors, the ultimate responsibility for achieving is not departmental but Prime Ministerial. The appropriate penalty could be loss of office of the Prime Minister.

7.2 Clearly, financial penalties are not appropriate, since it would simply be taxpayers' monies.

7.3 A swift independent review of the reasons for failing to meet the targets would be appropriate, to ensure that remedial action was taken quickly. A judicial review seems best, but not restricted to one department's role.

8. *Devolved government*

No comment.

9. *Compatibility with EU targets*

The proposed targets are on the low side compared to EU targets. For example, the EU has said it WILL aim for 20% cuts by 2020, and 30% if other major emitters take significant measures also. Since the UK is emission-heavy relative to the EU average, UK's targets should be more than the EU average. Clearly the 30% is the "right" target, and to take a leadership role, UK would need to aspire to cuts in the region of 35–40% by 2020.

10. *International impact of the Bill*

10.1 Setting targets will have a mildly beneficial effect only in terms of international negotiations, unless and until UK's actual progress on emissions is more impressive. Recently, it has fallen off, and can hardly be regarded as a shining example. The real progress was made before 2000.

10.2 Adopting the policy of "Contraction and Convergence" would materially strengthen UK's international position, since it would put set the UK's actions in a global context.

11. *Delegated powers*

It is inappropriate to permit delegated actions over personal consumption by voters and their families. Such measures should be subject to the democratic process. Even measures to extend regulations into new commercial or non-personal greenhouse gas emissions might have significant effects on personal consumers in various ways eg energy prices, job prospects, and it may therefore be advisable to set boundaries on how far such measures could go eg no more than 10% of planned cuts under delegated regulations.

May 2007

Memorandum by the District of Easington (CCB 39)

INTRODUCTION

The District of Easington was one of the first signatories to the Nottingham Declaration. Climate Change is often presented as a global problem of huge complexity yet most of the actions which cause greenhouse gas emissions take place at a very local level. We believe that one of the solutions to climate change lie principally in changing the behaviour and consumption choices of individual communities and local businesses. We are using the Councils positive influence with local communities to highlight the advantages of being energy efficient in order to maximise the reductions in carbon dioxide emissions from our district.

We are a small Local Authority with limited finances and resources who have made a corporate commitment to fully engage in the Climate Change agenda for the benefit of our residents. We hope to illustrate that we are provide meaningful progress towards reducing greenhouse gas emissions and thus provide encouragement to other Local Authorities.

GOVERNMENT'S UK CLIMATE IMPACTS PROGRAMME (UKCIP)

District of Easington invited UKCIP to carry out a presentation to local Members to highlight the significant threats posed by climate change on our local communities. As a result we have produced a district wide Climate Change Action Plan.

The production of a district-wide Climate Change Action Plan affords the opportunity to establish a holistic plan to reduce greenhouse gas emissions due to:

- Our direct connections with local communities and businesses.
- Opportunities to stimulate and support local communities, organisations and businesses to make the changes necessary to benefit themselves and the local economy.
- Ability to make national issues become locally relevant.

DEFRA CARBON MANAGEMENT MATRIX

The Government’s Carbon Management Matrix was piloted as part of the development of our Climate Change Action Plan to identify existing strengths and weaknesses. It assisted with the development of specific climate change actions to improve performance in areas which will have direct and indirect influences over carbon emissions.

We believe this is a significant tool to be used by Local Authorities to self assess their strengths and weaknesses relating to climate change issues.

DISTRICT OF EASINGTON CLIMATE CHANGE STRATEGY

The Government’s Climate Change Programme states that Local Authorities have a leading role to play in assisting local communities to reduce their carbon footprint and as a result this strategy was launched by Ian Pearson MP, Climate Change Minister.

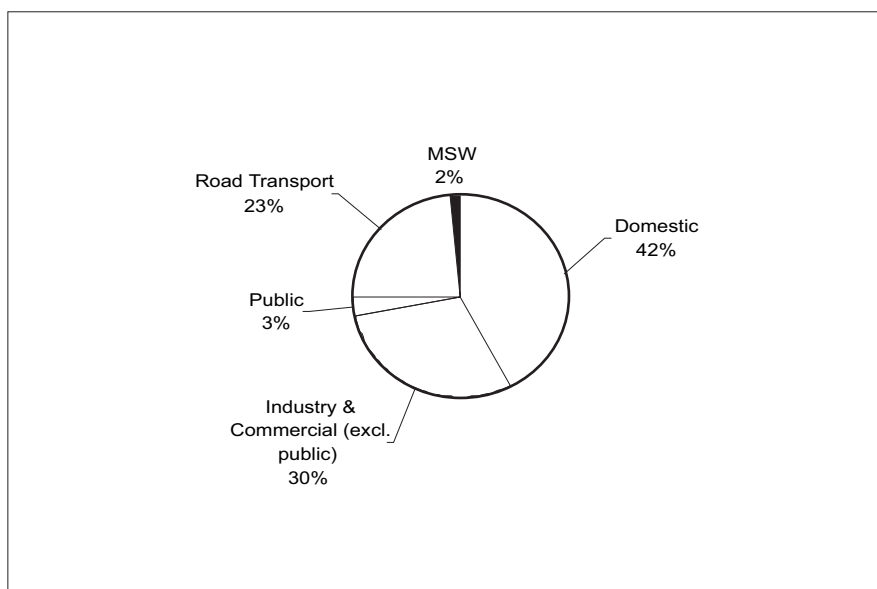
Our Climate Change Action plan will assist in the Governments commitment to reduce UK carbon emission by 60% by 2050. Our Climate Change Action Plan provides a detailed step by step guide showing how we will reduce carbon emissions from Council operations, domestic homes and local businesses in partnership with local communities.

The Climate Change Action plan sets out a detailed five year Climate Change Action Plan to coordinate district wide actions to reduce carbon emissions by 10% by 2012.

CARBON DIOXIDE EMISSIONS BASELINE FOR EASINGTON DISTRICT

Research estimates the current greenhouse gas emissions within Easington District to be 692, 500 tonnes of carbon dioxide emissions per annum. The diagram below identifies emissions from the following sectors:

By establishing this emissions baseline it will enable the impacts of greenhouse gas reduction activities to be monitored.



CLIMATE CHANGE PUBLIC CONSULTATIONS

The Government’s Climate Change Programme 2006 states that significant reductions in energy consumption and greenhouse gas emissions can be achieved by providing relevant advice, support and training.

Our public consultation exercise had a 52% response rate, all relevant suggestions were included in the action plan and were recorded for future reference. The following table gives a brief summary of the responses received.

| <i>Item</i> | <i>Responses Received from General Public</i> |
|-------------|---|
| 1 | 94% of public responses considered climate change was a real threat locally and nationally |
| 2 | 97% considered local actions are required now to combat the effects of climate change |
| 3 | 55% were willing to make small lifestyle changes to reduce greenhouse gas emissions if they were shown how to do this |
| 4 | Question: <i>Who should take action to reduce the effects of climate change?</i> 95% stated general public; 90% stated District of Easington; 65% stated national Government; 35% stated business sectors |

CARBON EMISSIONS DATABASE

Most of the District of Easington carbon dioxide emissions emanate from domestic sector properties. In order to accurately map these greenhouse gas emissions we have undertaken a survey of ALL of the 39,500 domestic properties within Easington District have had individual SAP surveys carried out. This allows us to produce a very accurate carbon footprint and energy consumption for the whole domestic sector. It also allows for very precise targeting of energy conservation schemes to ensure we maximise the impacts of home insulation schemes.

EXAMPLE. DATA TAKEN FROM ENERGY DATABASE ON 24 MAY 2007

| <i>Sector</i> | <i>No of Properties</i> | <i>Total Carbon emissions</i> | <i>Average SAP</i> |
|-------------------|-------------------------|-------------------------------|--------------------|
| Social Dwellings | 9,600 | 54,600 tonnes | 64 |
| Private Dwellings | 28,500 | 228,700 tonnes | 52 |

DISTRICT WIDE GIS MAPS FOR CARBON EMISSIONS AND FUEL POVERTY

Individual property carbon emissions are placed into a GIS ordinance survey mapping system and allows us to target areas that are suitable for our Warm Homes Campaign insulation schemes. This allows graphical analysis of carbon emissions to produce a carbon emissions map on a settlement by settlements and street by street basis.

WARM HOMES CAMPAIGN

We have built a wide range of energy conservation schemes for our residents to provide support and assistance to reduce their energy consumption and greenhouse gas emissions as follows:

Over 60's Free Home insulation scheme. Homeowners aged over 60 receive free cavity wall and loft insulation measures. 1,500 homes were insulated with this scheme in 2006–07.

Warm Homes on Prescription Scheme. Funding supplied by our Primary Care Trust and District of Easington. 150 homes insulated 2006–07.

Social Insulation Scheme. Rolling programme insulating social properties.

Fuel Tariff Scheme. Help and advice to encourage residents to obtain most competitive fuel supplier.

Energy Advice Scheme. This scheme is free to residents and supplies one to one advice on saving energy and reducing.

Promotion of Government Warm Front Scheme.

Road shows to encourage awareness of climate change and how to save energy.

Training sessions for partner organisations.

Partnership working with neighbouring Local Authorities.

GEO THERMAL RESEARCH, EDUCATION & TRAINING INSTITUTE (GREAT)

We propose to establish a Geothermal Research, Education & Training Institute (GREAT) to make Easington an international centre of excellence in the development and application of micro generation, with a particular emphasis on geothermal heat pump technology. This will be possible as a result of the unique geology of the area using the research expertise of the Universities of Newcastle and Northumbria. The GREAT Institute will be the flagship for the entire project based in Easington along with raising the profile of the District throughout the North East and the UK as a whole. It will incorporate cutting-edge

scientific and engineering research; an innovative programme of vocational training and workforce development; and a facility for community engagement in science and technology of micro generation and geothermal energy. As well as providing training to ensure that local businesses and residents can access downstream employment opportunities. The project is closely aligned to UK policy regards micro generation, reducing carbon dioxide emissions and the application of renewable heat to harness the economic, social and environmental benefits. Ground source heat pumps (GSHPs) are a rapidly growing geothermal energy technology providing an opportunity to demonstrate the technical and economic viability of geothermal technologies in the UK in support of DTI and Defra policy.

May 2007

Memorandum by the British Lime Association (CCB 40)

The British Lime Association (BLA) welcomes the opportunity to contribute towards the Joint Committee inquiry into the Draft Climate Change Bill and supports the objectives and scope of the work.

BRITISH LIME ASSOCIATION

The BLA is a constituent body of the Quarry Products Association Ltd., the trade association for the aggregates, asphalt and ready-mix concrete industries. The BLA represents the interests of six member companies, responsible for producing more than 95% of the lime sold in the UK. The BLA members are Tarmac Buxton Lime & Cement, Hanson, Steetley Dolomite, Lhoist UK, Singleton Birch and Totternhoe Lime and Stone Co. Ltd.

The BLA is also a member of the European Lime Association (EuLA) and represents the interest of Corus, British Sugar and Specialty Minerals on issues relating to Emissions Trading and Climate Change Levy Agreements.

GENERAL COMMENTS

For many years, the BLA has recognised the importance of its role in addressing climate change, and the responsibilities assumed by energy-intensive industry to identify carbon abatement opportunities within their sectors. Early action has already been demonstrated by the UK Lime Industry, and many other energy-intensive sectors, following significant investment made in the 1990s. Additional savings continue to be made from meeting the challenging targets set in Climate Change Agreements and EU Emissions Trading Scheme. Such early action should be noted when consideration is given to the areas of the economy that can potentially contribute to future savings.

Energy represents over 40% of variable costs for the Lime manufacturing process and it is therefore of primary concern to companies to take all cost-effective measures to maximise efficiency and reduce CO₂ emissions, regardless of any regulatory intervention.

SPECIFIC COMMENTS

- BLA considers it important that in the absence of full global burden sharing target setting under the Climate Change Bill is kept under regular review. We recognise the UK government's intention to lead in addressing climate change, but it is vital to ensure that UK Industry is not unduly disadvantaged in international markets by domestic policy.
- Long term business certainty is essential for the successful functioning of lime manufacturing in the UK and is preferable to the current uncertain business setting. It is therefore important that long term targets are established with interim goals that take account of abatement potential and asset life. The proposed five year carbon budgets are too short. Lime is a capital-intensive industry with long investment cycles. Long-term certainty of targets for the lime sector itself is vital to maintain the incentive for investment in UK Industry. Greater detail is required on the mechanics of the "*fifteen year horizon of proposed emission reductions*" (medium-term carbon budget), before the impact on industrial sectors with long investment cycles could be accurately determined.
- A single national carbon budget would not be useful for investment planning. All sectors of the economy need to know their expected contribution to the carbon savings to give adequate certainty. Consequently the Climate Change Bill should include the flexibility to update projections and targets for the emissions from all sectors of the economy and impose a requirement for regular government consultation with the appropriate sectors.
- The role of local government is important in gaining public support for addressing climate change. The majority of emissions from buildings are from energy emissions during the "in use" phase of a building over its whole life. Government, through the planning and building regulation process,

should capitalise on energy saving improvements in buildings and take account of the environmental performance of a construction material “in use”. The Climate Change Bill should include measures to address this issue.

- Climate change is a global issue and the use of flexible mechanisms will allow abatement to occur in the most cost-effective regions of the world. Consequently, to achieve the maximum environmental output there should not be a limit on the use of flexible mechanism credits, either in the EU ETS sector or against a national target.
- To comply with the objectives of “Better Regulation”, it is vital that any future domestic climate change policy mechanisms avoid over-regulating industry. The Lime Sector currently operates within both the EU Emissions Trading Scheme and Climate Change Levy Agreements, while being adequately regulated and permitted through IPPC. The introduction of additional schemes, such as the Energy Performance Commitment (EPC), will add further complexities to the overarching Government strategy. The interaction of the various policy mechanisms must be carefully analysed and skilfully managed to ensure that there is no overlap, or double-regulation, between schemes.
- The British Lime Association believes that an independent body should be set up to oversee the carbon budget. Industry should be well represented on the group, since they will be able to provide crucial information on abatement potential of industrial sectors, investment cycles and the possible impacts of certain measures on industrial competitiveness.

May 2007

Memorandum by IChemE (CCB 41)

LOCAL GOVERNMENT AND THE DRAFT CLIMATE CHANGE BILL

UK local government will play an important role in the implementation of CO₂ reduction targets and in the development of a low carbon economy. Transport, land use planning, waste minimisation strategies, supporting the development of more sustainable built environments and educating local communities about the real challenges presented by climate change are key points of leverage. However, it is critically important that council officers and elected members adopt an evidence based approach when making decisions and always try to achieve a rational balance between the needs of local electors and the “bigger picture”. The voice of sound science must be heard in the council chamber and stronger links between local government and professional engineers and scientists should be pursued in order to counter the “nimbyism” that sometimes characterises local policymaking.

The broad view of Institution of Chemical Engineers on the key issues in the climate change debate are summarised below.

1. The Institution of Chemical Engineers (IChemE) is the hub for chemical, biochemical and process engineering professionals in the UK and worldwide. We are the heart of the process community, promoting competence and a commitment to sustainable development, advancing the discipline for the benefit of society and supporting the professional development of members. Chemical engineers will play a pivotal role in developing and implementing the technologies that will combat climate change.

2. The Bill sets out targets for reducing carbon dioxide emissions both nationally and sectorially from a baseline in 2010 and the mechanics to establish strategies to achieve the targets and deal with reporting and corrective action. IChemE assumes that emissions of other greenhouse gases are excluded from these targets although gases such as methane in particular have significant impact on global warming.

3. The concept of setting, reporting and auditing against annual targets is seen by IChemE as vital and it is important that the methodology of establishing the baselines and the basis for future measurements and reporting are properly defined and published to make the whole process transparent.

4. We are ambivalent about the introduction of performance related pay into the annual assessment of the Prime Minister and other Ministers of the Crown. On such a globally critical matter as climate change IChemE believes the ballot box should provide the necessary incentive for ministerial action.

5. The strategy to achieve the reductions which will be developed in the coming year is clearly critical to the operation of this Bill and the opportunity to comment on this aspect is keenly anticipated. In the meantime we make a number of observations on the targets and the issues we expect the strategy to consider based on the IChemE’s recently published document “A Roadmap for 21st Century Chemical Engineering”.

See www.icheme.org/TechnicalRoadmap

6. The UK will develop a significant energy gap of 35 GW over the next 20 years. The choices made now provide both a threat and opportunity to reducing carbon dioxide emissions. The need is for a portfolio approach to energy sources and in practical technology terms in the short run IChemE supports the rapid deployment of carbon capture and sequestration, the expansion of nuclear power and focus on increasing the efficiency of energy use coupled with accelerated research, development and implementation of renewable energy sources based on sound science, including life cycle analysis.

7. In the short and medium term fossil fuel use must be minimised by the application of currently available technologies to maximise the efficiency of electricity generation and use. Incentives should be introduced by government to manage demand and, equally important, prompt a step change in the deployment of clean generation technology with carbon capture and sequestration which is essential to achieve major short term reductions in emissions. IChemE believes that the UK is well placed to demonstrate what is possible in this area given the immediate need for replacement power generation capacity. The potential exists for international joint ventures in pursuit of sustainable solutions suitable for global application and IChemE urges the government to take a bold long term view.

8. Ultimately, and within the timescale of this Bill, the imperative is to break our predominant dependence on fuel sources that emit fossil carbon as carbon dioxide. IChemE supports the more rapid pursuit of an energy policy, both in the UK and globally, based on using non-fossil primary energy sources (eg nuclear, including fusion in the longer term, and renewables, including solar, geothermal) coupled with the development of hydrogen, or other options, as energy carriers (or vectors).

9. The target for 10% of electricity to be generated from renewable resources by 2010 (assuming this does mean actual generation and not installed capacity) is unlikely to be achieved given the current level of renewable generation of four percent. Wind generated power will continue to be deployed as improvements in technology reduce costs to compete with other methods of generation. However, in the absence of storage systems, intermittency results in wind power being a high cost carbon dioxide abatement option because of the need for a continuously available reserve. Continued R&D on power and heat storage systems is necessary. Wave power remains at the experimental stage as does tidal flow. None can be guaranteed continuous although well-spaced tidal flow systems could overcome zero-flow periods. The major factor holding back these technologies is cost arising from the structures to cope with storms. IChemE supports increased R&D on the development and deployment of renewable technologies and power storage systems.

10. World biodiesel production has increased from negligible quantities in 1990 to over 2,500 million litres per annum in 2005 and this trend is likely to continue. However fixing mandatory targets as set out in the Bill can distort the market and often stem from a farming lobby rather than decisions based on sound science. The EU and others have identified a number of environmental issues associated with biofuels at the crop-growing stage. Availability of water is a particular issue and crop yields cannot be guaranteed without adequate rainfall or irrigation. Deforestation and displacement of food crops is a contentious issue as is the use of genetically modified organisms to increase crop yields. Cellulosic crops such as coppiced wood and miscanthus grass grown on marginal land are likely to offer greater carbon dioxide reduction than food crops converted to fuel. The government's target compares with the engine manufacturers' upper limit for first generation bio-diesel in blends to protect engine warranties. Second generation Fischer Tropsch (F-T) fuels that are superior to the usual definition of bio-diesel overcome this problem. F-T jet fuel is also superior in that it is pure paraffinic material offering engine designer's scope to improve performance and reduce emissions. In the longer term, a combination of biomass gasification and Fischer Tropsch synthesis might offer an attractive route to the production of renewable transport fuels and IChemE argues that this option should be pursued.

11. Although hydrocarbons provide an efficient form of energy storage and can be readily deployed at the point of use eg in the fuel tanks of road vehicles new energy carriers (or vectors) are required as part of the move to break our dependence on carbon for transport fuels and for energy storage from remote or intermittent renewable energy sources. Much attention is directed to the potential of hydrogen as a vector because it is clean on combustion, can be used in fuel cells and can be generated from water. However it is relatively expensive to produce, store and transport and because it is so light the energy density per volume of liquid hydrogen is worse than a hydrocarbon fuel such as gasoline by approximately a factor of four. IChemE believes that financial support and R&D effort should focus on the search for new energy carriers as well as continue to be directed at both hydrogen production and storage and fuel cells for both transport and stationary combined heat and power applications.

12. We are profligate in the use of all the resources of our planet, and for a sustainable future our objective must be to dematerialise our way of life by reducing the quantity of raw materials, water, and energy we consume and the waste we produce, by designing products to eliminate or reduce built in obsolescence, recycling products at the end of their life and recovering and reusing as much of the material they contain as possible. For industry to meet its carbon dioxide reduction targets will require it to focus not just on energy consumption but this concept of reduce, reuse, recycle coupled with the implementation of innovative and sustainable technologies.

13. The Bill implies a significant response from the private sector if the technology strategies outlined in this memorandum are to be followed to meet the targets set. Industry will need clear signals as to how the Bill will be implemented, hence the need for a defined and transparent process, financial incentives to spur action and strong cross-party support for the Bill to justify the necessary long term investment decisions. Legislation can be a valuable driver but the difficulty is in casting the legislation to promote the required behaviours and outcomes. A robust carbon trading system, replacing the ineffective European scheme, is a high priority and IChemE supports the continuing introduction of appropriate legislation, taxes and other fiscal measures to encourage a change of behaviour, coupled with targeted information and education to drive this wide ranging climate change agenda forward.

Chemical engineers will play a central role in the development and implementation of the climate change abatement technologies and IChemE welcomes this opportunity for dialogue.

May 2007

Memorandum by Operation Noah (CCB 42)

INTRODUCTION TO OPERATION NOAH

Operation Noah is the climate change campaign of the Environmental Issues Network of Churches Together in Britain and Ireland (CTBI) and Christian Ecology Link (CEL).

EXECUTIVE SUMMARY

The Operation Noah campaign welcomes the Government's recognition of climate change as one of the greatest challenges facing the world. However, we believe that the proposals contained in the Draft Bill do not go far enough to provide credible and meaningful leadership domestically or internationally on this most urgent of issues.

Operation Noah's main points, in line with the Joint Committee's themes for their inquiry, are as follows:

- the binding targets for emissions reduction should be bold in order to reflect the latest scientific evidence, and should not be subject to revision except in the light of the evolving science. In particular, aviation and shipping emissions should be included within targets;
- it will not be possible to achieve the scale of change required to mitigate global warming through voluntary action which cannot be measured effectively. Statutory action, overseen and enforced by statutory bodies, can be measured and tracked. Through statutory instruments, the Government can ensure that the burden of adjustment is shared fairly and equitably across the economy and the population;
- the Bill should encompass the role of local government and the need to ensure and support changes in public behaviour. This is because all levels of governance and the population as a whole must be engaged in reducing carbon emissions, since both collective/industrial and individual activities are responsible for those emissions;
- the Bill should bind all Government departments to the targets; and policy across government must be consistent with reducing CO₂ emissions in all sectors of the economy, in order to be effective, fair and transparent;
- the UK has a moral responsibility to reduce emissions within the UK itself and should not pay others abroad to compensate for our cumulative emissions, current environmentally costly lifestyles, and our inaction at home; and
- both factors for consideration in setting carbon budgets and the composition of the Committee on Climate Change, should place the greatest emphasis on climate change science and policy above the economic imperative for British industries to remain internationally competitive.

THEME 1

Aims and purposes of the Bill—why it is needed

1. Operation Noah welcomes the Government's practical recognition of the gravity of global warming. The Draft Climate Change Bill is an important benchmark in acknowledging the crucial role for effective leadership by government in tackling this most urgent of issues facing humanity and life on Earth.

2. However, it is important that government ministers and their officials face the reality of the challenge in scientific/ecological terms. This means that targets and the framework set by the Bill must be equal to the scale of the challenge and justified by the scientific evidence. Only then would the UK's climate change legislation be a model and example to the rest of the world, allowing the UK to exercise international leadership.

THEME 2

Legislation on Carbon Targets and Budgeting

3. The urgency of the threat means that we cannot afford to rely on voluntary action to make the necessary adaptations. A clear, accountable legislative framework, within the UK and eventually between nations, will be essential for ensuring that emissions are reduced and the worst effects of climate change are averted.

4. By legislating for action on climate change, rather than relying on variable voluntary action, the Government can, through setting and enforcing targets and ultimately applying rationing, ensure that the burden of adjustment is shared fairly and equitably across the economy and the population. Such a legislative framework will protect those least responsible for carbon emissions (the poor and those, for example, without access to cars) and ensure that the principle of the ‘polluter pays’ is applied fairly across the board.

5. Enshrining targets and budgets in legislation is the most effective way for ensuring action is taken, maintained and accounted for. It will be necessary, however, for targets to be adjusted in the light of evolving scientific evidence and modelling. This is most likely to mean that the established framework must be flexible enough to take on the need for more stringent actions.

6. Voluntary action cannot be measured or tracked effectively whereas statutory action, overseen and enforced by statutory bodies, can be measured and tracked. As understanding of the science and the impact of global warming grows, so these measurements can be used to assess whether or not the scale of action undertaken is sufficient to meet and mitigate the threat to the population as a whole.

THEME 3

The Role of Local Government and Securing Change in Public Behaviour

7. Since global warming is a world problem created by individual as well as collective human activities, it must be tackled through strong leadership combined with individual action. This means that each person, as well as each organisation, especially in high-income countries like the UK, needs to reduce their carbon emissions.

8. We believe, therefore, that the Draft Bill should include measures to ensure and support changes in public behaviour. Local government initiatives will play an important part in reducing local emissions, within a national framework, since local community action can promote cohesiveness and identify successes. Local authorities such as London and Oxford City Councils have already taken initiatives to tackle global warming by, e.g. encouraging their residents and organisations to take simple mitigating actions. Woking’s energy strategy brought a 51% reduction in energy consumption, a 44% reduction in water consumption and a 79% reduction in CO₂ emissions in the council’s building stock.

THEME 4

Adequacy of Emissions Reduction Target for 2050

9. There is considerable international agreement among scientists, governments and NGOs that, although some further warming and associated damage is inevitable, we should now be concentrating efforts on preventing an average temperature rise over 2°C above pre-industrial levels. The scientific evidence suggests that anything more than this will lead to catastrophic effects, such as mass extinctions.

10. Much of the literature refers to the fact that in order to keep the temperature increase within 2°C, the concentration of carbon dioxide and equivalents (greenhouse gases, or CO₂eq) in the atmosphere must not exceed 450 parts per million (ppm). However, according to the Stern Review, the likelihood of exceeding 2°C of warming with a concentration of 450 ppm CO₂eq, ranges from a minimum probability of 26% to a maximum of 78%.⁷⁵ The Tyndall Centre for Climate Change Research, a respected publicly-funded institution, some of whose scientists participate in the IPCC process, has carried out research to suggest that emissions in the UK (and by association other industrialised countries) will need to be cut by 90% by 2050 to have even a 30% chance of staying within the limit of 2°C.⁷⁶

11. This makes the Government’s target in the Draft Bill of at least a 60% cut woefully inadequate, especially if Britain is to exercise international leadership. The Tyndall Centre, in its briefing on the Draft Climate Change Bill, cited above, suggests that the Government’s target implies UK emissions rising by 40-65% more than is consistent with carbon dioxide concentrations in the atmosphere of 450 ppm (this is equivalent to a concentration of all greenhouse gases, not just carbon dioxide, of around 500 ppm).

12. *Even the Government’s Stern Review, published last year, estimated that developed countries should take responsibility for GHG emissions reductions of between 60 and 80% by 2050.*

13. Crucially, the Government’s emissions reduction targets will not apply to emissions from international aviation and shipping, even though aviation accounts for the fastest growing source of greenhouse gases. To cite the Tyndall Centre’s research once more, aviation and shipping emissions would, by 2050, increase by one-third the trajectory of overall emissions set by the Draft Bill. Clearly, excluding these emissions reduces substantially the credibility of the Government’s targets—at home and abroad.

⁷⁵ The Stern Review.

⁷⁶ http://www.tyndall.ac.uk/publications/briefing_notes/bn17.pdf

14. The Government excludes aviation emissions by arguing that they are part neither of the Kyoto Protocol nor the EU's Emissions Trading Scheme. The Draft Bill allows for the future inclusion of these sectors if international policy changes to include them. The Operation Noah campaign believes that given Britain's historic role in accumulating global carbon emissions, the UK Government should exercise leadership by making sure that all sectors are included and therefore that airline and shipping emissions are included within the remit of the statutory targets.

THEME 5

An Optimal Trajectory towards the 2050 Target—Budgets & Interim Targets

15. With the need for urgent action to curb CO₂ emissions, it is widely recognised that interim targets are important for setting the right path early on. We believe the Government should be bolder in its ambitions for the interim 2020 target by setting a true target, not a range. This target should, at a minimum, be at the top of the Government's currently stated range, but subject to scientific advice, may well need to be more stringent.

16. The Bill states that by 2020, carbon dioxide emissions must be at least 26% lower than the 1990 baseline "*but not more than 32% lower than the 1990 baseline*". It is not clear why the ceiling on emissions reductions is included, but we believe there should be no upper limit placed on emissions reductions—so that government has flexibility in the event that weather events and scientific evidence requires emissions to be cut further.

17. In order to ensure an achievable and equitable trajectory towards the long-term target, Operation Noah is calling for the Bill to include a commitment to ensure policy consistency on emissions reduction across Government departments. There are inconsistencies in Government policy that will undermine the coordinated effort needed to tackle CO₂ emissions. These contradictions do not tally with the Prime Minister's statement in the Draft Bill Consultation Document that "*the threat from climate change is perhaps the greatest challenge facing our world. Without decisive and urgent action, it has the potential to be an economic disaster and an environmental catastrophe. This is why I have made it a top priority for this Government.*"

18. A prime example of inconsistency between Government departments is the Government's plan to build 4,000 km of new trunk roads. In addition, the December 2003 Aviation White Paper gave the green light for new runways at Stansted, Heathrow, Birmingham and possibly Edinburgh to make way for the doubling of UK airport capacity.

THEME 6

Use of Overseas Credits

19. The Draft Bill allows for emissions reductions that count towards the UK target to be purchased abroad where it may be cheaper to reduce emissions. One of the arguments put forward is that it makes no difference to the planet where emission reductions take place. The Government cites the "supplementarity principle", which forms part of the international Kyoto Protocol for tackling climate change. This implies that emissions reductions bought from overseas should only supplement domestic reductions, and not substitute for them. However, crucially the principle does not enshrine any quantitative guidelines. The Government suggests that one of the roles for the Committee on Climate Change would be to advise on the balance between domestic and purchased overseas reductions. This implies there is no intention to enshrine any obligation in law for the bulk of emission reductions to be domestic reductions.

20. Given the UK's historic role in contributing to the build-up of emissions globally, we believe that the Britain has a moral obligation to reduce emissions within its own borders, rather than simply using its relative wealth to pay others to meet this obligation.

21. By paying for another country to reduce emissions on our behalf we reduce the need to adapt our lifestyles away from the intensive use of fossil fuels that have created the problem in the first place. Business cannot go on as usual in high-income countries if we are to mitigate the impact of climate change.

22. Finally, given the recent scandals around small payments of salt to Congolese farmers in exchange for valuable Congolese land and timber; and given the experience of the privatisation of Russian assets in the 1980s, when poor shareholders gave up their assets to powerful oligarchs, we are concerned that without a just and representative global regulatory framework, low-income countries could be short-changed by such trading arrangements with high-income countries.

THEME 7

Committee on Climate Change

23. There are two issues of concern regarding the Committee. First, it is proposed that the Committee should be comprised of technical experts not stakeholders. Climate change has implications for everyone, regardless of sector or expertise. This means that decisions on emission reductions should be informed by the voices of representative and accountable public bodies and communities as well as by technical expertise.

24. Secondly the Bill designates certain areas of expertise to be represented on the Climate Change Committee. The first three of these areas are: economic analysis and forecasting, business competitiveness and financial investment. Expertise on climate science is listed only sixth, and expertise on climate change policy is last on the list in eighth place. This gives rise to concern that economic and financial interests will take priority over scientific assessments, and therefore the interests of the population as a whole.

THEME 8

Legal Consequences of Failure to meet Targets

25. In light of the gravity of global warming and the catastrophic outcomes predicted by scientists if insufficient action is taken, Operation Noah supports the toughest legal consequences for the Government if the targets are not met. This would hopefully serve to focus efforts in the most coordinated way and offer maximum public accountability.

THEME 11

Effect of the Bill on International Climate Change Activity

26. Operation Noah believes that UK unilateral action through credible statutory mechanisms to tackle emissions ensures a greater chance for achieving bold, coordinated international action. We feel it is incumbent on the Government not to lose this opportunity by enshrining targets which are too weak when set against the scientific evidence.

May 2007

Memorandum by the National Farmers' Union (CCB 43)

The National Farmers' Union (NFU) represents around 55,000 agricultural and horticultural businesses in England and Wales.

The NFU's comments below correspond to the themes listed in the Committee's call for evidence. We do not offer comments at this time on some of the themes.

1. What the main aims and purposes of the Bill are and why it is needed

1.1 The Climate Change Bill is a tremendous step forward in the fight to tackle climate change. The climate is already beginning to change, and with increasing change, farmers and growers are on the front line of climate change impacts. Whilst adaptation to climate change is becoming increasingly important, tackling the causes of climate change must be the primary aim. Avoiding dangerous climate change should be a top priority. The NFU welcomes the draft Climate Change Bill as a great opportunity for British agriculture to positively engage and help achieve the carbon dioxide targets. They can do this by producing low-carbon renewable energy for heat, electricity and transport fuels, by storing carbon in soils and vegetation, and by producing biogas from digesters (which helps reduce methane emissions, as well as producing renewable energy). The Bill is a positive step in encouraging renewable bioenergy and gaining a consensus for a joined up government delivery of the Energy White paper in March 2007. We do however need consistency in climate change policy from this and future governments to enable our members to adapt to changing policies as the environment changes. We look to Government to provide genuine commitment and provide positive incentives that will stimulate the necessary investment in these types of mitigation options.

2. To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed

2.1 It is important that there is a degree of certainty associated with the targets. Targets which are legally binding provide market certainty, allowing the development of fledgling industries, such as biomass or anaerobic digestion. Therefore compulsory targets focused on carbon are important to ensure that markets and infrastructures develop. However, meeting these targets will be challenging for a number of industries,

and a certain amount of flexibility and voluntary action must be included. This is particularly true for agriculture as much of their production is heavily influenced by the weather, making planning and achieving carbon reduction targets much more challenging in some years. Voluntary or trading schemes for example allow emission targets to be met at least cost, and their increasing use must be explored. The investigation of a non-CO₂ emissions trading system for agriculture is welcomed in the Climate Change Programme Review 2006.

2.2 We look to Government to provide detail as soon as possible as to how they plan to achieve these climate change targets, to stimulate market development.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

We have no comments to make at present on the issues raised in theme 3 of the call for evidence.

4. *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence*

4.1 We are satisfied that at this point in time the greenhouse gas targets do not include non-CO₂ gases. The agricultural sector is responsible for larger percentages of methane and nitrous oxide emissions in the UK than for carbon. When compared to carbon dioxide, non-CO₂ greenhouse gases are not increasing at the same rate. Whilst as a sector we take responsibility for these non-CO₂ emissions (most notably methane and nitrous oxide), we do not feel that stringent targets to tackle these emissions is suitable currently. We welcome the commitments made within the climate change programme 2006, which are looking at such actions as the feasibility of a market based mechanism for tackling these gases. However, the actual methods and instruments to reduce methane and nitrous oxide emissions on farm are currently not well developed and need considerable work. Whilst research has been done, ways and means of transferring this knowledge on to farm in a technically feasible way is not clear. The reduction in these gases may not hold the same 'quick wins' which can be achieved with carbon dioxide, certainly on farm. As such, the introduction of non-CO₂ greenhouse gas reduction targets at this time is not practical and we support the government in their decision to leave out non-CO₂ gases from the targets, but review this periodically.

4.2 However, the inclusion of carbon dioxide targets within the Bill need to be considered carefully. The agricultural industry is aware of the need to reduce greenhouse gas emissions, including CO₂. As a sector, we are responsible for less than 1% of carbon dioxide emissions, but are working to reduce these emissions through energy efficiency (most notably through our excellent performance within the Climate Change Levy (CCL) Scheme), renewable fuels etc. However, these CO₂ targets for land based industries will, inevitably, focus on those with the largest energy use, primarily horticulture and housed livestock. Whilst these industries are more than aware of their need to reduce emissions and increase energy efficiency, many of these producers are already engaged in schemes such as the CCL, and therefore their capacity to decrease energy use further is limited. While we think that there may be a limited capacity to further increase energy efficiency, we believe that agriculture can become carbon neutral given the correct long-term measures to support renewable energy. It is also our aspiration to become net exporters of energy, which will also require long-term support measures.

4.3 It is important that any targets for this industry are not overly stringent to force companies out of business. These emission targets also need to be EU-wide to ensure British farming does not suffer as a result of extra regulation, and not put at a competitive disadvantage. Also, within the UK, government needs to ensure that any targets need to involve stakeholders to ensure that there is a cost effective sector specific plan to meet these targets.

4.4 We can help meet these stringent targets set out in the Bill both for our sector, and for the other industrial and the domestic sectors. This can be met through a number of measures including the increasing development of the biofuels and biomass market, the increasing use of technologies such as anaerobic digestion and through other processes such as the use of other non-food crops to substitute fossil fuel use. This makes the 60% reduction in emissions more realistic as we have technologies and policies which can be put in place to meet these targets.

4.5 It is important that a carbon budget for a given period cannot exceed a certain amount. The agricultural sector is already tackling carbon emissions as explained above. However, at the current time, there is a limit on how much they can feasibly reduce their carbon emissions. By focusing too heavily on these carbon emissions, there is a risk that any 'carbon heavy' industries and processes will simply be exported to countries that do not have such stringent targets. Whilst it is important that the UK is setting an example to the rest of the world on climate change targets, it is important that we have a level playing field with our competitors in other countries using sound science for a best course of action.

5. *What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so*

5.1 A five year period over which carbon levels are measured is important to allow a certain amount of flexibility over emissions. This is especially important in the agricultural sector due to their ability to be heavily influenced by the weather. Bearing this in mind, it is however important that long-term certainty on emissions is considered. Long-term market trends dictate investment, and it is imperative that the longer term targets (of 2008–12, 2013–17 and 2018–22) are set to allow clear signals for infrastructure development.

6. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target*

6.1 Carbon sequestration could offer a modest contribution as part of our fight against climate change. The land management sector are in a unique position to be able to store carbon in their soils and vegetation, and this potential as a short-term option to “buy time” while other climate change technologies and policies are developed cannot be overlooked.

7. *Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments*

7.1 We support the proposal for the Committee on Climate Change. There is certainly a need for such a body, to independently analyse results and review targets. The proposed annual reporting to Parliament, and the obligation on government to respond, is an important safeguard. We look to Parliament to make appropriate arrangements for the careful scrutiny of the reports and the responses by government. The Committee should help to maintain independent analysis and must be free from political interference. In our view a technical expert relating to the rural or land-based sector should be a member of this committee. Given the agriculture sector’s unique emissions profile, and its ability to be a key part of the solution to climate change, the Committee would benefit for an expert in this field. We also look to an associated group of stakeholders to be formed who could feed into the carbon committee experts to allow industries to be properly represented.

8. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

9. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations*

We have no comments to make at present on the issues raised in questions 8 and 9 of the call for evidence.

10. *Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets*

10.1 The European targets of a reduction in greenhouse gas emissions by 20% by 2020 are important, however, we need to see greater certainty of European plans for implementation of targets for climate change. We need to ensure that the UK industry is not unfairly regulated, so European (and indeed international) targets are crucial. Commitments within the future EUETS also need to be considered, ensuring that the Climate Change Bill and its possible future inclusion of non CO₂ greenhouse gases meshes with the EUETS. We are cautious of including non-CO₂ greenhouse gases within the EUETS, with particular reference to including agriculture within such a scheme. Whilst trading schemes allow greenhouse gas savings to be made at least cost, we do not feel that the EUETS as it stands would be suitable for the agricultural sector. This is mainly due to the make up of the sector, with its large number of small and diverse producers. This however does not mean that a trading system for agriculture could not be applied, but the details would need to be carefully considered.

11. *How the contents of the Bill will affect international climate change activity*

11.1 It is hoped that the contents and outcomes of the Bill will stimulate action on an international scale towards combating climate change. Whilst it is important that the UK is a leader with setting bold climate change targets, it is important that it is followed by other countries, to ensure that UK industry is not unfairly targeted with legislation and regulation, whilst other countries industry is left unregulated. UK producers need a level playing field, and not to be put at a competitive disadvantage.

11.2 We also urge that measures are taken to include international aviation and shipping within these climate change targets. Whilst there are significant problems with exactly how to measure these emissions, and also which country they originate from, it is clear that this is a carbon dioxide emission source which needs to be tackled. It is important that all sectors are targeted for emission reduction and regulation, rather than just those which can be tackled or measured relatively easily.

12. *Whether the delegated powers contained within the Bill are appropriate and adequate*

12.1 The NFU supports the enabling powers suggested. Such powers can provide the necessary incentives required for the agricultural sector to make a significant contribution to climate mitigation. It is important that farmers are rewarded for their mitigation activities.

May 2007

Memorandum by the Woodland Trust (CCB 45)

The Woodland Trust welcomes the opportunity to submit evidence to this inquiry. The Trust is the UK's leading woodland conservation charity. We have four main aims: no further loss of ancient woodland, restoring and improving woodland biodiversity, increasing new native woodland and increasing people's understanding and enjoyment of woodland. We own over 1,000 sites across the UK, covering around 20,000 hectares (50,000 acres) and we have 300,000 members and supporters.

We welcome the fact that the Government has taken the step of producing a Draft Bill on climate change. We have been one of a number of organisations who have been calling for such a Bill both independently and through the Stop Climate Chaos coalition. We have responded to most, though not all of the questions posed by the Committee.

1. *What the main purposes of the Bill are and why it is needed*

Mitigation

1.1 Our view is that this innovative Bill is very much needed but that in its present form, it is unable to adequately fulfil its purposes. We welcome the attempt to provide a legal framework for the management of carbon emissions as a genuinely pioneering step. However, the Bill needs to better reflect the overwhelming scientific consensus which exists around the danger threshold of a 2°C rise globally and the consequent need for the Government to adopt a target of an 80 percent cut by 2050 to reflect latest scientific opinion on the cuts required.

1.2 There should also be annual milestones and reporting against these and there is a good case for an objective of a 40% cut by 2020 to ensure the correct trajectory towards the 80% target.

Adaptation

1.3 Unfortunately, whilst the Bill is innovative in relation to mitigation, even though it needs improvement to be fit for purpose, it is weak with regard to adaptation. At present it offers only the prospect of a quinquennial risk assessment and report on progress.

1.4 The reality is that climate change is already with us and it is neither defeatist nor a distraction from the urgency of mitigation to fulfil our responsibility to enable both people and biodiversity to adapt. We should be taking a twin-track approach to this—making significant cuts in greenhouse gases and at the same time taking adaptive action for climate change we are already locked into. Adaptation is about developing resilient natural systems that can absorb and respond to change. Developing strategies to help the natural environment cope with these changes is not an alternative to mitigating the effect of increased CO₂ emissions; indeed they should add to the urgency for action by recognising that change is already with us.

1.5 We therefore believe that the Bill should make provision, not simply for a report, but a *programme for action every three years*. This would help to deliver on the conclusion of the Stern Report that: "Government has a role in providing a clear policy framework to guide effective adaptation by individuals and firms in the medium and long term".⁷⁷

1.6 This action programme should be accompanied by an annual report to Parliament on progress on adaptation which would be scrutinised by the Environmental Audit Committee.

⁷⁷ Stern Review: *The Economics of Climate Change*, p 416, 2006.

1.7 The Bill should also explicitly set out the areas that shall be covered by the action programme and this should encompass adaptation of biodiversity as well as human adaptation. By making natural systems more resilient, not only will biodiversity benefit, but human society will also benefit from the “services” natural ecosystems provide including such as flood relief, healthy soils, carbon sinks and future sequestration, water quality and renewed natural resources.

1.8 Climate change is the biggest threat faced by biodiversity and action to enable it to adapt will therefore be key to future delivery of Section 40 of the Natural Environment and Rural Communities Act 2004. This requires that “every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of its functions, to the purpose of conserving biodiversity”. It would also provide impetus to the implementation of the recent report published by Defra on behalf of the UK Biodiversity Partnership, *Conserving Biodiversity in a changing climate: guidance on building capacity to adapt*.⁷⁸

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed*

2.1 We believe that the UK needs annual budgets for carbon which fully reflect the UK’s fair share of the reductions required to keep global warming under 2°C.

2.2 We believe that there is a willingness to take action by the Government but that this must be accompanied by leadership which means establishing a course of action and not deviating from it either under the present administration or its successors. This means legislation is required which should be ambitious and reflect the scale of the challenge. A watered down approach which does not reflect the scale of the problem is likely to do more harm than good.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

3.1 We believe that the omission of local government from the Bill is a mistake. It is essential to underpin the central guidance of a carbon budget with local action. Local government is a key player in addressing the climate change challenge in this country, not least because it is the largest landlord in the country and responsible for a whole other range of roads, buildings and public spaces with a significant carbon footprint. It also has tremendous potential for engaging the public with the issue, for example through the use of council tax rebates.

3.2 The draft Climate Change Planning Policy Statement recognises the importance of local government in both mitigation and adaptation and as Ruth Kelly has already stated: “Central Government must set an ambitious direction but there is a need for action at all levels. Local Government’s crucial role will be to find solutions that work for local communities”.⁷⁹ We believe there is a strong case for a public duty to take action on climate change either linked into or separate from the power under the Local Government Act 2000 to promote environmental well-being and the Nottingham Declaration.

4. *Whether it is possible for the Government to regulate total UK emissions through the use of emissions trading schemes and other policy instruments, and whether carbon budgets over five years are the most effective way of doing so*

4.1 We recognise the need to achieve emissions reductions in a cost-effective way, however the primary focus must be upon ensuring real emissions reductions from UK activities. This should mean ensuring that all sectors of the economy play their part including aviation and shipping. For this reason there is a good case for sectoral targets to be included in order to provide clarity as to the action required and enable sectors to plan accordingly.

4.2 We firmly believe that the UK needs annual carbon budgets if we are to stay on course towards adhering to binding carbon limits which ensure that the UK pulls its weight in terms of keeping global warming within 2°C. This will ensure that discipline is maintained and the burden is not simply passed onto successor Governments.

⁷⁸ Defra (2007) on behalf of the UK Biodiversity Partnership, *Conserving biodiversity in a changing climate: guidance on building capacity to adapt*.

⁷⁹ Speaking at local government and climate change summit 4 April 2007.

5. *Whether the target of 60% emissions reduction by 2050 set out in the Bill is adequate, based on the most recent appropriate evidence*

5.1 It is essential that the law reflects the mainstream scientific consensus if it is to work. The weight of evidence from the science is that 80% should be the target by 2050—with a need for a reduction of 40% by 2020. We therefore believe that a commitment to at least 80%, with flexibility according to the current scientific consensus is the best way forward.

6. *Whether the proposed Committee on Climate Change will be able to provide truly independent advice on budgets and cost-effectiveness, given the designated resources at its disposal and the extent to which it may find itself dependent on departmental forecasts and analyses (eg the DTI model)*

6.1 There are grounds for concern as to whether the Committee will be able to do so in its present format.

6.2 At present, the balance of the Committee appears too heavily weighted towards the economic strand rather than fully reflecting all three strands of sustainable development and does not appear to adequately reflect the goal of moving to a low carbon economy. The requirement to ensure that the Committee has a representative with expertise on the social impacts of policy is welcome but we believe it is essential it also has expertise on environmental impacts and addresses adaptation as well as mitigation.

6.3 A step forward which would ensure greater confidence in the Committee from the outset would be a duty to consider sustainable development in its decision-making and for appointments to the Committee to be approved by the Environmental Audit Committee of the House of Commons.

6.4 It will be important from the outset for the Committee to recognise a need to look beyond departmental forecasts and analyses and draw upon wider scientific opinion both in relation to mitigation and adaptation.

7. *The legal consequences of the Government failing to meet the targets set out in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

7.1 We believe that there should be some consequences for failing to meet the targets and that judicial review is a mechanism worth looking at. Financial penalties however, are likely to ensure the greatest focus is maintained.

8. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations*

8.1 We believe that the Committee on Climate Change must have adequate representation from the devolved countries.

9. *How the provisions of the Bill will impact on international climate change activity*

9.1 As discussed, we believe that the Bill is genuinely innovative and deserves to be applauded as such. It needs to go further however along the lines we have described if it is to truly reflect the leadership role the UK aspires to play on the international stage in relation to this issue.

May 2007

Memorandum by the City of London Corporation (CCB 46)

INTRODUCTION

1. This memorandum submitted on behalf of the City of London Corporation follows the Joint Committee's announcement of plans to undertake pre-legislative scrutiny of the Government's Draft Climate Change Bill.

NATIONAL CARBON PLANNING

2. The City Corporation appreciates the benefits inherent in the Draft Bill's attempt to address climate change planning and mitigation from a national perspective. To this end, the proposed statutory UK "carbon budget" is to be welcomed as a pragmatic first step in the solution of this complex issue.

3. Further, the City Corporation notes the path taken by the Draft Bill in establishing a five year overarching UK carbon budget cycle. It is, however, vital that any statutory scheme provides all participants with sufficient certainty to adapt and make the necessary investment in carbon efficient technology. The Draft Bill's forward-looking approach, whereby the carbon budget for the period 2018–22 must be in place

by the end of 2008, should undoubtedly afford some participants the required certainty to stimulate investment. However, because it leaves so much detail to be determined at a later date, it is unclear whether the Draft Bill adequately recognises that the requirements of all participants are not necessarily the same and that their capacity to contribute to carbon emission reduction will vary accordingly. The needs of industry are, it may be argued, very different from, for example, those of public authorities.

4. The Draft Bill's adoption of an overall 60% reduction target by 2050 is without doubt far reaching. Although there is an argument to be made for setting a more ambitious target from the outset, provisions within the Draft Bill which would allow targets to be amended to account for "significant developments" in scientific knowledge can be applauded to the extent that they provide some flexibility. However, the Government might consider clarifying its thinking in this regard, since it is unclear where the boundaries are meant to lie and how the term "significant" is to be understood. It is clear that the importance of technology in the battle against climate change should not be underestimated and, indeed, the Committee might be interested to note that the City Corporation has shown that there could be new business opportunities in the carbon emission marketplace where business is willing to innovate. Recent City Corporation research⁸⁰ has highlighted the potential scope offered by emissions trading and offsetting and has sought to identify the next generation of trading opportunities. There is a strong case for the Draft Bill explicitly to promote and encourage technological development, such as Carbon Capture and Storage (CCS), alongside necessary mitigation measures.

CARBON EMISSION TRADING SCHEMES

5. It seems that the Draft Bill envisages carbon emissions trading schemes as the principal mechanism by which the nation will adhere to its carbon budget. In this light, the Committee may be aware that, in 1999, the City along with others established the UK Emissions Trading Group (UK ETG) which laid the foundation for the UK, and later the EU, Emissions Trading Schemes. As a result, the City Corporation has accrued a significant bank of expertise in the design and execution of these schemes. Given its role in their development, the City Corporation naturally welcomes the Draft Bill's focus on domestic emissions trading schemes as one way to tackle climate change.

6. It is, however, of concern that in respect of trading schemes the Draft Bill again leaves much detail to be determined by secondary legislation. The Draft Bill, for instance, does not provide sufficient clarity about what kind of activities or locations would be incorporated into proposed trading schemes, leaving this instead to be determined by regulations. It also appears that it is left to delegated legislation to define who must participate in any trading scheme and whether the scheme will apply to the UK as a whole or just a part of the nation. At this point it is not clear that point at which it is intended that public bodies be incorporated within a trading scheme.

7. Moreover, it would be helpful to have a clearer steer on the Government's intentions with regard to the acquisition of carbon credits since at present it is unclear whether these will initially be offered free or whether there will be a competitive auction. Regulations will also provide essential details about the administration of trading schemes. Speedy clarification of such fundamental details is vital since participants and financial markets, who it may be assumed will play a key role in the logistics of trading schemes, will need as great a lead time as possible in order to make necessary preparations. Without further clarification it is likely that essential preparation will be delayed and, as a consequence, it will take longer for any beneficial outturn to be realised. Without these details it is difficult for an organisation such as the City Corporation to evaluate the full potential effect of the Draft Bill at this stage.

LOCAL CLIMATE CHANGE PLANNING

8. In light of the Draft Bill's assumption that carbon emission reduction should be evaluated on a national basis, the Committee might like to note the contribution which can be achieved at a local level. The City Corporation has taken voluntary steps to reduce its "carbon footprint". It has, for example, purchased significant amounts of "green" renewable energy (including hydro and wind power) or from efficient production means such as combined heat and power (CHP) sources. The value of these contracts was in excess of £5 million or 70GWhs per annum and includes the City Corporation's major sites, such as Guildhall, Mansion House and the Central Criminal Court. In addition, it is perhaps worth noting that the City Corporation has made considerable use of expertise in the carbon offset market. In 2006, for example, the City Corporation participated in a carbon offset project which manufactures high efficiency wood burning stoves for use by South African communities. While the City Corporation accepts that valid questions do remain about the unregulated voluntary offset market, the City's experience suggests that carbon trading can have a positive environmental impact and can bring wider social and economic benefits. Effective local results may, it seems, be achieved without compulsion.

9. Insight gleaned from the City's ventures suggests, therefore, that there is a balance to be achieved between compulsory and voluntary action. While, therefore, there may be a case for national compulsory targets, the case is not necessarily made out for the same approach at a local level. To this end, the City

⁸⁰ "Emissions Trading and the City of London". September 2006.

Corporation welcomes the Committee's recent announcement of a web forum to accompany the instant inquiry as one route by which local governmental bodies can make their concerns known, particularly since there appears to be a strong case for an enhanced role for schemes which operate at a sub-national level. Bolder use of carbon offsetting could bring economic and social rewards to London and elsewhere, for which reason it is surprising that no mention is made in the Draft Bill of the role of governmental bodies below the national level in relation to carbon dioxide removal. It is, in particular, unclear how local offset projects, such as those undertaken by the City, are intended to integrate with the overarching national scheme.

10. Further, given the Draft Bill's requirement for the Secretary of State to report periodically on an assessment of the risks posed by climate change for the UK alongside proposals for UK-wide adaptation, it is perhaps worth pointing out that the City Corporation was the first UK local government authority to develop a Climate Change Adaptation Strategy.⁸¹ This strategy has identified the local priority risks associated with climate change and proposes adaptation measures which are designed to ensure that the City infrastructure and services cope with a changing climate. There could be case for the Draft Bill, on its face, to present a more robust case than at present of the benefits of a fully-developed strategy to address climate change which includes *inter alia* local and regional adaptation schemes.

11. The City Corporation would therefore welcome a clearer steer on how the Government proposes that local adaptation measures should sit alongside the national mitigation measures proposed in the Draft Bill. The Draft Bill should arguably sharpen its focus on adaptation since, as the City's experience suggests, this is one area in particular where governmental bodies below the national level can make a significant positive impact on the UK's carbon emissions. There is a risk that if the position of such bodies is not clarified, a national scheme perceived as inflexible and detached could hinder support for, and engagement with, the aims of the legislation.

COMMITTEE ON CLIMATE CHANGE

12. The City Corporation broadly welcomes the approach taken by the Draft Bill to the Committee on Climate Change and its potential membership. There is a strong case for the existence of a body independent of Government with the responsibility for monitoring, analysing, evaluating and reviewing the UK's progress towards its statutory emission reduction target. The Draft Bill's move to embrace technical experts is undoubtedly correct, since they will have invaluable knowledge and the Climate Change Committee will need to harness a wide spectrum of skills encompassing economic analysis and forecasting, business competitiveness, financial investment and emissions trading if it is to succeed in its task. To this end, members of the Joint Committee might like to reflect on whether the UK has at present an adequate complement of professionals with the requisite technical and engineering expertise. Joint Committee members might, for instance, wish to consider whether there is a case for the Draft Bill to encourage UK higher education institutions to develop tailored, skills-based courses in order to address the perceived shortage of skills which the UK will require.

13. Members might also wish to consider whether the scope of the Climate Change Committee's remit is too limited. It extends to advice on the respective contributions made by sectors of the economy to carbon emission reduction, whether covered by trading schemes or not, but no reference is made by the Draft Bill to the contributions made by local governmental organisations. In order to address this possible imbalance of representation there may be the case for the inclusion on the Committee of representatives of governmental bodies below national level, particularly where they have experience which is directly relevant. If this is not accepted, the Government's present route might render the emission reduction figures susceptible to misinterpretation and, further, there would be little incentive for sub-national government actively to reduce its carbon emissions. There is, therefore, a risk that this might hinder local engagement with the scheme and threaten its overall effectiveness.

May 2007

Memorandum by the Natural Environment Research Council (CCB 47)

1. The Natural Environment Research Council (NERC) is one of the UK's seven Research Councils. It funds and carries out impartial scientific research in the sciences of the environment. NERC trains the next generation of independent environmental scientists. Its three strategic research priority areas are: Earth's life-support systems, climate change, and sustainable economies.

2. Details of NERC's Research and Collaborative Centres are available at www.nerc.ac.uk. NERC supports, jointly with the Engineering and Physical Sciences Research Council (EPSRC) and the Economic and Social Research Council (ESRC), the Tyndall Centre for Climate Change Research, and many of NERC's other Research and Collaborative Centres conduct research in this area.

3. NERC's comments are based on input from Swindon Office staff.

⁸¹ "Rising to the Challenge—The City of London Corporation's Climate Adaptation Strategy". January 2007.

INTRODUCTION

4. NERC welcomes the opportunity to contribute to the Committee's inquiry into the draft Climate Change Bill. As an independent Non-Departmental Public Body (NDPB) with a primary remit to fund and carry out research, and a linked remit to ensure that research findings are made available to policy makers, we are not able to comment on all the issues raised. NERC has also provided evidence to the corresponding Environment, Food and Rural Affairs Committee inquiry.

What the main aims and purposes of the Bill are and why it is needed; and To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed

5. It is clear from the scientific evidence that to avoid dangerous climate change, efforts will have to be made to reduce greenhouse gas emissions.⁸² Although it is immaterial whether reductions are achieved by compulsory or voluntary action, there are at least two (linked) reasons why greater certainty about the extent to which reductions will be made, and the trajectory of the emissions between now and 2050 (and beyond) would be beneficial, if indeed the Bill could provide such certainty. The first is that estimates of the level of carbon dioxide (CO₂) emissions that should be achieved by 2050 to keep the atmospheric CO₂ concentration within "safe" limits assume a downward trajectory in the meantime that limits the cumulative CO₂ emissions accordingly. The second is that unless the cumulative emissions can be accurately predicted, it will not be possible to accurately predict the global average temperature increase or other climatic effects. Accurate predictions are essential if decision makers are to be able to plan appropriately (ie adapt) for the long term.

Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour

6. Not within NERC's remit.

Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence

7. The evidence on climate change shows that CO₂ is the greenhouse gas whose atmospheric concentration shows the closest correlation with global average temperature. Climate sensitivity is defined as the global average surface warming following a doubling of CO₂ concentrations. The increased concentration of other gases (especially methane) is also regarded as significant, but there may be less scope to reduce emissions of these gases, since they come to a large extent from diffuse sources. Emissions of methane may increase as a result of feedback effects, e.g. the melting of permafrost in peatlands and the destabilisation of undersea methane hydrates. It is important that the relative contributions of the various greenhouse gases are kept under review, and that the latest science is fed into legislative debate.

8. Although there are still uncertainties in the calculations linking CO₂ emissions and temperature, the 60% emissions reduction target proposed in the Draft Bill would not appear to be adequate to achieve the EU aim of not exceeding a 2°C temperature rise. The IPCC Fourth Assessment Report Working Group III Summary for Policymakers, published on 4 May 2007⁸³, includes a table (Table SPM.5) of scenarios which indicates that a 50–85% cut in global CO₂ emissions (relative to 2000 emissions—which in the UK were only slightly below those in 1990) by 2050 would have a reasonable chance of keeping the global average temperature increase to 2.4–2.0°C only if global CO₂ emissions peak by 2015. Tyndall Centre researchers have calculated that a 30% chance of not exceeding the 2°C threshold would require the UK to cut its total carbon emissions by 70% by 2030 and by about 90% by 2050.⁸⁴

9. Researchers at the Tyndall Centre have also argued strongly that emissions from international aviation and shipping should be included in the calculations—and be subject to the same reduction targets.

⁸² "Avoiding Dangerous Climate Change" Schellnhuber HJ (ed) www.defra.gov.uk/environment/climatechange/research/dangerous-cc/pdf/avoid-dangercc.pdf

⁸³ *Climate Change 2007: Mitigation of Climate Change* www.ipcc.ch/SPM040507.pdf

⁸⁴ *Tyndall Briefing Note* March 2007 www.tyndall.ac.uk/publications/briefing_notes/bn17.pdf

What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of 5 year carbon budgets and interim targets represents the most appropriate way of doing so.

10. As indicated above, the emissions trajectory between now and 2050 (and beyond) is important because it determines the *cumulative* CO₂ emissions—which are what determine the atmospheric concentration. The Draft Bill includes only two targets, and although there would be scope in the secondary legislation to specify a carbon budget trajectory consistent with those targets, there would also be scope to allow emissions to remain high in the earlier and intervening periods, resulting in much higher cumulative emissions than under a straight-line trajectory.

The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target

11. It is not clear whether by carbon sequestration the Committee is referring to Carbon Capture and Storage (CCS) technology or more generally to any method for sequestering carbon, for example in trees. NERC's British Geological Survey is involved in research in support of CCS as a method of sequestering CO₂ from point sources such as power stations. In effect, the CO₂ would not be emitted, and the amount should logically count as a reduction.

12. It is not within NERC's remit to comment in detail on the issue of credits from overseas investment projects. However, as we stated in our evidence to EFRACOM, there are arguments that because the UK's trading and consumption patterns result in substantial "externalisation" of GHG emissions (and of other environmental impacts), such that we are probably responsible for more than the claimed 2% of global GHG emissions (paragraph 3.15 of the consultation document), the UK should in any case be working to reduce emissions outside the UK—as well as domestic emissions.

Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments

13. NERC thinks that the Committee should include expertise in climate modeling (as a specific component of climate science), risk assessment, carbon budgeting, ecosystem services and resource valuation, sustainable development, and international affairs. The reference to energy production and supply could helpfully emphasise energy efficiency and use reduction; there might also be a case for specific knowledge of transportation, construction, agriculture and other industry. An understanding of behavioural psychology in many of these areas (and those listed in Schedule 1) could be beneficial. Provision could be made to capture expertise in some of these areas on sub-committees rather than the main Committee.

14. NERC would welcome an opportunity to comment on the selection of members. We wonder whether there should be a limit on the period for which the chair and members would serve, as would be the case for most advisory committees.

15. NERC is surprised that the Committee would not necessarily be asked to advise on the targets in the Bill, ie that its remit (unless asked for more) appears to be restricted to providing advice on the pathway to those targets, not on the targets themselves.

16. We welcome the implication that the work and advice of the Committee would be transparent, and regard it as particularly important that, since the Secretary of State would apparently not be obliged to accept the advice of the Committee, the advice be made public.

17. NERC welcomes the proposal to provide resources for the Committee to, for example, carry out or commission research (Clause 23(2)). We hope that the Committee and its Secretariat would, like Defra, seek to build links with all parts of the research community relevant to the advice and reporting with which the Committee is tasked. We would expect it also to communicate with the relevant Government Departments, not least to avoid duplication of effort.

The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism

18. Not within NERC's remit.

How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations

19. Not within NERC's remit.

Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets

20. As stated under point 4 above, the 60% emissions reduction target proposed in the Draft Bill would not appear to be adequate to achieve the EU aim of not exceeding a 2°C temperature rise.

How the contents of the Bill will affect international climate change activity

21. No comment.

Whether the delegated powers contained within the Bill are appropriate and adequate

22. Not within NERC's remit.

May 2007

Memorandum by Water UK (CCB 48)

1. Water UK is the representative body for the regulated water businesses in the UK. We are a policy-based organisation and represent the industry's interests with Government, regulators and stakeholders in the UK and in Europe.

2. The water industry is at the forefront of climate change as our raw material is directly dependent on the natural environment.

3. Climate change is already impacting impact on the UK water industry with respect to its operations (both water and wastewater) asset serviceability and maintenance and its long term strategic planning and investment decisions. Key impacts include:

- An increase in the intensity, severity and frequency of extreme weather events such as droughts, storms and floods.
- Reduced availability of water in rivers, reservoirs and aquifers.
- Less availability of water resources will also mean lower quality in some cases due to reduced dilution of pollutants.
- Existing sewerage systems were not designed to take climate change into account. This means that more intense rainfall is likely to exceed the capacity of parts of the network and cause local flooding.
- Water quality problems caused by run-off taking nutrients and pesticides from agricultural land and transferring them into rivers and lakes for example.
- Impacts on the structure and operation of dams and reservoirs, eg from increased siltation and slippage.
- Pipe systems for both drinking water supply and sewerage will be more prone to cracking as climate changes lead to greater soil movement, as a consequence of wetting and drying cycles.
- Assets on the coast or in flood plains will be at increased risk from flooding, storm damage, coastal erosion and a rise in sea level.
- Colour and odour problems will result from higher temperatures and more intense rainfall events.
- Demand for water is likely to increase.
- Climate change not only has environmental and social consequences it also has financial and economic impacts. Climate change threatens the economic stability of and desirability to invest in the water sector.

4. Companies are now adapting their business and investment plans to minimise the effect of climate change on consumers. Examples include:

5. STRATEGIC MEASURES

- Assessing the impacts of climate change on all areas of asset management and operation.
- Using a common set of climate change scenarios (UKCIP 02).
- Taking account of risk and uncertainty.

- Managing regulator and customer expectations re levels of service.
- Constructing robust asset models for future investment programming.

6. FLOODING

- Reviewing storm overflow storage and operations and sewer design standards.
- Reviewing need to move or replace assets impacted by flooding and coastal realignment.
- Working to agree common design standards for sewers and sewer capacity.
- Identifying need for hydrologic barriers, desalination, alternative sources, etc in face of sea-level rise.
- Working to ensure all significant urban communities have surface water management plans delivered through partnerships with regulators and Local Authorities.
- Reducing siltation of dams.

7. WATER QUALITY

- Additional treatment to meet environmental and quality standards as a result of reduced dilution of wastewater effluent, particularly in low flow periods, flow and temperature changes.
- Working with partners to control pollution at source and deliver multiple-benefit catchment solutions (eg sustainable urban drainage systems, catchment sensitive farming).
- Negotiating and influencing discharge and consent standards to be more flexible.
- Dealing with odour and discolouration.

8. WATER RESOURCES

- Plans to build additional infrastructure, for example winter storage capacity.
- Putting forward water recycling and re-use schemes.
- Improving supply infrastructure—peak demand resilience.
- Improve understanding of groundwater impacts—relocate or new abstractions.
- Influencing demand through water efficiency.

9. OTHER

- Building population, demographic and demand changes into future plans.
- Understanding impact on agricultural outlet for biosolids.
- Protecting health and safety of (outdoor) workers.
- Moving emergency procedures to day-to-day business.
- Implementing measures to manage increased risk of losing power and access to sites from storms.

10. The water industry is energy intensive and is the third largest user of energy in the UK. It contributes to 3% of total energy use in the UK largely through pumping water and wastewater to where it is needed and in treatment to meet strict environmental and health quality standards. Achieving these standards is very energy intensive. The water industry is working with others to strike the right balance between these standards and the need to reduce energy consumption to mitigate the impacts of climate change.

11. The industry is responsible for approximately 4 million tonnes of greenhouse gas emissions (CO₂ equivalent) every year. That's less than 1% of total UK emissions but is rising gradually year on year. Whilst the industry is getting more efficient at abstracting, treating and supplying water and wastewater services, population and consumption growth, along with increased standards are driving energy use up.

12. The industry is working on ways to improve how we measure our carbon footprint—we aim to have a common accounting methodology in place soon. All companies are also producing or implementing carbon management plans that will identify opportunities for improved carbon management across the business.

13. In addition, the industry:

- Was one of the first to report its energy use and greenhouse gas emissions on a sector basis.
- Uses renewable energy for about 14% of its energy needs, around half of which is generated on site.
- Is committed to energy generation and recovery systems in waste water treatment and increasing the recycling of biosolids to land.
- Has undertaken a range of energy efficiency projects, examples of which can be provided on request.

- Is implementing and exploring the potential for more sustainable water and wastewater treatment solutions.
- Promotes the more efficient use of water through a range of activities.
- Is working to ensure that new European legislation relating to environmental and water quality takes into account potential impacts on energy use and carbon emissions.
- Is working to ensure that the full price of carbon is factored into all aspects of water industry business planning in a consistent way.

14. Water UK fully supports the aims of the Climate Change Bill to ensure that all major non-domestic energy using sectors have legally binding targets for reduction of greenhouse gas (GHG) emissions. This policy is essential if the UK is to meet existing Kyoto targets and future emission reduction targets.

15. Currently the water industry only has a small proportion of its energy use affected by a legally binding target, via the EU Emissions Trading Scheme (ETS) (well under 5%). Under current Government proposals the remainder of the water industry's energy use would be targeted via the Energy Performance Commitment (EPC).

16. Water UK has identified three potential options for possible industry carbon targets. These are:

- The proposed EPC.
- A water sector Climate Change Agreement (CCA).
- A water sector greenhouse gas (GHG) agreement with voluntary targets agreed with OFWAT as part of the 5-year regulatory cycle.

17. The EU ETS is a “non-starter” as it will not cover a sufficient proportion of the sectors GHG emissions.

18. The proposed EPC is aimed at companies with totally different characteristics to the water industry. In particular the EPC is aimed at large non-energy intensive business and public sectors. The water industry is highly energy intensive, which make it unsuited to the EPC. Most other energy intensive sectors of the UK economy are set GHG reduction targets via the EU ETS or CCAs. These mechanisms provide the flexibility to address sector and company level circumstances to set fair but challenging targets. The water industry deserves to be treated in the same way.

19. We have evaluated two alternative mechanisms. These are (i) a Water Sector CCA or (ii) a voluntary GHG emission reduction target agreed with OFWAT.

20. Both mechanisms offer the chance of a far better way of setting emission reduction targets than via the EPC. At present the water industry does not have a firm view as to which is preferable—this will depend on the details of a specific agreement.

21. Under the current interpretation of Treasury eligibility rules a CCA may not be possible. However, the industry believes that the water sector is so energy intensive that it should be considered alongside other sectors of equal or lower energy intensity that do have a CCA via the PPC eligibility rules.

22. A voluntary arrangement has a number of attractions. In particular it would enable the negotiations to fully take into account the opposing pressures related to improving environmental and water quality and reducing GHG emissions.

23. It is essential that the cost of achieving targets is taken into account in the regulatory review. If the targets are based on “normal commercial rates of return” then no costs need to be passed through, but if the targets are more challenging then cost pass through will be required.

24. It is also important that the status of renewable obligation certificates (ROCs) in relation to achievement of targets is properly established. Without sale of ROCs there are very few commercially attractive opportunities for renewable energy investments.

May 2007

Memorandum by London Councils (CCB 53)

1. London Councils is committed to fighting for resources for London and getting the best possible deal for London's 33 councils. Part think-tank, part lobbying organization, and part service provider, London Councils formulates policies, organises campaigns and runs a range of services all designed to make life better for Londoners. London Councils welcomes the opportunity to make a written submission to the Joint Committee on the Draft Climate Change Bill on this important issue.

2. The evidence below is written in response to the questions and issues being considered by the Joint Committee. London Councils have only commented on those questions and issues considered relevant to local authorities.

3. *What the main aims and purposes of the Bill are and why it is needed*

London Councils notes the main aims and purposes of the Bill, which are to bind Government to CO₂ targets in legislation but considers the Bill needs to be clearer regarding how these targets are to be achieved, and how in particular, local authorities will be expected to help deliver these. New powers for Ministers to make secondary legislation more easily must also be accompanied by a new and fuller consultation processes, to avoid ill-considered regulation.

4. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

The inclusion of the role of local government is critical for the Climate Change Bill to achieve its aims. Local authorities will be one of the key stakeholders responsible for enabling the Government to reach proposed targets, however the Bill completely omits the role of local government. Local authorities are significant land, building and vehicle owners, as well as major service providers and procurers of products and services. For the Government to achieve its ambitious greenhouse gas reduction targets, it needs to provide more certainty to local government, as one of the main delivery agents of Government policy, as to what local authorities will be expected to achieve.

Many local authorities have taken the lead on this issue to date, whether it be through switching electricity supply to green energy providers, introducing new fleet vehicles with the cleanest engines, or setting local planning requirements to reduce carbon emissions. The lack of acknowledgement of this innovative lead from local authorities fails to recognise the role of local leadership in the efforts to combat climate change. Support from the Government to this progressive approach on the issue can only assist local government in continuing to push ahead with policies and initiatives that will help achieve these targets and will provide support to those authorities that require it.

Local government finances are also already very constrained. Therefore, any significant new administrative or compliance role for local authorities need to be appropriately resourced.

5. *What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so*

As noted above, local authorities need to know how Government expects them to help achieve these targets, and whether there will be any punitive action regarding failure to meet targets. Any time-related targets, whether annual, five yearly etc, need to be clearly spelt out by Government, particularly with respect to local government's role in helping to achieve these.

6. *Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments*

London Councils is concerned that the proposed Climate Change Committee does not include membership from local government. Whilst it is important to have technical expertise on this committee, London Councils believes, as already stated, that local government will be responsible for a large part of the implementation of the Bill's targets. London Councils believes, due to the role of local authorities, that they are more than just 'stakeholders' and believe there should be a place on the committee to harness the expertise, as well as represent the concerns and viewpoint of local government.

7. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

As stated previously, London Councils are keen to ensure that the consequences of failing to meet targets are clearly set out in the Bill, as well as who those consequences are directed at.

Memorandum by EEF (CCB 54)

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 memorandum is a submission to the Joint Committee on the Draft Climate Change Bill.

What are the main aims and purposes of the Bill and why is it needed?

3. EEF welcomes the main aim of the bill—the introduction of a long-term framework for climate change policy. Greater certainty over future carbon constraints, and the pace with which they will be introduced, is vital for business planning and investment. The proposed combination of long-range emission reduction targets and five-year “carbon budgets”, set three at a time so as to provide a rolling 15 year view of constraints, would represent significant progress.

To what degree is it appropriate to legislate regarding carbon targets and budgets and how should a balance between compulsory and voluntary action best be achieved and assessed?

4. To date, climate change policy has lacked a sufficiently long-term outlook. The legislative framework proposed in the Bill has the potential to facilitate the development of more cost-effective climate change policy and establish a more conducive investment environment for low-carbon products and services. However, given the forty year time-horizon, the targets and carbon budgeting process will need to be sufficiently flexible to respond to significant changes in circumstances.

5. EEF supports the approach proposed in the Bill—ie the introduction of a statutory, economy-wide limit, on carbon emissions targets without specifying the nature of the policy instruments which will be implemented to achieve those targets. The appropriate balance between compulsory and voluntary climate change measures is best assessed on a case-by-case basis.

Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% reduction target is adequate, based on the most recent appropriate evidence

6. EEF supports the approach proposed in the Bill—an initial focus on carbon dioxide emissions coupled with the provision to introduce targets for other greenhouse gases at a later date. Carbon dioxide is by far the most significant greenhouse gas and the one in which reducing emissions has proved most challenging. Therefore, a significant reduction in carbon dioxide emissions would represent a major contribution to climate change mitigation.

7. The “adequacy” of the 60% target is difficult to assess given the complexities and timescales involved. An accurate understanding of the environmental impact, technical feasibility and economic viability of the target is not possible several decades ahead. It may transpire that the target is too high or too low as the science and economics of climate change develops over the coming decades.

8. Achieving a 60% target would represent a radical transformation of the economy, make a major contribution to climate change mitigation and is in line with the level of reductions from developed countries advocated in the Stern Review. Therefore, it would appear a reasonable starting point around which to base long-term climate change policy.

9. When establishing a forty-year policy framework designed to stimulate behavioural change, a delicate balance needs to be struck between certainty and flexibility. There must be sufficient certainty to provide a stable investment environment and stimulate behavioural change. But also sufficient flexibility to ensure the framework remains responsive to major changes in the economics and science of climate change.

10. EEF welcomes the proposed “review clauses” (ie the provisions enabling the targets to be revised where there have been significant developments in scientific knowledge about climate change or in international law or policy). However, legislators should consider whether the circumstances under which they can be activated are sufficient. In particular, whether there is a case for an economic “trigger” (ie a provision within the Bill to review, and where necessary amend, the targets where there are significant developments in the economics of climate change).

11. Circumstances which might warrant a review of the targets include significantly slower or faster technological development than anticipated and a realisation that the economic impacts of climate change have been significantly over- or under-estimated. Government needs to retain control of climate change policy by maintaining sufficient flexibility to adjust the targets in light of major changes in economics of climate change. Without such a provision unnecessary costs might be occurred, opportunities for cost-effective abatements missed and avoidable climate change-related damage incurred.

12. EEF fears that a framework built around long-range targets which are completely inflexible to major changes in economic circumstances might not deliver the stable and credible long-term investment environment the Bill is seeking to introduce. The rationale for the review courses is to avoid the need to avoid re-opening the entire framework in response to significant changes in circumstances. EEF believes that the lack of an economic “trigger” would increase the probability of the legislation being revisited in the future and undermine confidence in its long-term stability.

13. However, were an “economic trigger” introduced it would need to be carefully designed and exercised with caution to avoid undermining confidence in its stability, although this is equally the case with the two existing “triggers”.

What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represent the most appropriate way of doing so?

14. Government will need to be flexible enough to respond to changing circumstances and allow emission reductions to occur when and where they are most cost-effective.

15. EEF believes that there could be considerable advantages to phasing in emission constraints gradually over time. First, technological progress should lower the cost of existing abatement options and introduce new ones. Second, as the economy grows, society’s capacity to bear the cost of abatement and deliver emission reductions will increase (i.e. more resources will be available for abatement and abatement costs will represent a smaller proportion of GDP). Finally, policies can take time to have an effect. For example, policies designed to change the way in which individuals and households use energy have proven very challenging. However, these potential advantages would need to be balanced against the cumulative concentration of carbon in the atmosphere.

16. The rationale for five-year budgetary periods is strong. It provides a degree certainty for business enables the yearly fluctuations in emissions drivers to be managed and is compatible with the timescales of existing international agreements.

17. Setting five-year carbon budgets, three at a time, will provide a fifteen year view of the level of carbon constraint in the economy. The greater certainty provided by such a framework will help businesses to plan, manage their emissions and invest in abatement measures cost-effectively.

18. A five-year budgetary period will have sufficient flexibility to accommodate the inevitable fluctuations in emissions drivers (eg energy prices, weather and economic growth). Over a five year period, trends in such factors should be relatively stable. Yearly budgets, in contrast, would run the risk of being missed on account of unpredictable fluctuations (e.g. weather-related energy consumption). This would increase the probability of needing to borrow regularly from the next budget.

19. The major, climate change related, international agreements currently in place (ie the United Nations Framework Convention on Climate Change and the EU Emissions Trading Scheme) operate on five yearly cycles. Setting five-yearly budgets will enable developments in these agreements to be factored into UK policy more easily than would be the case with a different accounting period

The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target?

20. EEF believes that the option of meeting domestic targets through carbon credits derived from abatement overseas is essential. Emissions should be reduced where it is most cost-effective to do so. Therefore, the legislation should not place an arbitrary limit on the degree to which overseas credits can be used to meet carbon budgets. Otherwise cost-effective opportunities to reduce carbon emissions might be missed. EEF supports the Bill’s approach whereby determining the appropriate balance between domestic and overseas emission reductions will be an exercise in judgement by Government with the advice of the Committee on Climate Change.

21. The value of overseas investment projects should not be underestimated. As well reducing global emissions, such projects result in the transfer of financial resources, and potentially environmental technologies, to the developing world and actively engage other members of the international community in climate change mitigation.

22. However, whilst flexibility should be retained over the quantity of overseas credits which can be used, only credits of the comparable quality to domestic abatement should be eligible. For overseas credits to be used, assurances must exist that emission reductions associated with such credits are genuine, sustainable and fully verifiable.

Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments?

23. EEF welcomes the general philosophy behind the composition and appointment of the Committee on Climate Change (the “Committee”)—ie that it is composed of independent experts rather than elected representatives of stakeholders. This is vital to ensure the Committee’s independence from capture by sectional interests. In addition, it is appropriate that the Committee is an advisory rather than a policy making role. The independence of the Committee from policy-makers could be open to question if it were to set carbon budgets and assess achievement against them.

24. However, EEF believes that the Committee’s advisory role should be extended to include advising government on the respective contributions towards meeting a carbon budget which each sector of the economy should make. Ensuring that all sectors of the economy play a full part in reducing emissions will be essential to ensuring that environmental objectives are achievable and met as cost-effectively as possible.

25. Similarly, as part of its annual progress report, the Committee should be tasked with advising government on whether or not it believes that the 2020 and 2050 targets remain appropriate and, if not, on what grounds.

26. To ensure transparency, terms of appoint of its members and any guidance or directions issued to it by the Secretary of State must be a matter of public record.

27. Access to sufficient modelling and forecasting resource will be essential if the Committee is to effectively scrutinise government emission forecasts, progress reports and carbon budget proposals from an informed position.

How the provisions of the Bill are compatible or appropriate within the context of the European Union Targets?

28. The interim target range (ie 26% to 32%) would appear to be compatible with the European Union target of a minimum reduction of 20% by 2020.

How the contents of the Bill will affect international climate change activity?

29. Ultimately, the value of the Bill in driving forward international policy will depend on how effectively it is implemented. The UK will need to prove that it can implement a policy framework which delivers economically sustainable emission reductions in order to act as an attractive example to the rest of the international community. A rigid framework, with insufficient flexibility to respond to changing circumstances and an overly prescriptive approach to where emissions can be reduced, would not constitute an attractive model.

Whether the delegated powers contained within the Bill are appropriate and adequate?

30. The implications of the proposed “enabling powers” are significant—empowerment of the Secretary of State to introduce an unlimited number of trading schemes, at virtually any level of the economy, through secondary legislation. As a consequence, such powers would need to be exercised with extreme caution and maintaining the requirement for parliamentary approval (via “affirmative resolution”) is essential.

31. EEF welcomes the limitation on the proposed enabling powers whereby only schemes in which allowances are allocated free of charge can be introduced via this route. Trading schemes in which allowances are not allocated free of charge could have significant financial consequences for participants and should be subject to the higher level of scrutiny associated with primary legislation.

May 2007

Memorandum by the Renewable Energy Foundation (CCB 57)

ABOUT REF

1. REF is a UK registered charity which aims to inform policy debate by providing primary research and information on renewable and alternative technologies. The Foundation is supported by private donations, and has no corporate membership or political affiliation. We are part of a growing national consensus that believes the United Kingdom’s energy policy is unbalanced and inconsistently planned and we wish to encourage the creation of a structured policy which is both ecologically sensitive and effective.

ABOUT THIS CONSULTATION RESPONSE

2. We are grateful for the opportunity to share our particular concerns and suggestions with the Committee. We have not attempted to answer all the questions posed in the consultation, but have instead selected those which most closely relate to our major concerns.

1. *What the main aims and purposes of the Bill are and why it is needed*

3. REF feels that the aim of the Bill should be to simplify and unify the plethora of climate change legislation into a single, focused strategy which concentrates on reducing the UK greenhouse gas emissions in an accountable and cost effective manner. The Bill should legislate for a single carbon-price market which would remove existing distortions in the way emissions savings are being targeted. The Bill should recognise the likelihood that adaptation will be necessary and ensure sufficient resources are directed to this end.

4. REF is profoundly concerned that the various mechanisms in existing and proposed legislation which have been designed to effect greenhouse gas abatement are too complex, too various and lack transparency and consistency. For example, among others, there are the EU Emissions Trading Scheme (EU ETS), Renewables Obligation (RO), Energy Efficiency Commitment (EEC), Carbon Reduction Commitment (CRC) and Climate Change Agreements (CCA).

5. The public sees these strategies as a mystifying range of acronyms for something which needs to be simple to have any chance of succeeding. It is important to identify a single, easily comprehensible goal; we believe this should be “to achieve the maximum reduction in the UK greenhouse gas emissions for the minimum amount of expenditure”. We believe that all the above schemes should be united into a single scheme with a simple consistent measure to benchmark success or failure. That benchmark should be tonnes of CO₂ abated, with its associated cost.

6. The usefulness of this particular benchmark was illustrated in the OFGEM response to the consultation on the Renewables Obligation 2006 in which the cost of achieving carbon reductions under the different policy instruments was compared.

| <i>UK Climate Change Policy Instrument</i> | <i>Cost of abating 1 tonne of carbon</i> |
|--|--|
| EU Emissions Trading Scheme | £12–£70 |
| Climate Change Levy | £18–£40 |
| UK Emissions Trading Scheme | £66 |
| Renewables Obligation | £184–£481 |

7. This shows that the existing range of policies has the unintended consequence of disproportionately rewarding CO₂ savings via the Renewables Obligation compared with reducing CO₂ emissions at source. Businesses have an obligation to their shareholders to choose the most profitable option and the current policies disincentivises the very activity which can make the biggest difference for the least cost to the general public.

8. The sort of disparity displayed above will not encourage public support for these policies. It is patently unacceptable to expect the public to spend disproportionately on some schemes which demonstrate limited cost-effectiveness in reducing carbon emissions. Thus, we believe the bill should include measures to ensure there is a single carbon-price market.

6. *Whether the proposed Committee on Climate Change will be able to provide truly independent advice on budgets and cost-effectiveness, given the designated resources at its disposal and the extent to which it may find itself dependent on departmental forecasts and analyses (eg the DTI energy model)*

9. We believe that, unfortunately, the answer is *no*; this failing needs to be rectified.

10. Our first concern is the composition of the committee. Certainly, the draft bill is correct to state that the committee should be independent of the stakeholder groups. However, we note that the list of expertise desirable in the composition of the committee omits the heavyweight scientific disciplines which we feel should be represented, including, particularly, chemists, engineers and statisticians. It has been our experience that well-intentioned emissions-savings initiatives have had limited or even negative effects when the appropriate scientific and engineering advice has not been sought.

11. Achieving and verifying reductions in carbon emissions across a wide range of different industrial activities will be technically difficult. There is scope for substantial financial rewards built into the proposed system of issuing, retiring and trading carbon credits. It will require comprehensive and transparent auditing, analogous, but significantly more difficult, than financial audits. After all, there is usually a paper trail for money moving through the financial system; conversely, it is not possible to trace CO₂ in the atmosphere back to a specific industrial source. It should not be forgotten that financial auditing has a relatively long history, but fiascos such as the Enron case still occur. Carbon auditing is in its infancy and needs to get up to speed very quickly. This will need a great deal of scientific expertise and invigilation.

12. Our second concern relates to the dependence on departmental data. Obtaining reliable and useable data from Government bodies is not always straightforward, and so dependence on such material is inadvisable unless it can be shown to be managed and audited by an independent body. The public is well aware that it is very easy for a Government to hide behind large volumes of data published in such a way that they are inaccessible for scrutiny.

13. Consequently, we would suggest that committee needs to take “ownership” of the data necessary to verify emissions savings and the profits and costs associated with these savings, and that these data need to be appropriately managed within the public domain. We suspect that the proposed budget is unlikely to be sufficient to cover the “strong analytical skills base” required to do this effectively.

10. *How the contents of the Bill will impact on international climate change activity*

14. If the Bill sets out a simple and economical mechanism for ensuring and, most importantly, verifying CO₂ emission reductions, it may be a useful paradigm for other countries to follow. However, this is nearly irrelevant. The UK should set its own house in order, but with wisdom. Given the seriousness of the potential outcome, extreme care should be taken not to misallocate funds to ineffectual endeavours. Adaptation needs to be considered in parallel with mitigation and REF feels that the limited resources need to be husbanded carefully.

May 2007

Memorandum by Eaga Plc (CCB 61)

INTRODUCTION

The draft Climate Change Bill will strengthen and underline the Government’s commitment to dealing with one of the most significant environmental, social and economic challenges of our age. It is essential that steps are taken to ensure maximum effectiveness, but also to ensure that there is capacity to recognise and cater for all groups equally within the legislative framework.

We are submitting evidence chiefly from our experience in helping the Government to meet its existing statutory target on fuel poverty; as the primary delivery agent in providing material assistance to households across the UK. There are significant synergies between the statutory fuel poverty targets and what will now be statutory climate change targets—indeed eaga have tangible experience of these synergies on a daily basis. As the UK’s largest residential energy efficiency provider, we are well placed to underline where synergies can be maximised and efficiencies realised.

We are also charged with ownership of the budgets of the main fuel poverty programmes—especially Warm Front in England, currently running at some £350m per year. This gives us experience and insights into the unique and difficult tensions that can occur between carbon saving agendas and the drive to ensure all homes are adequately and affordably heated. These tensions must be managed.

Referring to the Committee’s terms of reference, this note thus deals with themes 2, 6, 7 of the Committee’s inquiry and some of the issues in implementing the proposed targets.

EAGA’S ROLE

Founded in 1990 to administer the Home Energy Efficiency Scheme, eaga provides services, products and solutions that address the social, environmental and energy efficiency objectives of Government and the private sector throughout the UK, as well as in North America, India and the Republic of Ireland. We now employ in excess of 3,000 people, and are the largest residential energy efficiency provider in the UK, installing energy efficiency improvements every minute of every working day. Our experience in the energy efficiency and fuel poverty sectors means that we are well placed to respond on these issues.

ADDRESSING FUEL POVERTY IN THE BILL

It is imperative that the Government strikes the right balance between achieving statutory commitments on fuel poverty and plotting a course to meet statutory commitments on climate change. There are some references within the Bill to the social challenges (notably in Clause 5 and Schedule 1), but these could be made stronger.

Whilst the provision currently outlined would mandate the Secretary of State to be mindful of fuel poverty considerations in setting carbon targets, there is no explicit reference to the statutory fuel poverty commitments, and having to take these into specific consideration. Eaga would be wary of “chasing” statutory carbon targets with policies that may necessitate fuel price increases and thus put pressure on statutory fuel poverty commitments.

The knowledge and expertise of the fuel poverty lobby is likely to be under-represented on the Climate Change Committee. Experience and knowledge in these areas should be a separate requirement and should not be a subset of knowledge of climate change policy. Eaga would recommend using the Fuel Poverty Advisory Group for this purpose and refer to their response to this Committee for more information on their role and experience.

May 2007

Memorandum by Christian Aid (CCB 64)

1. Christian Aid welcomes this opportunity to give evidence to the Joint Committee on the draft Climate Change Bill. Christian Aid works through partnerships with local organisations in some of the world's most vulnerable communities in more than 55 developing countries. In those communities—whose contribution to today's climate problems are insignificant in comparison with those of wealthier states—climate change is already contributing to life and livelihood threatening problems and undermining development gains achieved to date.

2. Our submission will focus on three key areas: the importance of an adequate reduction target for emissions and of monitoring progress to meet that target; the need for UK based and registered business to declare its emissions; and concerns about the buying in of credits from overseas to meet the UK's emissions reduction targets. This responds particularly to questions 1, 5, 10 and 11 posed in the Committee's call for Evidence.

Setting an adequate emissions reduction target

The need to act

3. The organisations that Christian Aid works with are already responding to changes in the environment consistent with the expected impacts of raised average global temperatures. It is the poorest people who are on the frontline in the face of climate change—their livelihoods are dependent on subsistence agriculture, while the places in which some of them live are prone to drought, high winds or rising sea levels. They are the least responsible for greenhouse gas emissions, but, because of poverty, isolation and political marginalisation, they are also too often the least equipped to adapt.

4. For instance, in Northern Kenya droughts affecting pastoralists have increased fourfold in the last 25 years, in the most recent drought people lost up to 95% of their livestock. In rural areas of Tajikistan groundwater and subsoil water is reducing and hotter temperatures have burned fruit and cotton crops, leading to widespread income losses and increasing conflict. Cultivation periods for farmers in Bolivia have reduced from six months to four months of the year and are increasingly uncertain as a result of changing weather patterns including less rain, hotter temperatures, unpredictable rainfall patterns, and more intense hailstorms that damage crops.

5. And this is all happening with a global average temperature rise of just 0.76°C since pre-industrial times (approx 155 years). If carbon emission rates continue to rise in the next 100 years as they are now, further warming of up to 4°C by 2100 is predicted.⁸⁵ A rise of 2°C from pre-industrial temperatures (or a further 1.2°C above current average temperatures) is widely considered the temperature threshold within which catastrophic consequences may largely be avoided.⁸⁶

6. A rise above 2°C could see up to 4 billion people could be experiencing growing water shortages. The threshold for the melting of the Greenland ice-sheet is likely to have been passed, and sea-level rise will accelerate. Above 2°C lies the greater danger of “tipping points” for soil carbon release and the collapse of the Amazon rainforest.

7. With a 2°C rise the frequency of bad harvests is predicted to double or triple. There are estimates of up to \$5 billion losses in dryland agriculture in the United States alone. Changes in rainfall—with chaotic patterns of alternating flood and drought—would add to falling crop yields across Southern Africa, leading to catastrophic crop failures of up to 80%. The North African Mahgreb and Sahel regions are predicted to see a 40% decrease in rainfall. Nicaragua could see a 30% decrease in rainfall. In India yields of the staple crops, wheat and rice, might fall by 10%.⁸⁷

⁸⁵ IPCC AR4, February 2006.

⁸⁶ *High Stakes: Designing Emissions Pathways to Reduce the Risk of Dangerous Climate Change*, Paul Baer with Michael Mastrandrea, IPPR, 2006.

⁸⁷ *Impacts of global Climate Change at Different Annual Mean Global Temperature Increases*, Rachel Warren, in *Avoiding Dangerous Climate Change* (ed Schellnhuber) Cambridge University Press, 2006.

An adequate response

8. For Christian Aid, notwithstanding the unavoidable importance of adaptation, the most pro-poor policy on climate change is deep, rapid and sustained cuts in emissions. We welcome the proposed climate change bill and we recognise that in proposing it, the UK government is establishing itself as a leader in action on climate change, as it has previously been a leader in the political debate.

9. By introducing legislation to cap and reduce UK emissions, the government is demonstrating that it is prepared to put its own house in order and show other countries a positive example. It is of critical importance, therefore, that the UK's climate bill is adequately strong and clearly expresses that UK's contribution towards the global aim of keeping global warming below 2°C, giving poor communities and the natural world a fighting chance of surviving climate change.

10. Recent scientific evidence and modelling of emissions scenarios suggest that the UK's domestic contribution to the reduction of global CO₂ emissions ought to reach a reduction of at least 80% over 1990 levels by 2050.⁸⁸ Other industrialised countries must do the same. Developing world emissions must also be limited. If action on this scale is not the aim, then chances of keeping global warming to less than 2°C are slim.⁸⁹

11. As a recognised global leader on climate change, the UK must understand that what it puts into its climate change bill will set a precedent among other countries in Europe and throughout the industrialised world. 60% reductions in rich countries, as part of a global effort to reduce emissions, are now understood to carry a very high risk—in excess of 50%—of exceeding 2°C.

12. Developing world economies must also be allowed to grow as carbon becomes more constrained. As the 2.6 billion people who currently live on less than US\$2 per day struggle to improve the quality of their lives through greater access to energy and employment, the greater the ambition in the rich world to reduce emissions, the more atmospheric space can be afforded to the developing world as it pursues its right to development.

13. The government's existing 60% target comes originally from a recommendation of the Royal Commission on Environmental Pollution's 22nd Report: "Energy—The Changing Climate"—published in June 2000. It is based on stabilising atmospheric concentration at 550 parts per million (ppm) of atmosphere of CO₂ and other greenhouse gases (expressed as CO₂ equivalents or CO₂e). This target is now widely believed to be incompatible with remaining below a 2°C increase.

14. Even a stabilisation goal of 450ppm carries a high risk of exceeding that temperature rise. The challenge, as articulated by the science and the increasingly precise emissions models, is not merely to stabilise emissions but for atmospheric concentration to peak and then decline. This allows for an overshoot to 450 and then a return to levels below 400ppm. This not only requires rapid and deep cuts in emissions but also demands a sustained effort in emissions reductions.⁹⁰ The UK must achieve ambitious emission reductions but it must frontload this effort as much as possible.

15. One recent report suggests that to reduce the risk of exceeding 2 degrees to between 9 and 26%, global reductions must begin no later than 2010 and average 5% per year.⁹¹ Rich countries like the UK must show leadership in this; 5% annual cuts from 2010 would take the UK close to a 40% reduction by 2020.

16. Christian Aid is also concerned about the interplay between carbon budgeting and domestic political cycles. The bill currently proposes five year budgets; this is logical only if international commitment periods are five years in length, demanding that the UK's legal regime meshes with that of the other countries. But political accountability in the UK hinges on shorter cycles, which are unpredictable. It is therefore our view that clear, annual measurement of progress towards the headline reduction target is desirable as it strengthens both accountability and predictability. As a minimum, the bill must establish annual monitoring milestones.

17. The target must also include the UK's share of international aviation and shipping from the outset. Analysis by the Tyndall Centre has found that in 2004, when the Government reported emissions at 150 MtC on the basis of excluding these emissions, the UK's share of international aviation would have added a further 9 MtC and international shipping, a further 5 MtC.⁹² Emissions from the aviation sector in particular are forecast to grow significantly.

18. Ultimately, these sectors must be subject to an international agreement on how their emissions are allocated. But in lieu of this, the UK already uses a methodology to report these emissions as a "memo item" under the Kyoto Protocol and it should employ this same methodology in the calculating its carbon budget under the climate change bill.

⁸⁸ See: Meinshausen, 2006. *What does a 2C target mean for greenhouse gas concentrations? Avoiding Dangerous Climate Change*—Chapter 28, Hare and Meinshausen, 2004. *How Much Warming Are We Committed To And How Much Can Be Avoided?* PIK report 93, Figure 7, page 24. Potsdam Institute for Climate Impact Research, and Baer and Mastrandrea, *High Stakes*, Institute of Public Policy Research, 2006.

⁸⁹ See the recent report of Working Group III, Fourth Assessment Report of the UN's Intergovernmental Panel on Climate Change.

⁹⁰ Baer and Mastrandrea, *High Stakes*, IPPR, 2006.

⁹¹ Baer and Mastrandrea, *High Stakes*, IPPR, 2006.

⁹² *Living within a carbon budget*, p18, Tyndall Centre www.foe.co.uk/resource/reports/living_carbon_budget.pdf

19. **Recommendations:** The bill should specify a 2050 reduction target of at least 80% reductions on 1990 levels. Effort on this target should be frontloaded and the interim—2020 target should be as high as possible. Emissions reductions should also include the shipping and aviation sectors. The bill should also include provision for annual targets or milestones, so reductions average out at 5% reductions.

Trading and overseas credits

20. Carbon trading—the purchasing of credits from elsewhere in order to continue emissions as an alternative to reducing—such as through the European Emissions Trading Scheme or the Clean Development Mechanism is fast becoming a recognised means by which reduction in carbon emissions can be efficiently achieved. The UK's Environment Minister has been quoted as suggesting that up to 50% of the current 60% by 2050 target could be bought in as credits from overseas.

21. Christian Aid welcomes moves to finance clean development in poorer countries, as long as mechanisms are flanked with social welfare and poverty reduction safeguards. But while emissions in countries not bound by Kyoto Protocol caps (non-Annex 1 countries) remain unrestricted, carbon credits from those countries will be almost limitless—reflecting the myriad ways in which emissions reductions can be delivered. “Offsetting” UK emissions by purchasing credits from these jurisdictions will undermine the integrity of UK targets and of the entire climate change bill effort.

22. Were every industrialised country to pursue a similar strategy, efforts to cut emissions globally by increments adequate in meeting the 2 degree challenge would fail. Furthermore, in the absence of a strict cap on emissions outside those with reduction targets under the Kyoto Protocol (Annex 1 countries) supply is likely to be unrestricted, undermining their price and hence underselling poor people's share of the atmosphere and delivering to their communities fewer sustainable development benefits than might otherwise be the case.

23. Credits purchased from other, capped jurisdictions—assuming those regions or countries are committed to similar ultimate reduction targets—are less of a problem. Such transactions could be seen as assisting with the process of adjustment in the economy.

24. In general, in the absence of a comprehensive international agreement, purchasing any significant quantity of credits from jurisdictions where there is not a robust cap on emissions is a dangerous strategy that will not prevent catastrophic climate change. It is therefore incumbent on the UK as the innovator of climate change legislation to ensure that the integrity of the UK's efforts is upheld and that the purchase of credits is severely restricted. The proposed Committee on Climate Change, which Christian Aid believes ought to be independent from government and made up of experts, should be charged with the job of examining the impact of purchasing credits and of recommending the extent to which they can help the UK achieve its target.

25. In future, if an agreement at the global level is forthcoming, the UK may need to reconsider the issue of purchasing credits. Christian Aid is currently developing a reference framework for an international agreement on climate change with US-based EcoEquity,⁹³ with the aim of suggesting ways to resolve the tension between the need to cap global emissions and the need for developing countries to develop and reduce poverty.

26. The reference framework, known as Greenhouse Development Rights (GDRs), suggests that industrialised countries with a high level of both responsibility for the problem (being the historical source of the majority of emissions currently accumulated in the atmosphere) and significant capability to cut cover the cost of reducing emissions (national wealth and relatively even income distribution) have to take on a greater share of the global burden than purely their domestic reductions. This is in line with the UNFCCC's central tenet of “common but differentiated responsibilities and capabilities”.

27. So while the UK generates a relatively small proportion of global emissions within its borders—currently 2.13%—it would, according to this logic, need to be allocated a share of the global mitigation burden greater than this because of its greater wealth and historical responsibility for increasing greenhouse gas concentrations.

28. To achieve this, it could purchase credits from countries with a much smaller or zero share of the global mitigation burden. In other words, credits would be purchased over and above domestic emissions reductions in order to meet the objective of global mitigation. This would create financial flows for clean development from rich countries to poor without compromising the integrity of the climate regime needed to stay below +2 degrees.

29. **Recommendations:** The purchasing of credits to achieve the UK's carbon reduction target must be severely restricted from the outset. The limit should be determined and reviewed by the independent committee of experts established to monitor progress towards the targets set by the Bill and recommend policy measures to help achieve them.

⁹³ See www.ecoequity.org

Supporting private sector action on climate change

30. Even with the introduction of the Climate Change Bill as proposed there remains one clear legislative gap where the UK is ill-equipped to deal with the threat of climate change, and which threatens to undermine many of the aims of the bill.

31. Recently, Christian Aid published a study looking at the CO₂ emissions of FTSE 100 companies. It looked at direct and indirect emissions and made estimates where data was missing. Key findings included:

- only 16 FTSE100 companies report emissions in their annual report or parallel environmental report; and
- only 58% of the most direct and easily identifiable emissions are reported. The “missing” direct CO₂ emissions would be over 190 million tonnes—equivalent to a third of the output of our domestic economy.⁹⁴

32. Despite the increasingly apparent threat that climate change poses and the existence of widely supported standards and voluntary initiatives like the Carbon Disclosure Project, reporting of clear and comparable quantified information about UK companies’ carbon emissions is very much the exception rather than the rule.

33. It is highly alarming that UK companies and those based here for stock market registration are not, in a world poised for comprehensive action on climate change, compelled to be transparent about the extent to which they are adding to the stock of greenhouse gases in the atmosphere. Christian Aid is calling for mandatory reporting standards for UK companies to remedy this. This call is being increasingly taken up by other organisations including businesses, like the members of the Aldersgate Group.⁹⁵

34. Introducing mandatory reporting standards will put UK businesses onto a level playing field, allow them to more easily identify efficiency savings and ways of shifting to low-carbon ways of doing business. Investors and consumers will be able to identify and make low-carbon choices in ways they are unable to do currently. Emission trading schemes as proposed within the bill, and other policy initiatives to cut emissions will become easier to design and implement. The pride of the UK—the London Stock Exchange—could become a global leader in carbon accounting and reporting.

35. There is currently no mandatory standard for the calculation and reporting of even direct emissions (scope 1) and emissions associated with electricity use (scope 2). And yet this is a relatively straightforward task. The climate change bill ought to introduce enabling powers to establish, without delay, mandatory reporting standards for these emissions.

36. In addition, Christian Aid research has shown that hundreds of millions of tonnes of indirect (scope 3) CO₂ emissions that result from the production and consumption of goods and services is currently unaccounted for. The indirect emissions for companies on the London Stock Exchange alone amount to as much as 15% of global emissions. This points to the wider significance of the UK and to the importance of the flow of money through the City of London, which currently significantly adds to but could significantly reduce global CO₂ emissions.

37. Scope 3 emissions, which include emissions from the investments made by banks, from the supply chains of retailers and manufacturers and as a result of the consumption of goods and services are clearly more vexatious to calculate and report than scope 1 or 2. But in order to capture the UK’s total carbon footprint and to assess the risk associated with the UK economy’s total exposure to CO₂ emissions around the world, it is necessary to find common methodologies to ensure estimates of indirect emissions are made.

38. Christian Aid recognises that there is much work to be done in agreeing standards for the reporting of indirect emissions and that in drawing these up, government would have to involve business. However, many leading businesses are already developing such standards and so the bill should establish a clear timetable with an end date for this work.

39. **Recommendation:** The bill must contain enabling powers for the government to enact legislation compelling companies to disclose their direct and energy bill related CO₂ and to work towards the agreement of mandatory standards for disclosure of indirect emission. The committee set up to scrutinise progress towards the target in the bill could oversee the development of disclosure standards, which would be introduced after consultation but within a given period.

May 2007

Memorandum by Euro Environmental Containers (CCB 65)

1. The purpose of the Bill is for existing ethical, sustainable, green technologies to be used both in the private and public sector. Stimulate use by contractors.

Producers and contractors of waste should be equally responsible for sustainable services.

⁹⁴ *Coming Clean: Revealing the UK’s true carbon footprint*, Christian Aid, February 2007.

⁹⁵ *Corporate Carbon Accounting and Reporting*, Aldersgate Group, May 2007, http://www.aldersgategroup.org.uk/public_reports/view_document/3

Currently operators ONLY ask for the end use of the waste product and size of the business. Tenders from the public sector do not realise that size does not matter, because the business becomes self funding.

Then again, prices for clean technologies and services are compared against polluting operations. The answer is clear, there will be a great price difference. Someone has to pay.

Polluting operators need only mention the product is recycled and no other consideration ie polluting method of storage, collection etc is considered.

Such areas can be identified for clean solutions from the sustainable development commission website http://www.sd-commission.org.uk/communitiesummit/show_case_study.php/00171.html

Services for householders must not be restricted to Local Authorities and/or charities.

2. It depends how it is legislated and to whom?

Perhaps obligatory for large organisations based on turnover.

Focus not only on CO₂.

Include methane ie those who dispose of plastic packaging see the dirty picture in the web link for instance. The producer/contractor needs to be accountable thereby the need to use clean technologies (not only for transport/lighting/water which is currently the case).

3. Public feel antagonised by the dictorial approach of Local Government. Recent examples recycling, (bin sensors), parking, public transport/traffic/rail fares etc.

Little thought is given on effect on business but goes around in a circle in “nonsustainable” areas.

Resources are spent in rushing to develop without fully understanding commercialisation relying on media.

Peak fares for travelling. Perhaps event/conference holders will see the decline in attendance not only due to the fares for travelling but also parking. Such costs cannot be justified.

I do not know if issues such as food safety ie folic acid etc. where incorporation of medication in foods is even considered. In reality, I wish to bring to your attention that they are serious Basic Human Rights infringement and these tactics need to be withdrawn—for YOUR BENEFIT!!

4. All saved emission should be included i.e. methane from landfill for instance.

5. Greatest difficulty is if Government tries to set up yet another Body and be authoritative. Incentives for businesses should be through the Annual accounting Environmental/CSR. Integrate this with insurance, tax benefits, publicity (not only for big names). Self certification is a good route (with open books??) Opportunity for direct trading rather than being dictorial. If for instance, there are oil spills, high risk procedures such as e-coli for catering establishments then everyone in the chain needs to be penalised.

6. Overseas credits will encourage investment abroad rather than UK. Investments in UK small businesses need to be rewarded. Emission Categories will be valuable information. Inclusion of all categories with named contributors. Declaration to all contributors must be made when emissions are traded.

7. Establishing Bodies, etc. are barriers contribution and accounting for emissions. Guidelines for calculation should be opening available.

8. I cannot see how one would fail to achieve targets. Fines perhaps ??

9./10. Do not have sufficient information to comment.

11. International climate change—I have contacts with those from the Rainforest and feel on humanitarian grounds this can be extremely beneficial.

12. There is insufficient information to comment. A crucial factor is which elements of the feedback you wish to incorporate and how it is incorporated. If there is misunderstanding or crucial elements are not grasped. Therefore, in my opinion, it is pointless to get outsiders to interpret the feedback. Clarification should be obtained by those who provide the input otherwise the whole exercise is pointless.

Things one tend to forget—outsiders like myself contribute since I at least feel responsible. I do not have any ulterior motives, other than genuine good for humanity (see below).

Those appointed as supposedly consultants or other, in my opinion, do not have sufficient knowledge to accurately interpret this. They are paid and have other interests.

http://www.sd-commission.org.uk/communitiesummit/show_case_study.php/00171.html

This link is evidence of available clean technologies for storage—reclamation—reuse for biofuels of waste cooking oils. They reduce emissions by reducing the number of processes required before the oil is reused as biofuel. Introduces traceability ensuring increased volumes for biofuel. Other benefits include no packaging waste to landfill and related pollution—emissions etc. Commencing with the entire Defence Sector to use these systems including catering contractors such as Eurest, Sodexo, Aramark . . . to name a few.

Interests:

- Commercial for international business growth (by ethically helping others achieve targets—reduce emissions—etc)
- Ability to self fund other innovations for global markets which will reduce emissions.
- Humanitarian—2% or above of all profits to help good causes.

May 2007

Joint memorandum by The Institution of Civil Engineers (ICE) and The Institution of Mechanical Engineers (CIB 67)

THE INSTITUTION OF CIVIL ENGINEERS

The Institution of Civil Engineers (ICE) is a UK-based international organisation with over 80,000 members ranging from professional civil engineers to students. It is an educational and qualifying body and has charitable status under UK law. Founded in 1818, the ICE has become recognised worldwide for its excellence as a centre of learning, as a qualifying body and as a public voice for the profession.

THE INSTITUTION OF MECHANICAL ENGINEERS

The Institution of Mechanical Engineers (IMEchE) is the leading professional body for mechanical engineers in the UK, and the third largest mechanical engineering institution in the world. Today IMechE's membership comprises over 78,000 engineers in more than 120 countries. In addition, IMechE is the UK's qualifying body, under licence from the Engineering Council (UK), for Chartered and Incorporated mechanical engineers and is a UK registered charity, number 206882.

1. *What the main aims and purposes of the Bill are and why it is needed*

The Bill aims to provide a legislative framework for the UK's fight against climate change. While it will be valuable in demonstrating a long-term commitment to the issue, both at home and internationally, ICE and IMechE would urge that much greater focus needs to be given to short-term actions, rather than long-term targets and policy frameworks.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed*

ICE and IMechE believe strongly in the importance of voluntary, "grassroots" commitments to reducing carbon emissions. People taking ownership of their own behaviour regarding such a crucial issue is to be applauded. However, while voluntary action remains a vital part of engaging the public, serious changes in our emission levels must be compulsory.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

The Bill must include empowering local government to take steps to not only provide carbon emission cuts but also empower individuals to contribute to adapting to climate change. Many of the following suggestions can and should be implemented at the local level, with sanctions in place if government-led targets are not met.

The technology exists today to deliver significant reductions in energy demand and associated emissions, but such reductions will only be achieved if consumers and other market participants perceive sufficient reasons to do so.

Improving efficiency is crucial, but if consumers still have the same habits, they will simply do more for the same cost. People need to question why they do something. The same applies to local authorities; specifically, ICE and IMechE would point to the failure to deliver the proposed energy certification of public buildings.

The Government's success in promoting recycling shows that with a consistent message and the correct incentives for local authorities and other intermediaries, real progress can be made in "greening homes and business". There are a number of other areas where rapid progress could be made, especially as homes and non-domestic buildings account for roughly 40% of all UK climate-change emissions.

There is a need to simplify the regulation and incentive structures applying to combined heat and power (CHP); the technologies exist to deliver more CHP capacity but barriers still exist, particularly at the very small and very large-scale levels.

ICE and IMechE encourage Government to introduce a renewable heat obligation, or other mechanism, to promote sustainable heat, including biofuels and CHP. The current renewables policy misses opportunities by focussing exclusively on grid-connected power-generation.

However, the skills-base necessary to maintain and install a high number of small-scale CHP systems may be lacking. The market will address this, so long as there is sufficient incentive and certainty. The Government needs to assist in creating these conditions.

With regards to the Government's stated goal of ensuring that all homes are adequately heated, we encourage the upgrading of thermal performance of housing stock and improving the efficiency of energy-using devices. Such a move would make a significant impact on fuel poverty as well.

ICE and IMechE suggest that the focus should be on proper sustainable communities, decentralised energy production and reducing the need for long-distance travel.

The delivery of low carbon technologies is dependent on innovation and engineering development, which clearly denotes a commitment to R&D. Innovation can be delivered, but we also encourage Government to define its priorities, and offer encouragement accordingly. Any spending on R&D should be focussed on UK specific issues, such as identification of sites for safe geological disposal of CO₂, large-scale energy storage options and small scale CHP.

For successful implementation of any carbon-reducing policy it is necessary that all levels of government, including agencies, must have open and clear communication and co-operation.

4. Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence

These are adequate, as long as met, but ICE and IMechE urge Government not to over-emphasise long-term goals at the expense of immediate (and necessary) cuts now. The "optimal trajectory" of a 60% cut may be a laudable goal, but it may be unrealistic to expect 2050 standards to be same as they are in 2007. This is not necessarily negative—the UK may be ahead of projected cuts by that point.

5. What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so

The evidence from Stern, IPCC and many others before them clearly shows that the optimal trajectory is to try to make as deep cuts in emissions as possible, as soon as possible. This is why actions now are needed, because the sooner we get "ahead of the curve", the better.

6. The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target

Although there is clearly an important role for emissions trading schemes, we believe the focus of the Bill should be on reducing the UK's own domestic emissions. Carbon sequestration, providing the carbon is permanently and demonstrably prevented from entering the atmosphere, should be eligible.

7. Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments

ICE and IMechE believe that the long-term battle against climate change would be best served by being separated as far as possible from the political process, in just the same way as giving independence to the Bank of England separated the ability to set interest rates from the political process. The Institutions would recommend that the Committee be given similar independence and the authority to influence climate change measures, perhaps through the setting of a minimum carbon price or other mechanisms that serve to encourage investment in low carbon solutions across the economy.

In view of the central role of engineering delivering solutions to climate change and evaluating the feasibility of current technologies, the two institutions would strongly urge the Committee to include representation from the engineering professions, wherever possible independent of specific commercial interests. Whilst we acknowledge that "technology" as a theme has been identified, and this may yet accommodate an engineer, we believe a more specific inclination towards the profession necessary, especially as relates to sustainability within the "built environment" and technological adaptation, availability and market readiness.

Overall, the composition of the list is good. ICE and IMechE have concerns, however, that it is somewhat biased towards supply-side solutions, so expertise in public engagement on energy conservation and efficiency would be a useful addition.

8. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

These must be clearly defined. ICE and IMechE would suggest a system of checks-and-balances be put in place to reprimand governments who fail to meet standards; specific suggestions could include direct report to Parliament (either from relevant ministers, Prime Minister or both) as a consequence, with clear political capital at stake.

9. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations*

Devolved administrations must use the powers available to them to contribute fully to the achievement of UK carbon emissions targets.

10. *Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets*

The provisions of the Bill are compatible with EU targets for 2020, providing they are matched by significant and urgent measures to improve energy conservation and efficiency and deploy renewable heat, power and transport technologies much more widely.

11. *How the contents of the Bill will affect international climate change activity*

ICE and IMechE are unsure if the Bill will affect international behaviour, but firmly support that the UK begin taking responsibility for its contributions to climate change immediately. We agree, however, that Defra is correct in the assertion that the UK's policy commitments in this area will benefit the international community. We also wish to stress again the need for R&D, especially as relates to engineering, in developing new technologies to help in the adaptation of climate change. Breakthroughs will inevitably benefit the world, not merely the UK.

12. *Whether the delegated powers contained within the Bill are appropriate and adequate*

The powers seem appropriate and adequate.

May 2007

Memorandum by ABB (CCB 68)

ABB is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impacts. ABB in the UK operates from more than 20 locations nationally and employs around 2,800 people. The ABB Group of companies operates in around 100 countries and employs about 109,000 people.

Working within the businesses, our 6000 scientists, 70 university collaborations, and 9 research centres are focused on meeting the world's energy challenges, ensuring that the most energy efficient solutions and services are available.

This brief memorandum focuses on three issues central to the success of the proposed climate change bill and responding to the terms of reference of the Committee:

1. The necessity of joined up Government action.
2. Opportunities for innovation at a local level.
3. Priority Action in a National Framework.

1. JOINED UP GOVERNMENTAL ACTION ON CLIMATE CHANGE

1.1 Delivering a reduction in carbon emissions of 60% by 2050 will require a strategic framework capable of operating coherently across and within different levels of Government and cutting across all sectors contributing to carbon emissions.

1.2 A clearly defined national framework is of critical importance, and the Draft Climate Change Bill ought to be judged in relation to how well it rises to the challenge of ensuring that approaches to reducing carbon emissions operate coherently across potentially competing spheres of government including:

- International Agreements.
- Europe.
- UK National Government.

- Regional Government.
- Local Authorities.

1.3 The need to ensure the most appropriate scope of activity is undertaken by the relevant level of government is of paramount importance. Eg National infrastructure projects such as power lines delivering power from north to south of the country would be difficult to manage at a local level.

1.4 Joined up thinking is critical when addressing both demand and supply side issues across sectors. The power sector does not and should not be thought of as acting independently from other sectors such as water and waste, oil and gas etc.

2. OPPORTUNITIES FOR INNOVATION AT A LOCAL LEVEL

2.1 Innovation at a local level has a clear role to play in reducing carbon emissions and in promoting action to prevent climate change within local communities.

2.2 Examples such as the use of CHP by Woking Council, demonstrate the ability of localised projects to change culture and encourage deployment of proven technologies.

2.3 Localised schemes however must also be seen within the broader national context. The growth of microgeneration and the ability, for example, of new housing developments to produce their own energy, and to export the excess to the national grid, fundamentally challenges the existing framework. The example of 'energy sufficient' developments also raises significant questions regarding the extent to which national infrastructure is required to support, replace or supplement an independent initiative.

2.4 Local initiatives must operate within a national framework that can take account of significant changes to the requirements of infrastructure. Eg the use of innovative technology such as variable speed drives for electric motors versus the traditional use of static control of off or on. This may significantly reduce demand in some locations and require less transmission and distribution infrastructure on a national basis.

3. PRIORITY ACTION IN A NATIONAL FRAMEWORK

3.1 The Climate Change Bill would introduce statutory targets for carbon emissions of 60% by 2050. Before then, the UK Government has also committed at an EU level to a cut in emissions of 10% by 2020.

3.2 Low carbon technologies are continuing to be developed, and some larger power generation projects require a significant lead in before they can be deployed. In order to achieve carbon reductions in the short term therefore (and in time for meeting 2020 targets), the impact of existing technologies, and those already in the pipe line, will need to be maximised.

3.3 Full deployment of existing and pipeline technologies in the short term has the potential to both assist UK Plc in hitting EU targets for emissions reductions, and to significantly alter the broader landscape come 2020.

3.4 The Climate Change Bill framework ought to act as a driver to ensure deployment of existing technologies are prioritised resulting in short-term carbon reductions being balanced against longer-term changes in circumstances. Action must be taken to remove market barriers and prioritise deployment of existing low carbon technologies within a national framework. This can only be achieved by International, European, National and Local Government working together with major stakeholders to deliver appropriate solutions against a defined timetable, eg the 2020 mandatory European targets for renewables and carbon reduction.

ADDITIONAL COMMENTS SPECIFIC TO THE STATED SCOPE OF THE INQUIRY

What the main aims and purposes of the Bill are and why it is needed

Industry, business and households all hold delivery mechanisms for a reduction in carbon emissions, however in order to achieve implementation, the Government must provide both a clear vision and direction, and a coherent and strategic policy framework.

Reduction in carbon emissions will only become a reality if existing and emerging low carbon technologies are deployed and cultural response is aided by education and relevant information. This in turn requires that the right policies, regulatory structures, commercial, and environmental frameworks are in place.

To what degree it is appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed

In order for the UK to retain a competitive position in the global economy, policy instruments need to be developed which will provide an appropriate framework to realise targets without damaging UK industrial and business competitiveness. Setting targets alone is not sufficient if they are left to operate outside of what is achievable on the ground.

Industry and business need clear targets and expectations to be set in order for progress to be made. Uncertainty is damaging and acts against the investments that is required to bring new climate change technologies to market.

Legislation is required to make action happen in the time periods specified by the mandatory targets now being considered by government. Voluntary schemes are unlikely to drive culture change at the pace needed to meet these targets.

Whether the omission of the role of local government from the draft Bill will hinder public support for an engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour

Innovation at a local level has a clear role to play in reducing carbon emissions and in promoting action to prevent climate change within local communities and examples such as the use of CHP by Woking Council, demonstrate the ability of localised projects to change culture and encourage deployment of proven technologies.

Localised schemes however must also be seen within the broader national context. The growth of microgeneration and the ability, for example, of new housing developments to produce their own energy, and to export the excess to the national grid, fundamentally challenges the existing framework. The example of “energy sufficient” developments also raises significant questions regarding the extent to which national infrastructure is required to support, replace or supplement an independent initiative.

Local initiatives must operate within a national and European framework that can take account of significant changes to the requirements of infrastructure. Eg the use of innovative technology such as variable speed drives for electric motors versus the traditional use of static control of off or on. This may significantly reduce demand in some locations and require different transmission and distribution infrastructure on a national basis.

On a consumer level, smart metering and other technologies that allow householders to see the link between their behaviour and energy bills will have a significant impact and ought to bring the UK closer into line with its European counterparts.

Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence

The ability to extend the scope of the targets to include other greenhouse gases ought to be retained. However, it is appropriate to prioritise initial efforts on reductions in carbon emissions, as this is the area where we have technology that can already be deployed.

Tangible results in the short to medium term can be achieved via reduction in demand side usage of energy both on a consumer and an industrial level. There are several key areas where existing technology specifically can make an early contribution to targets (two examples are given from the electricity sector but others could also contribute across different utility sectors such as gas, water, rail, etc and also business and industrial sectors):

- Replacement of aged equipment in electricity utilities with innovative new technology to maximise optimise our networks.
- Introducing variable speed drives to industrial motors, which can save over 50% of the energy needed to run the motors. Currently only 5% of the 10 million motors powering British industry are fitted with energy saving devices.

What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so

Industry and business need clear targets and expectations to be set in order for progress to be made. Uncertainty is damaging and acts against the investments that is required to bring new climate change technologies to market.

In the early stages of deployment there should be easy mechanisms in place to understand the impact of the changes made and how the policy could be refined in the light of experience. In order to change cultural behaviour for all levels of society a multi faceted approach will be required with both policy and legislative framework working with existing and new technology to provide measurable and demonstrable changes. Prioritisation will be important in identifying the “low-hanging fruit” and quick wins (such as demand reduction) versus the longer term projects (such as major infrastructure build). This would however need to be weighted against the needs of industry and business for certainty in investment.

Five year cycles without longer term commitments have been seen in the past to promote short-term actions which is why it is important that the rolling five year budgets look beyond the 2020 targets.

Whether the proposed constitutions, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity with the departments

Leadership and the Chairmanship of the Committee on Climate Change will be critically important. The Committee of 5–8 members ought to draw on the complete range of experts working across a variety of relevant sectors. Due to the size of the Committee, and to avoid it becoming large and cumbersome, its members would ideally represent broad interests allowing access to the full range of expertise through key individuals.

Drawing on the expertise and breadth of existing bodies could also be beneficial. For example, the co-chaired DTI/Ofgem Electricity Network Strategy Group (ENSG) which can provide access and in depth knowledge across both gas and electricity without the need for many different disciplines and representation on the advisory board.

The Committee must successfully work across Government departments, industry, and end users, whilst remaining an independent body. The Committee could be a valuable mechanism for providing UK Plc with a shared vision of a future low carbon economy if it has the correct remit and Terms of Reference.

How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations

Delivering a reduction in carbon emissions of 60% by 2050 will require a strategic framework capable of operating coherently across and within different levels of Government and cutting across all sectors contributing to carbon emissions.

The need to ensure the most appropriate scope of activity is undertaken by the relevant level of government is of paramount importance eg national infrastructure projects such as power lines delivering power from north to south of the country would be difficult to manage at a local level or even regional.

Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets

The UK Government has committed at an EU level to a cut in emissions of 10% by 2020. Full deployment of existing and pipeline technologies in the short term has the potential to both assist UK Plc in hitting EU targets for emissions reductions, and to significantly alter the broader landscape come 2020.

How the contents of the Bill will affect international climate change activity

It is important for the UK to be seen as a leader in the international sphere and in implementation of carbon reduction measures and initiatives. The caveat is that UK Plc must remain competitive, especially if the UK is to encourage other EU member states and developed countries such as the United States to adopt similar targets. A final observation would be that the UK could be a leader in the deployment and application of solutions that are proven and then required by a global community who are not as advanced in the application of these solutions providing both European and UK companies with a strong revenue stream for the future. This could be seen as a win-win outcome with both carbon reduction and future economic security being assisted.

May 2007

Memorandum by the Royal Institution of Chartered Surveyors (CCB 70)

1. The Royal Institution of Chartered Surveyors (RICS) welcomes this opportunity to submit views on the role of Local Government in the drive to reduce carbon emissions and combat climate change.

2. RICS represents views and interests of 130,000 Chartered Surveyors worldwide covering all aspects of land, property and construction. RICS is regulated by its Royal Charter with the objective of promoting the public good. This allows RICS to comment independently on matters that it perceives to be relevant to its profession.

3. RICS considers the role of Local Government to be essential in tackling climate change. Local Government has a pivotal role in implementing proposals at a local level, they are best placed to decide what schemes will be most effective for individual communities.

4. Central Government must set the national standards but it is imperative that Local Government have a discretion regarding the appropriate way to implement the standards as each region will have different facilities, priorities and allocated budgets. It is important that climate change is tackled within the means of the community; not beyond their means as this could cause hardship and Local Government are best placed to assess what is appropriate.

May 2007

Memorandum by Dr Peter Foreman (CCB 71)

Local Government could help considerably if they were given powers to specify new build standards better than the recent issue. Major improvements to our insulation standards and improving old buildings could achieve considerable drops in emissions due to heating. Another issue is with planning. Government Departments and the NHS reduce costs by centralising facilities, but do not take account of the extra transport involved. We have a local blood test site being closed, which will result in a tremendous number of extra journeys to an already overloaded site at the main hospital. The situation is the same with closing local schools, there is a complete lack of joined up thinking. Local government should also be encouraged to provide bus lanes along all major routes in town. Local Government should have the power to stop local airport development as the locally elected representatives. An emission source being ignored by Government at present.

May 2007

Memorandum by the National Trust (CCB 72)

INTRODUCTION

1. The National Trust welcomes the opportunity to contribute to the Joint Committee inquiry on the draft Climate Change Bill.

2. The National Trust owns and manages a wide range of properties and sites across England, Wales and Northern Ireland, from coastline and countryside to houses and gardens. We are also a major business and tourism provider. We are already feeling the impacts of climate change across the range of our activities and incurring extra risks and costs in dealing with the effects.

3. The National Trust is responding to climate change by reducing our greenhouse gas emissions—from fossil fuel use to land management. We also recognise the urgent need to adapt to the impacts of climate change that we cannot avoid, and we are grappling with the difficult management and investment choices that also face wider society.⁹⁶ An important part of our work on climate change is to inform and engage our 3.5 million members, tens of millions of visitors, and the wider public in these issues, to help catalyse wider societal behaviour change.⁹⁷

4. This submission is based on our experience of current and predicted impacts of climate change on the National Trust and our adaptation, mitigation and engagement responses. We are happy to provide further details of our strategic work on mitigation, adaptation and engagement on request.

GENERAL COMMENTS

5. The National Trust welcomes the draft Climate Change Bill and the Government's commitment to strong domestic action on climate change, including cutting our emissions by the necessary extent to keep temperature rise within the 2°C limit. We believe that acting now to mitigate and adapt is the most economically, socially and environmentally preferable option.

6. We welcome the decision to legislate on carbon targets and budgeting. This demonstrates leadership, improves democratic legitimacy through the Parliamentary process and provides an essential long term framework for decision-making in the public and private sectors.

7. We have identified a number of areas where the Bill could be made stronger. We would like the Committee to consider the following:

- including carbon dioxide emissions from **international aviation and shipping**;
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⁹⁶ *Forecast? Changeable!* National Trust 2005—pamphlet written for National Trust staff and volunteers to raise awareness and understanding of the impacts of climate change on everything the Trust looks after and the need to change our management practices to adapt, as well as mitigate. [copy enclosed].

⁹⁷ *Exposed! Climate Change in Britain's Backyard*—leaflet aimed at NT supporters and the wider public to illustrate the impacts of climate change on the Trust, the action we're taking to reduce carbon emissions and steps they can take at home.

- including **other greenhouse gases**, in particular methane, where the means to measure and reduce these emissions exist;
- revising the 2050 target of **60% reduction in emissions** in light of the most recent appropriate evidence, notably from the IPCC and Tyndall Centre⁹⁸, indicating that the current targets fall short of the level required to constrain warming to the 2°C threshold, to which the Government is committed.⁹⁹
- ensuring the system of **five year budgets** and **annual reporting** is sufficiently robust to ensure that Governments take responsibility and are prevented from passing the blame for failing to cut emissions onto future administrations; and
- permitting only the minimal use of **credits from overseas** projects and carbon sequestration, to ensure the UK gains greatest economic, political, social and environmental advantages from a swift transition to a truly low carbon economy.

8. The National Trust welcomes the focus of the Committee on **behaviour change** (point 3). Engaging and enabling citizens and consumers to make greener choices in their lives is a significant challenge to the conventional policy and delivery approaches of Government. It is an area where we believe we have a major practical role to play, inspiring and helping our millions of supporters to take small steps at home that together create significant carbon savings and galvanise support for action by others. The Trust is working with others, such as Green Alliance and Climate Group, to better understand, profile and help progress the main areas where Government leadership can make changing behaviour easy for people. We are also working with a major energy supplier seeking to find new ways to make action easier for the public. We should be able to share this work with the Committee over the next month if that would be helpful.

9. Our practical experience also highlights the need for the Bill to give greater attention to **adaptation and land based carbon**. These issues are set out in more detail below and in the enclosed supporting documents.

DETAILED COMMENTS

10. The National Trust would like to see the draft Bill strengthened in the following areas.

Adaptation

11. The National Trust strongly supports the inclusion of a reporting requirement on adaptation in the Draft Bill. The current absence of a statutory framework for action is resulting in ad hoc and piecemeal approaches that will not deliver sufficient adaptive capacity to ensure that the UK will be resilient to unavoidable climate change.

12. The Bill should be strengthened by the inclusion of a requirement to report on proactive measures on adaptation, and a clear statutory requirement to establish measures against which progress can be monitored. The Bill should require (rather than allow) the Government to:

- develop a national framework to provide a cross-sector approach to and strategic priorities for adaptation; and
- report against progress on strategic priorities identified in the national framework—as well as on overall climate risks to the UK—and set out forthcoming activity.

13. The National Trust is concerned that quinquennial reporting will be insufficient to drive proactive adaptation and enable effective scrutiny. We therefore ask the Committee to consider the inclusion of interim targets and progress reports for adaptation.

14. The Bill should also set out clearly the link between adaptation and mitigation, and require that adaptation measures do not contribute to further greenhouse gas emissions. The Stern Review illustrated that whilst we need to adapt to climate change, strong and early mitigation of the causes is essential. Without this the physical limits to and costs of adaptation will increase.

15. The Trust believes that the cross cutting priorities for strategic leadership and coordination from Government are already apparent:

- Long term planning and climate proofing of decision making and public spending to minimise risk and accommodate change.
- A new integrated spatial approach to the planning and management of natural resources at local, regional and national levels.

⁹⁸ See Tyndall Briefing Note 17, March 2007. “A response to the Draft Climate Change Bill’s carbon reduction targets”. Tyndall Centre for Climate Change Research, University of Manchester, and IPCC (2007) “Climate Change 2007: The Physical Science Basis, Summary for Policy Makers”.

⁹⁹ The UK Government 2006 Climate Change Programme states “in the mid-1990s the EU proposed that the aim should be to limit global temperature rise to no more than 2°C to avoid dangerous climate change . . . At that time, it was thought that this equated to atmospheric carbon dioxide levels below approximately 550 ppm. The more recent work of the IPCC suggests that a limit closer to 450 ppm or even lower, might be more appropriate to meet a 2°C stabilisation limit.

- Innovation in financial mechanisms that enable households, businesses and wider society to manage risks and share costs equitably.
- Raising public awareness and understanding of climate change impacts and risks through improved communication and engagement.

16. The Trust's own adaptation framework is based on long term risk assessments (100 years) of the impacts of climate change on various aspects of our business, largely applying Government data to our 'real' places. The adaptation of the 700 miles of coast¹⁰⁰ in the Trust's care best illustrates the strategic approach the Trust is taking itself and advocating for wider Government action.

Land based carbon

17. The carbon stored in soil, especially peatlands, needs to be incorporated into the UK's strategy to tackle climate change, otherwise we risk a serious hole in our carbon budget and account that will undermine efforts to tackle climate change.

18. The UK's peatlands—about 15% of the world total—store the equivalent of over 20 years of UK industrial carbon dioxide emissions. Whilst healthy peatlands take in and store carbon, damaged peatlands emit greenhouse gases into the atmosphere both as carbon dioxide and methane. We have calculated that the current carbon losses from just one area of peatland—High Peak in the Peak District—is losing 37,800 tonnes of carbon per year, equivalent to the carbon dioxide emissions of more than 18,000 cars a year.¹⁰¹

19. If we act now, we have a chance to help peatlands become more resilient to climate change, through improvements in land management that conserve or enhance the water levels within the peat. Even small reductions in these important carbon stores could have serious consequences for international efforts to tackle climate change, so the management of peatland should be a priority for Government action in the UK and globally. A similar approach is needed for other soils.

20. The Government has a key role to play in driving progress towards a more coherent greenhouse gas emissions reduction strategy by ensuring land based carbon is incorporated into the UK's overall carbon budget. The enabling powers in the Draft Bill should allow:

- a trading scheme or other financial mechanisms to provide incentives for effective stewardship of land-based carbon stores;
- the setting of targets for other greenhouse gases; and
- the inclusion of other greenhouse gases in UK based trading schemes in the future.

21. The Committee on Climate Change should play a key role in ensuring timely progress in this area.

May 2007

Memorandum by the South East Climate Change Partnership (CCB 73)

ABOUT THE SOUTH EAST CLIMATE CHANGE PARTNERSHIP

The South East Climate Change partnership brings together more than 50 public, private and voluntary sector organisations from across the South East with a shared recognition of the need to adapt to the likely impacts of climate change. We aim to help our members and stakeholders to develop integrated responses. This includes mitigating against climate change and taking advantage of any opportunities that arise from changes as well as reducing the threats.

We work closely with national organisations such as the UK Climate Impacts Programme and those in other regions of the UK who are addressing similar issues.

This response represents the views of the Partnership. In addition, some of our Partners may submit individual responses.

¹⁰⁰ *Shifting Shores* 2005: National Trust, and *Shifting Shores—Wales* 2007: National Trust—reports on the risks from climate change to NT coastline, the adaptation priorities, management and investment implications.

¹⁰¹ *Peatlands: the UK's largest carbon bank* 2007: National Trust—briefing on the global, national and local significance of peatland carbon stores, the risks they face and the action required to conserve these stores and prevent major carbon losses, illustrated by the Peak District peatlands.

EVIDENCE

1. Aims and purposes of the Bill

1.1 In order to avoid dangerous climate change (generally agreed to be change of $>2^{\circ}\text{C}$) we must take urgent action to reduce our emissions. The UK is in a strong position to show leadership in this area and the Bill provides an opportunity to demonstrate our commitment to playing our part in solving this urgent global issue and to set a clear framework to ensure that we meet these aims.

1.2 The South East Climate Change Partnership (SECCP) strongly supports the Government's view that setting long-term legal targets is the best way to tackle carbon emissions and to ensure consistent progress despite the shorter-term electoral cycles.

1.3 Better and more regular reporting will enable the South East Climate Change Partnership to work more effectively to tackle and respond to climate change in the South East.

2. Legislation and carbon targets and budgeting

2.1 Carbon stays in the atmosphere for a long time and carbon budgets are important to take account of our cumulative emissions. Carbon budgeting provides an essential means of implementation and monitoring and also allows sufficient flexibility to enable Government to make the best choices for reducing UK emissions and to deal with slight variations from year to year.

2.2 A five-year carbon budgeting period will nearly always be the responsibility of more than one Government. There is a clear risk that a Government may take advantage of this situation to avoid taking decisions and to hand over deficits to a subsequent Government or to blame a predecessor for its own failures. We would therefore suggest that Governments should state the level of emissions they expect to achieve every two years, and that this should clearly fit with a trajectory towards the 2020 and 2050 targets.

2.3 Voluntary approaches have so far failed to have sufficient impact. A Government Bill setting clear and challenging targets will provide the conditions and incentives necessary for private investment and voluntary action. Targets provide the most effective way to monitor progress.

3. The role of local government and public behaviour change

3.1 The choice of an appropriate package of responses to meet the targets will inevitably depend on opportunities available, cost-effectiveness and social and intergenerational justice issues. Therefore the actual decisions on the most appropriate pathway should be flexible and remain within the control of nationally elected politicians. Local Government and public behaviour will inevitably play a vital role in the implementation of the Bill, but we do not believe that this needs to be explicitly mentioned in the Bill.

4. The use of emissions trading schemes and other policy instruments

4.1 We agree that a very limited level of effort purchased by the UK from other countries should be permissible, but this should play only a very minor role in our approach and must not be used as a cheap alternative to sustainable low-carbon development in the UK. Emissions trading and credit schemes are currently very variable and are often not robust. Purchasing of overseas credit should be kept under close and regular scrutiny to ensure that the emissions reductions reported are actually achieved and that such emissions reductions abroad do not have an adverse impact on the local environment and people or on developing countries' own efforts to tackle climate change. The Committee on Climate Change should play a role in advising the Government on which schemes can be considered robust and included.

4.2 The main focus of effort must be on UK-based carbon reduction policies and investment and carbon budgets and targets are the most effective way to manage and monitor this approach.

5. Adequacy of targets

5.1 The targets set must be sufficiently robust to avoid dangerous climate change of more than 2°C , in line with European leaders' commitments. Failure to do this will call into question the UK's commitment to avoiding dangerous climate change and will pave the way for other Governments worldwide to set inadequate national targets. We believe that the Government must set a target of at least an 80% reduction in CO_2 emissions by 2050, in line with the latest scientific evidence from the IPCC.

5.2 We believe that an 80% reduction in CO_2 emissions can and must be achieved and that, in line with the Government's Stern Review, this should be seen as an opportunity for the UK to save by investing now in reducing emissions and adapting to make the most of new markets and opportunities.

5.3 The interim 2020 target should be set at a fixed level of 32% or higher and there should be a clear pathway of much more frequent statutory targets. Ideally these would be annual targets of 3% per year, but we recognise that this may create a high administrative burden on Government. If annual targets are considered to be unmanageable, we would suggest biannual targets. These targets are necessary to ensure

that the Government in power at any one time is responsible for the progress it makes and that it cannot ignore the targets or take credit for previous Governments' progress. It also helps to ensure that targets remain manageable and do not accumulate.

5.4 We also believe that targets must include international aviation and shipping emissions which are currently excluded. Failure to include these emissions will mask the UK's true emissions and will lead to inconsistent policy approaches to reducing transport emissions.

6. *Committee on Climate Change*

6.1 This body should be truly independent and focussed on providing advice on the measures required to tackle climate change. The Committee should not be politically biased and it may be worth considering asking organisations other than government to nominate some of the members. The Committee should perhaps have the independence and status of the Bank of England monetary committee.

6.2 The Committee must have a transparent mechanism for interaction with Government and wider stakeholders, in which the wider population can have confidence.

6.3 It is very important that the Government receives clear expert advice on the alternative pathways to 2050 emissions reductions. International equity is currently missing from the list of factors which the Committee address. Adaptation to the unavoidable level of climate change that we are already facing in the UK should also be taken into account by the Committee to ensure that our response is properly integrated.

7. *Legal consequences of the Government failing to meet targets*

7.1 We believe that judicial review may be the most effective enforcement mechanism available.

8. *Relation to the devolved parliament and assemblies*

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9. *European Union targets*

9.1 The targets should be in line with European leaders' commitments to avoid dangerous climate change of more than 2°C. We believe that, to achieve this, the Government must set a target of at least an 80% reduction in CO₂ emissions by 2050, in line with the latest scientific evidence from the IPCC.

10. *Impact on international climate change activity*

10.1 The UK Government is set to become the first Government in the world to set such targets in statute and is in a position to set the standard and show global leadership. The Bill will set a precedent which others may adopt.

10.2 It will, however, be important to ensure that our carbon reduction measures, and especially such emissions reductions abroad, do not have an adverse environmental, social or economic impact on other countries, or developing countries' own efforts to tackle climate change. The Committee on Climate Change should play a role in advising the Government on international justice and equity issues (see 6.3).

11. *Delegated powers*

11.1 The delegated powers contained within the Bill seem appropriate and adequate

May 2007

Memorandum by Dr David Fleming¹⁰² (CCB 74)

INTRODUCTION

1. I am the designer of the original model of personal carbon allowances (aka Tradable Energy Quotas or Domestic Tradable Quotas¹⁰³). I first published the model in 1996, and have described it extensively in the academic literature and elsewhere. I have also lectured and taught courses on it at numerous institutions in the UK and abroad. My book on the concept, *Energy and the Common Purpose*, has now sold out of its

¹⁰² Director, The Lean Economy Connection.

¹⁰³ See www.teqs.net. The book, *Energy and the Common Purpose*, is available as a download from this site.

second edition and an expanded book under a new title is due to be published in June. I introduced The Tyndall Centre to it, through the centre's lead researcher, Richard Starkey, in a series of workshops from 1998 onwards.

2. My background includes a PhD in economics and an MBA (business management), followed by:
 - (a) Practical experience in production and marketing.
 - (b) Consultancy in investment management, and a book (editor) on the setting up and management of investment funds in the former Soviet Union and developing countries.
 - (c) Consultancy in all aspects of environment policy, many publications and a book on the policy consequences of climate change and fossil-fuel depletion, which is forthcoming in 2008. I founded The Lean Economy Connection, a research centre which applies lean thinking to environmental policy, in 1992.
3. Fully-referenced sources for the following comments are available on request.

THEME 1—AIMS AND PURPOSE

4. The Bill should take into account the supply side of the energy market, especially having regard to the well-established evidence of a downturn, followed by persistent decline, in the supply of oil in the early years of the coming decade 2010-2019. Of the many implications arising from this, one is that the instrument adopted in the context of climate change **must** also be available to guarantee fair entitlements to fuel in the context of supply shortfalls. Fortunately, the two policy areas—climate change and oil depletion—are ideally served by the same policy instrument—if, and only if, the instrument that is chosen is one with systems-integrity.

THEME 2—LEGISLATION REGARDING CARBON TARGETS

5. Legislation regarding targets should be integrated into a system which guarantees delivery. In the absence of that, the Government's measures will have to become ever-more draconian, arousing resentment without being effective. The following conditions therefore need to be met:

- (a) That the scheme is integrated into an effective system of carbon-rated fuels which includes all energy users.
- (b) That every individual is given an unconditional entitlement to carbon units, while all other users obtain their units via well-established Tender procedures
- (c) That the Carbon Budget is set for a long period ahead, in the order of 20 years, subject to clearly-defined revision arrangements.

If these conditions were met, a mandatory Carbon Budget would provide a fair, efficient and effective route down the energy descent to deep reductions in energy demand.

THEME 3—THE ROLE OF LOCAL GOVERNMENT AND A CHANGE IN PUBLIC BEHAVIOUR

6. An effective scheme will be provide a framework in which energy users at the local level are stimulated and encouraged to use their ingenuity to find ways of achieving the energy descent. The programme will not succeed unless it engages people's brains. This is the concept of "pull", which is now well-established in the principle of "lean thinking", now becoming widely established worldwide as a means of stimulating and channelling motivation in industry.

7. In that context, there will be a strong case, as well as a strong incentive, for local organisations, from local government itself, down to the level of local neighbourhoods, to carry through initiatives on the conservation and the generation of energy. The energy descent will not happen without a framework which secures the freedom for such local initiatives to develop.

THEME 4—STATUTORY TARGETS

8. The Budget should take into account all greenhouse gases arising from the generation and use of energy. This will require the measurement of gases other than carbon dioxide, some of which have a severe global warming potential. For example, the halogenated compounds involved in the enrichment and reprocessing of nuclear energy belong to a group of chemicals whose climate change impact ranges up to 10,000 times that of carbon dioxide.

9. It is not clear that the target of a 60% reduction in carbon emissions by 2050 adequately represents the pressing need:

- (a) It is less steep than the reduction needed in the light of well-researched feedbacks arising from warming which are already taking place.
- (b) It is less steep than the descent that will be imposed by the declining availability of fossil fuels.

- (c) It is less steep than the decline that would be enabled by an effective system in which individual intentions are aligned with the common purpose.

THEME 5—OPTIMAL TRAJECTORY

10. The Budget period should be longer. It should be a rolling 20-year period of annual Budgets, topped up each week, so that one year's supply of units is in the market at all times. It should have three phases:

Phase 1, years 1–5: The Commitment. A binding 5-year energy descent, subject to change only by *force majeure*.

Phase 2, years 5–10: The Intention. A strong guideline, reviewed annually.

Phase 3, years 11–20: The Forecast. A best-available expectation.

11. The long time-horizon is necessary owing to the deep structural changes that will be required to achieve the energy descent, which will call for planning over a 20-year timeframe.

THEME 6—SEQUESTRATION AND CREDITS

12. Carbon sequestration should be recognised as a carbon-reducing strategy, subject to the following caveats:

- (a) It is energy-intensive, requiring up to 25% or more of the gross energy generated.
- (b) It is unlikely to make a significant contribution to reducing emissions for several decades, and it is yet to be proved that the technology will ever reach that capability.

13. The UK's Carbon Budget scheme, if established in a practically feasible form such as Tradable Energy Quotas, would require a clear distinction between the scheme which operates within national boundaries and the scheme which mediates commitments made at the international/EU scheme level. A national scheme which permitted cross-border trading would not survive inspection by a rigorous systems-audit.

THEME 7—THE COMMITTEE ON CLIMATE CHANGE

14. The Committee should have substantial independence, but work within clear guidelines on how to respond to changing conditions on the international energy market. The guidelines should take into account the deep instabilities in the international oil and gas markets which will mature early in the coming decade 2010–19, requiring the Committee to make use of the Budget's potential as the basis for an entitlement scheme guaranteeing fair access to the available supplies of energy.

THEME 8—FAILING TO MEET TARGETS

15. A workable scheme such as Tradable Energy Quotas confers a guarantee that the Budget that has been set is actually reached: the system is designed to deliver this, and its self-monitoring and self-regulating qualities ensure that it will do so. Under these circumstances, the prospect of the Government failing to deliver the targets does not arise. The Government should not adopt a scheme in which there is no such guarantee.

16. It is not clear that judicial sanctions would be effective. If they needed to be applied, this would simply be a signal that the wrong scheme had been set up in the first place.

THEME 9—DEVOLVED PARLIAMENT

17. Systems established separately in the four nations of the United Kingdom would experience leakage, with a significant impact on prices and on the entitlement/rationing component of the scheme. Moreover, the negotiating position of Government in the context of oil scarcity would be much stronger if carried out on behalf of the United Kingdom as a whole than on behalf of each of the devolved jurisdictions. For these reasons, there is a persuasive case for sustaining the scheme on a UK-wide basis.

THEME 10—EU TARGETS

18. There would be inconsistencies between EU-wide targets and national carbon-Budgets or energy-Budgets, in the event of:

- (a) The EU in effect taking over responsibility for setting national Budgets.
- (b) Breakdown in oil and gas supplies, making the EU targets irrelevant.

19. Note, however that a workable scheme would require all the fuel used within it to carry a unit-rating. If some companies were participating in a separate (EU) scheme, they would still be paying the unit rating for their fuel purchases, so that there would be double-counting. However, the guarantee embodied in Tradable Energy Quotas would be so effective that there would be no need for an additional system for large companies. A scheme which is *not* based on a unit rating for fuel is not an effective and realistic option.

THEME 11—INTERNATIONAL CLIMATE CHANGE ACTIVITY

20. If any nation, or group of nations, were to establish an effective system that delivered real and orderly reductions in carbon and fossil-fuel dependency, that nation would have considerable first-mover advantages. But the core scale on which an effective system should be designed is the nation. I would like to remind Committee Members of the System-Scale Rule:

Large-scale problems do not require large-scale solutions; they require small-scale solutions within a large-scale framework.

May 2007

Joint memorandum by the Baptist Union of Great Britain, the Methodist Church, the Religious Society of Friends (Quakers) and the United Reformed Church (CCB 75)

1. BACKGROUND

We welcome the draft Climate Change Bill and are grateful for an opportunity to comment on the proposed legislation. There are some 150,000 members of Baptist churches associated with the Baptist Union of Great Britain. The Methodist Church has about 295,000 members and 800,000 people are connected with the Church. The Religious Society of Friends (Quakers) has a membership of around 15,000 with up to a further 15,000 attending Quaker worship. The United Reformed Church comprises about 150,000 adults and 100,000 children. Many in our churches are gravely concerned about human-induced climate change and have sought to adjust their lifestyles accordingly. The work of our denominations on climate change that has led to this submission draws on contributions across a range of sectors including groups and individuals with public policy, business and technical expertise.

2. *The main aims and purposes of the Bill and why it is needed*

We commend the Government's intention to provide in UK legislation a clearly defined pathway for the reduction of carbon emissions. This is essential to provide a predictable economic framework over the long-term. The very significant investment required by the Treasury and the private sector will require for its justification, a clearly defined discipline on the emission of CO₂.

An important aspect of the purpose of this bill is to establish the UK as a leader internationally. This element of the legislation must be preserved. Such leadership requires that long-term goals are not sacrificed for the sake of short-term competitiveness. If action on the part of industry were to be subjected to a "competitiveness test" to provide British companies guarantees that their competitiveness would not be compromised in the short-term, the UK would lose the ability to demonstrate leadership.

3. *The appropriateness of legislating regarding carbon targets and budgeting and how a balance between compulsory and voluntary action can best be achieved and assessed*

Many individuals and congregations have sought to model sustainable and responsible lifestyles. However, the challenge of reducing household carbon emissions to levels consistent with a sustainable per capita carbon budget is considerable. Householders are finding that there is a limit to the actions that they can take as most of our personal emissions are dependent on the infrastructure providing goods and services. Those who are measuring their personal emissions are increasingly aware that effective government legislation is necessary to complement voluntary action.

Voluntary action will be most effective when supported by an appropriate fiscal and legislative framework created in order to achieve well-defined goals and targets.

4. *Whether statutory targets should be set only for carbon dioxide*

Historically there has been a strong link between CO₂ emissions and national economic output. Breaking this link will require long-term economic planning and the Government is right to make CO₂ the focus of legislation. Further reductions in emissions of greenhouse gases other than CO₂ can be agreed in conjunction with our EU and other international partners.

5. *The extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence*

The 2050 target of a minimum 60% reduction appears unsafe. The 60% target is a long-standing government aspiration. In the light of the fourth report of the International Panel on Climate Change it needs to be reassessed. It is now clear that a reduction of only 60% is likely to contribute to a global warming exceeding two degrees centigrade; a level that the EU and UK Government have resolved to try to prevent.

We suggest that the minimum targets proposed should provide a confidence of more than 50% that they represent a UK contribution to avoiding a greater than two-degree temperature rise. The Tyndall Centre has described an approach for tracking back from the temperature threshold to determine national emission pathways.¹⁰⁴ Notwithstanding the several variables involved to establish this correlation, we ask whether independent scientific scrutiny of proposed targets could be carried out to determine whether a target provides this degree of confidence. One could argue that a greater degree of confidence could be sought but anything less than 50% would appear to conflict with the UK Government's commitment to the precautionary principle.

Furthermore we do not see why an upper limit of 32% should be set for the 2020 target; if swifter progress can be made, that is all to the good.

6. *Exclusion of emissions from aviation and shipping*

Emissions from UK aviation are forecast to double in the next decade. The arguments put forward for establishing international leadership on setting targets in legislation would appear to apply equally in the area of aviation emissions. We do not consider the lack of an international agreement on aviation emissions to constitute a strong argument for their exclusion from UK legislation.

If the draft Bill were to make provision for the UK contribution to aviation emissions it would provide a better basis for long-term planning in an increasingly significant sector.

7. *Does a system of 5-year carbon budgets and interim targets represent the most appropriate way of determining the optimal trajectory towards the 2050 target?*

We support the rationale outlined by the Government for a five-year budgetary period. We also support the proposal to set targets for three five-year periods at any one time, providing business with a sound basis for making long-term investment decisions.

We would argue that the second and third five-year periods should be supported with an indication of the necessary policy recommendations to achieve reductions in the longer-term. These recommendations should provide an indication of the likely contribution of various sectors of the UK economy. These policy recommendations should also be subject to scrutiny by the Committee on Climate Change.

We do not support the placing of annual targets in primary or secondary legislation (ie Option 3 in Climate Change Bill—Explanatory Notes, section 5.1). Rather we propose that, within the duty to report on proposals and policies for meeting carbon budgets, the Secretary for State be required to set annual milestones for achieving the five-year carbon budget. Subsequent reporting against these milestones would provide greater confidence that the policies in place are adequate for the achievement of five-year budgets.

8. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target*

Developed countries such as the UK have historically gained economic advantage from the availability of cheap fossil fuels. There would seem to be a moral obligation on countries such as the UK to facilitate the development of other countries down a path that is less damaging to our global ecology. Carbon credits provide a means by which this responsibility can be realised.

However the use of carbon credits must not enable the UK to duck its responsibility drastically to reduce domestic carbon emissions. The purchasing of one-third of the 2050 abatement effort with carbon credits¹⁰⁵ may provide a cost-effective path to reducing carbon but is inequitable. It enables the wealth developed, in part through cheap but damaging fossil fuels, to be used to perpetuate an unsustainable level of carbon output.

In our view the obligation on the UK to reduce carbon emissions should not be exported overseas. In practice this would require a limit to be placed on the overall contribution of carbon credits to achieving carbon reduction targets. This limit, if not zero, should be small and should be stated in the Bill.

¹⁰⁴ "A response to the Draft Climate Change Bill's carbon reduction targets", Anderson and Bows, (Tyndall Briefing Note 17, March 2007).

¹⁰⁵ A scenario outlined in the Climate Change Bill—Explanatory Notes para 5.1.37.

9. *Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments*

We broadly agree with the proposed remit and powers of the Committee on Climate Change. The Committee should, as suggested in 5.4.5 of the Partial Regulatory Impact Assessment accompanying the Bill, provide an annual assessment on the progress towards budgets. This would increase the credibility of the reporting framework. The committee should be analytical in nature. As far as possible it should be independent of vested interests in order to command respect across a broad spectrum.

We would hope that careful consideration would be given to the recruitment of the Chair and to whether the appointment of a senior member of the judiciary might help to reinforce the perception of independence.

We are concerned that the list of expertise required by the committee has a weighting towards business and economic sectors. While appreciating the need for such expertise we suggest that the posts in the committee should achieve a better balance towards advice on climate science. As currently drafted the section on the expertise required gives the impression that business and economic interests might dominate the Committee's agenda.

10. *Questions regarding the legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

We appreciate that it may be difficult in practice to ensure that the Government can be held legally accountable to targets established in this legislation. We recognise that this is an area that the judiciary might be unwilling to intervene. In the event that Ministers chose wilfully to disregard the advice of the Committee on Climate Change, it is unclear to what extent judicial review could be used as an effective remedy. We hope that the committee will explore this matter further with legal experts with sound experience in this field.

Nevertheless, we do feel that the ultimate sanction of a Judicial Review will help to concentrate the minds of government Ministers as they develop proposals to address carbon emissions.

11. *How the contents of the Bill will affect international climate change activity*

We agree with the UK government's position that the developed countries must lead on emission reductions and that through the implementation of this bill the UK government is better placed to build a consensus for deeper commitment from the EU and possibly internationally.

Churches can contribute to these efforts by helping to build a strong call from civil society for legally binding targets. The churches in the UK maintain relationships with their partners overseas on a range of issues and climate change is a priority for many at this time. By taking a lead to set targets in UK legislation we strengthen the position of church leaders and other leaders in civil society in other countries. It provides them with greater confidence to call for similar action from their own governments.

May 2007

Memorandum by the Combined Heat and Power Association (CCB 76)

1. INTRODUCTION

1.1 Combined Heat and Power (CHP) is the simultaneous generation of electricity and useful heat in a combined, highly efficient process. It is one of the few techniques, which can radically reduce carbon emissions in a domestic, commercial and industrial capacity.

1.2 The Combined Heat and Power Association is a not for profit organisation which works to promote the wider use of combined heat and power and community heating. The Association works with its members, Government and other non-Government organisations in order to address the barriers that currently face CHP and Community Heating and ensure that when Government policies are developed they allow CHP and Community Heating to play their full role in delivering economic, social and environmental benefits to the UK, including the potential to reduce carbon emissions, reduce dependence of fossil fuels by efficient use and primary energy savings, increase the operational competitiveness of businesses and reduce fuel poverty through the greater development of district heating networks.

1.3 The Combined Heat and Power Association broadly support the overarching aims of the Draft Climate Change Bill and welcomes the opportunity to provide written evidence to the Joint Committee of the Draft Climate Change Bill.

2. OVERVIEW

2.1 The Association believes that the Draft Bill provides an unprecedented opportunity to reduce the levels of carbon emissions in the UK.

2.2 The Association believes that whilst the Draft Bill's primary aim of a reduction of carbon emissions of 60% by 2050 is unequivocal in its commitment to address one of the root causes of Climate Change, the Bill must:

- 2.2.1 Provide a framework which will shift the UK from a energy wasteful, economy towards a truly sustainable, energy efficient economy were energy efficiency is rewarded and wastefulness is scrutinised and checked to the highest degree, and the price of tradable carbon remains high.
- 2.2.2 Be consistent with the UK and Europe's broader emission cap setting and reduction commitments and ensure that the regulatory impact of the Bill and the five-year carbon budgets are sensitive in this respect. Ensuring budgets for a 15-year period would align with most investment timescales.
- 2.2.3 With regards to point 2.2.2, the Association believes the Bill must strengthen the existing trading schemes and support the commitment to lengthen the phases of EUETS, to reduce uncertainty in the market with regards to investment in new, more sustainable electricity generation.
- 2.2.4 Ensure that the UK government provide enabling powers (referred to later in this document) to the proposed Independent Committee on Climate Change to monitor, and scrutinise the progress of the transition referred to in 2.2.1, and have access to, and provide for others, the data needed to prescribe the best way to achieve the goal laid out in 2.2.1. In addition, the powers, where appropriate, to ensure Ministers are acting in the best interest of these goals.
- 2.2.5 Ensure that the efforts of the Committee on Climate Change, and the aims of the Bill itself compliments and does not conflict with the work of other government departments.
- 2.2.6 The Bill should also allow for regional representation on the Committee of Climate Change. In the Bill full support must be given to Local authorities, Regional Development Agencies and public/private sector partnerships, who aim to develop projects that complement the aims of the Bill.

3. TARGETS

3.1 The Association backs the goal of a 60% reduction in carbon emissions by 2050. It also supports the idea of rolling five-year budget cycles, provided borrowing of allowances from future budgetary periods is kept to a minimum and budgetary cycles are aligned, as set out in 2.2.2.

3.2 The Association believes that these targets should be supported, and are only practically possible, if full support is lent to the technologies, which will bring about these reductions. Key to this is ensuring Governmental accountability with regards to sectoral targets.

- 3.2.1 The Government's statistics show that for every 1 MW of CHP operating in the UK helps reduce carbon emissions by between 600—800 tonnes every year.¹⁰⁶ Current installed CHP capacity of approximately 5,700 MW, on over 1,500 sites across the UK, is already helping deliver savings of over four million tonnes of carbon annually, one of the largest single carbon reduction measures in the Government's Climate Change Programme.
- 3.2.2 The Government's target is to double UK CHP capacity to 10,000 MW by 2010. The Association believes that the Bill, and in particular the proposed Climate Change Committee, should ensure the appropriate Secretary of State takes all reasonable steps to make the aforementioned target a reality. In addition, the Bill should be flexible enough to incorporate future sectoral targets for CHP, renewable CHP and other renewables. These future targets should also give account of current and future European targets relating to these techniques and technologies.
- 3.2.3 The Association believes that the appropriate Secretary of State should be held directly accountable for the targets laid out throughout section 3. Any failed targets should be the subject of a hearing buy the Committee on Climate Change, and should be enforced with some form of judicial review.

¹⁰⁶ Compared to a centralised, coal fired power station.

4. COMMITTEE ON CLIMATE CHANGE

4.1 As laid out above the Association strongly agrees with the formation of an Independent Committee on Climate Change, and believes the success of the Bill depends heavily on the effectiveness of this group to set adequate carbon emission budgets.

4.2 Government must put forward an initial, clearly defined, role for the proposed Committee but allow for future flexibility once the fixed role is established.

4.3 As laid out in 2.2.6, The Bill should also allow for regional representation on the Committee on Climate Change. In the Bill full support must be given to Local authorities, Regional Development Agencies and public/private sector partnerships, who aim to develop projects that complement the aims of the Bill.

4.4 The proposed Committee on Climate Change must have the ability to request whatever statistical data pertains to the following:

4.4.1 Total Greenhouse gas emissions, from a local source, national levels or internationally.

4.4.2 The carbon abatement level/graphs of every commercially available technology that is said to reduce emissions, and the power to ensure future technologies are processed quickly and carbon abatement information is researched, tested, processed and acted upon as soon as possible.

4.4.3 In the recent Energy White Paper the Government stated, “Heat accounts around 47% of the UK’s total carbon emissions (including emissions from electrical heating)”.¹⁰⁷ This is the equivalent of almost half of the UK’s total energy consumption. Therefore the Association believes that if the Bill should ensure that at a national and local level, the Environment Agency, Regional Development Authority, Local Authority and Industry should give the Committee on Climate Change full assistance; and were providing any information pertaining to heat use, heat loads, potential heat loads and or wastage of heat.

4.4.4 As set out in 2.2.5 The Association believes the Bill should ensure that the efforts of the Committee on Climate Change, and the aims of the Bill itself compliments and does not conflict with the work of other government departments.

5. ENABLING POWERS

5.1 Whilst the Association believes more flexibility is required to improve existing trading schemes, and respond to the need to extend these schemes more comprehensively in the future, the same scrutiny and consultation of proposed policies is needed; regardless of whether the future policies are proposed through Primary or Secondary legislation. The Association is also of the opinion that there is a need for greater clarity regarding the enabling powers as laid out in the Draft Climate Change Bill and the Finance Bill.

5.2 Any changes made to existing trading schemes, such as the EUETS, or proposed extensions must not jeopardise the competitiveness of existing and future CHP installations. In addition, the government must learn from the CHP industries negative experiences of NAP 1 and fully consult the industry before potential mistakes are made.

6. LOCAL AUTHORITIES

6.1 As laid out in 2.2.6 and 4.3, The Bill should allow for regional representation on the Committee on Climate Change. In the Bill full support must be given to Local authorities, Regional Development Agencies and public/private sector partnerships, who aim to develop projects that complement the aims of the Bill.

6.2 CHP is a form of decentralised energy system ie generation technologies, which provide power, heat (and/or cooling) at the point of use. These range from Microgeneration technologies operating in individual homes to community based systems such as those operating in Southampton or indeed large industrial CHP schemes powering over 200 industrial schemes in the UK at present. The Bill must take note of the schemes, and where appropriate compare to other forms of generation, as a way of significantly reducing carbon emissions and help encourage the development of these schemes wherever possible. It is therefore imperative that local authorities are fully included and consulted when carbon budgets are set.

7. REPORTING

7.1 The Association supports a process of reporting annually on progress against targets. Where possible, the annual reporting process should incorporate or link existing processes and systems, such as those established through the EU ETS.

7.2 Reporting on progress on adaptation is important; this needs to be underpinned by the development of a national framework for action on adaptation.

¹⁰⁷ DTI, *Meeting the Energy Challenge: A White Paper on Energy*, page 89.

7.3 The reporting of annual progress needs to be supplemented by progress reports on the deployment of the technologies which can reduce emissions, on the improvement in overall energy efficiency in the UK Economy, and the improvement of energy conservation. The Bill must provide the Committee on Climate Change, and the reporting body, the means by which this would be possible; for example by maintaining accurate and current lists of CHP installations in the UK.

8. CONCLUSION

8.1 In conclusion the Association warmly welcomes the Government's proposed Bill, and the opportunity to provide evidence to the Joint Committee.

8.2 The Association believes the Bill can make a lasting and positive contribution to lowering the amount of carbon emissions if it is ambitious enough to tackle the issues that are highlighted in this evidence. Setting targets is only a means to an end; Government must provide a framework that maximises the potential of existing techniques and technologies that can reduce emissions significantly, today.

June 2007

Memorandum by the Wildlife Trusts (CCB 77)

SUMMARY

The Wildlife Trusts have a particular interest in climate change given our role in conserving the full range of the UK's habitats and species. Wildlife Trusts own, manage land and advise on land management and land use. The Wildlife Trusts are concerned about the impact that climate change will have on the natural environment and are keen to see policies that reduce carbon emissions but also that enable the natural environment to adapt to the inevitable changes already in the system. This submission focuses on the proposal that the Climate Change Bill includes a requirement on the Secretary of State to publish reports on adaptation (Clause 37).

Our submission sets out our concerns about the potential changes climate change will bring; our approach to dealing with those changes; and the breadth of policies that can help with adaptation and deliver landscape scale conservation. We do not believe that the proposal in Clause 37 can be considered in isolation. It needs to take place in the context of the Government's adaptation strategy, expected later this year. We suggest that the Government set up a Commission on Adaptation which could conduct inquiries into different aspects of the issue, carry out research and engage with stakeholders. Its recommendations would be responded to by the Secretary of State in his/her report. Monitoring on the impacts and policies and progress on adaptation should also be included. Finally, we suggest amending the biodiversity duty on public bodies set out in Section 40 of the Natural Environmental and Rural Communities Act 2006 to facilitate adaptation of the natural environment.

INTRODUCTION

1. There are 47 local Wildlife Trusts across the whole of the UK, the Isle of Man and Alderney. We are working for an environment rich in wildlife for everyone. With 670,000 members, we are the largest UK voluntary organisation dedicated to conserving the full range of the UK's habitats and species, whether they be in the countryside, in cities or at sea. 108,000 of our members belong to our junior branch, Wildlife Watch. We manage 2,200 nature reserves covering more than 80,000 hectares; we stand up for wildlife; we inspire people about the natural world and we foster sustainable living. Wildlife Trusts around the UK monitor over 88,000 planning applications and give advice on the management of over 4,000 Local Wildlife Sites each year.

THE WILDLIFE TRUSTS AND CLIMATE CHANGE

2. In response to climate change The Wildlife Trusts are focusing on three key areas:
- Adaptation—Ensuring that the environment has sufficient resilience and wildlife has the flexibility to adapt to the changes resulting from climate change. Given our strong role in owning, managing and advising on land management and our significant role in engaging in the planning system, we have an understanding of the changes climate change is bringing as well as the policies needed to adapt to those changes.
 - Reducing emissions—Ensuring that emissions that contribute to climate change can be reduced through policy and behaviour change.
 - Demonstration—Ensuring that we reduce the carbon footprint of The Wildlife Trusts and provide leadership on climate change issues.

3. The Wildlife Trusts welcome the principle of a Climate Change Bill and the leadership that the Government is showing on climate change. This is the most serious long-term threat to our environment and it is important that the Government is bold, visionary and urgent in its response.

4. The Bill rightly focuses on reducing emissions of greenhouse gases. However, we are already locked into the changes that climate change has already brought. We believe the Government should place far more emphasis on dealing with those consequences. We focus our comments on the provisions in Clause 37 giving the Secretary of State a duty to report on adaptation to climate change and our perspective on that requirement.

THE FOCUS ON ADAPTATION

5. The impact of climate change will extend to many areas of our lives whether it be health, food production or international development. As a wildlife organisation, we are particularly concerned about the impacts on our natural environment. The events that are likely to have a significant impact on biodiversity include an increase in the frequency of extreme weather events including unseasonal storms and floods, milder winters, hotter and drier summers, and sea level rise particularly in the southern and eastern part of the UK.

6. We are concerned about the potential loss of biodiversity such as the extinction of particular species, but also because the natural environment provides us with important services. These services are important for our own basic survival such as providing us with clean air and water, or by breaking down pollutants, reducing flood risk, pollinating crops and regulating climates. They also contribute to our mental and physical health. The concept of “ecosystem services” is now acknowledged by Defra which is developing what it calls the “ecosystems approach”¹⁰⁸. Dealing adequately with changes to our natural environment will therefore be crucial for us all. The Stern Review¹⁰⁹ also highlighted the need to consider the impact of climate change on biodiversity (see Appendix for extract).

7. We are still building up knowledge about the impacts of climate change on the natural environment. Defra has recently published a document highlighting the potential changes and guidance on helping biodiversity to adapt to climate change.¹¹⁰ It highlights the impacts on the natural environment which include:

- The change in timing of seasonal events such as migration and flowering.
- The increase and decrease of abundance of species at particular sites.
- A change in the range of particular species, particularly northwards and on to higher ground.
- Changes in habitat preference such as cooler grasslands.
- There is some evidence that increased carbon dioxide can result in increased rates of bog decomposition or growth in forest biomass.

APPLYING ADAPTATION—THE WILDLIFE TRUSTS’ APPROACH

8. The Wildlife Trusts have been developing an approach for dealing with these challenges which involves a number of elements (see also footnote ¹¹⁰). To enable species to move northwards the landscape needs to facilitate that movement by ensuring that the landscape is permeable and connected. Some of the barriers to this include urban development, infrastructure development (roads and services) and intensively farmed land. Land ideally needs to be a network of open habitats, such as wetland, moorland and woodland, which are connected together to form an ecological network. Networks should comprise areas that are sufficiently large to support populations of species with a surplus for dispersal to new areas, and viable habitats. Many Sites of Special Scientific Interest and nature reserves can provide the basis for this. Networks also require connectivity which is made up of areas such as Local Wildlife Sites, urban land rich in green space and green corridors along rivers, ensuring that the landscape is more permeable and resilient to change. Developing our vision requires a strategic consideration of the existing landscape, and an assessment of opportunities to join up or extend habitats, such as through habitat recreation.

9. Around the UK, Wildlife Trusts have been using this approach to expand sites of greatest value for biodiversity to create more resilient larger areas, together with improving connectivity by linking and buffering sites. We are already seeing the benefits of expanding and enhancing at a landscape-scale to provide species and habitats with the resilience and flexibility to cope with the changes brought about by climate change. We are also seeing how this approach can help provide more robust functioning ecosystems that deliver the essential services of flood protection, aquifer recharge, soil conservation, pollution control and absorption of carbon dioxide.

¹⁰⁸ *A new Vision for the natural environment: towards an ecosystems approach* (draft version), Defra, December 2006.

¹⁰⁹ *The Economics of Climate Change: The Stern Review*, Nicholas Stern, 2006.

¹¹⁰ *Conserving biodiversity in a changing climate: guidance on building capacity to adapt*, 2007, Defra on behalf of the UK Biodiversity Partnership.

10. Our approach, along with examples of specific projects, is illustrated in our report *A living landscape*¹¹¹. Wildlife Trusts play a role in delivering this vision by shaping decisions about land management through advice to landowners; acquiring land to manage themselves; and influencing land use through the planning system. Throughout this work, Wildlife Trusts are working in partnership with other bodies, landowners and local communities.

POLICY IMPLICATIONS

11. Wildlife Trusts cannot deliver this vision without the right policy framework. It requires a shift in many measures that impact on land use and land management, whether they originate from key departments of UK and national government, regional planning bodies, or the role of local authorities. Policies should work with natural processes to ensure long-term cost effectiveness and sustainability, such as moving flood management away from hard defences to more natural solutions and to increasing the permeability of the urban development.

12. The following are some of the policy levers and measures, that apply across a range of Government departments, which can assist the delivery of adaptation and landscape scale conservation.

- *The planning system* is an important tool which, under the right framework, could help deliver significant benefits for climate change adaptation. Protected sites are a vital element in the planning system as they provide the backbone for adaptation as they contain reservoirs of high quality biodiversity. Climate change does not remove the need for these protected areas, rather it increases the need to safeguard and nurture them.

National Government should facilitate UK-wide spatial framework for landscape scale conservation. An important basis for this approach is climate adaptation opportunity mapping which would identify where habitats could be recreated or restored. It would be based on current and historical local data from local records centres and voluntary bodies. Opportunity maps should be embedded in Regional Spatial Strategies, which set the vision in context.

The regional and local planning system should encourage spatial patterns of development in line with opportunity maps to facilitate adaptation, rather than allowing the development of barriers to the movement of species and habitats. In addition, Government should use incentives such as the Planning Gain Supplement and stimulate or devise statutory measures to promote landscape scale habitat restoration and creation within new developments.

As a matter of principle, all new major developments, whether they are housing schemes, a port scheme or a major project like the Olympics, should be designed to make the urban and rural landscape more 'permeable' to wildlife.

We are concerned that the recently published Planning White Paper fails to value the importance of the natural environment or the services it provides, and will not facilitate the approach we need. Of particular concern is the failure to embed a sustainable duty within the new system to deal with major infrastructure projects. Similarly, the Energy White Paper threatens to undermine safeguards within both the current planning system and the Marine Bill White Paper that can promote adaptation. The Draft Planning Policy Statement on Planning and Climate Change, published in December 2006, was a step forward in helping local planning authorities take climate change adaptation into account in their decisions but planning policy must be far more proactive and based on the principles set out above.

- *Local Strategic Partnerships* can facilitate this approach through Local Area Agreements. Ensuring the right set of indicators for Local Area Agreements in the future could have enormous potential in helping to facilitate local adaptation delivery.
- *Agriculture policy* Agricultural support schemes have the potential to play a pivotal role in delivering adaptation and mitigation. Policy change needs to promote greater synergy between the benefits of cross-compliance and Entry Level Stewardship; ensure that physical linkage and networking of environmental measures on the ground happens; and that Higher Level Scheme is targeted where it delivers greatest benefits in climate change adaptation. Further reform of the Common Agricultural Policy is also required to ensure increased funds for adaptation measures.
- *Water resource management* Water policy should reflect environmental limits and habitat enhancement identified through opportunity mapping, to set it in the context of climate change adaptation. Policy measures such as flood management and water price reviews should be driven by climate change adaptation

¹¹¹*A Living Landscape*, The Wildlife Trusts, 2006.

 CLAUSE 37: GENERAL DUTY TO REPORT ON ADAPTATION TO CLIMATE CHANGE

13. The Wildlife Trusts believe that the Climate Change Bill represents a major opportunity to demonstrate joined-up Government in considering government-wide policy and action on adaptation. We welcome the requirement in Clause 37 for the Secretary of State to produce this report as we hope it will increase attention right across Government on this aspect of climate change.

14. However, the Secretary of State's report should not be considered in isolation. The activity around the report and the background to it is perhaps the most important consideration. We have demonstrated that there are a broad range of Government policies, many implemented at a regional or local level, which could help the natural environment to adapt. And we are conscious that the natural environment will be one of a number of adaptation issues that will need to be considered.

15. **The starting point is the adaptation strategy** The Government is in the process of producing an adaptation strategy, due to be published later in 2007. This should provide the starting point for the practical implementation of this duty. The Strategy itself should set out the challenges with adaptation right across government activity, and set out what action the Government needs to take. It should be based on the ecosystems approach and the principle of limits to growth as its starting point, and include positive steps that are required as well as negative impacts that should be avoided. This should be a meaningful strategy that will change and drive policies across Government that impact on land use and land management such as planning or agriculture. The draft strategy should be consulted on by stakeholders and the final strategy would provide the basis on which the Secretary of State would report. The public would have an opportunity to assess progress on policies, but also whether those policies were appropriate.

16. **Baseline mapping** The adaptation strategy should also include the need for an effective baseline map of UK land cover and support a system for monitoring land use change that can provide an accurate assessment of progress towards our adaptation strategy, and the information to support opportunity mapping highlighted above.

17. **Monitoring** Given that there may be some unintended consequences of climate change, the report should include results of monitoring the risks, impacts and policies that were set out in previous reports. This should ensure the Government assess whether new policies need to be introduced or others changed.

18. **Commission on Adaptation** We are dealing with an issue which needs to be considered both in the long term and across a broad range of policies. Consideration of the implications and suggestions for action should involve a broad range of interests and stakeholders. We suggest that the Government consider establishing a Commission on Adaptation which could conduct inquiries into different aspects of the problem, call on particular expertise and engage with stakeholders. They could take evidence, conduct research and propose recommendations for action and policy, published in reports. The Secretary of State could respond to the Commission's recommendations in his/her report. We believe such a body would assist in involving the public in the process of responding to this change.

19. **Linking report into the Spending Review process** Given the breadth of policies the report might bring together, and the implications for spending public money, it might be appropriate for the report to be published in advance of the Comprehensive Spending Review so implications could be taken into account when key spending decisions are made.

20. **Amendment of the biodiversity duty** From the natural environment perspective, there is a measure in existing legislation that could be amended. All Government Departments and public bodies currently have a duty to 'have regard to the conservation of biological diversity' (the Countryside & Rights of Way Act [2000] and Natural Environment and Rural Communities Act [2006]). This could be amended to include specific reference to promoting connectivity and ensuring that wildlife can adapt to climate change with the words added 'and facilitating its adaptation to the effects of climate change.' The Secretary of State's report should include an assessment of public bodies' progress towards meeting this duty.

June 2007

APPENDIX

QUOTE FROM THE STERN REVIEW ON ADAPTATION IN THE NATURAL ENVIRONMENT IN THE UK

Protecting natural systems could prove particularly challenging. The impacts of climate change on species and biodiversity are expected to be harmful for most levels of warming, because of the limited ability of plants and animals to migrate fast enough to new areas with suitable climate (Chapter 3). In addition, the effects of urbanisation, barriers to migration paths and fragmentation of the landscape also severely limit species ability to move.

For those species that can move rapidly in line with the changing climate, finding new food and suitable living conditions could prove challenging. Climate change will require nature conservation efforts to extend out from the current approach of fixed protected areas. Conservation efforts will increasingly be required to operate at the landscape scale with larger contiguous tracts of land that can better accommodate species movement.

Policies for nature protection should be sufficiently flexible to allow for species' movement across the landscape, through a variety of measures to reduce the fragmentation of the landscape and make the intervening countryside more permeable to wildlife, for example use of wildlife corridors or "biodiversity islands".

June 2007

Joint memorandum by the Centre for Alternative Technology (CAT) and the Public Interest Research Centre (PIRC) (CCB 79)

1. *What the main aims and purposes of the Bill are and why it is needed*

1.1 The Bill should focus on creating conditions for the UK to rapidly decarbonise and act as a catalyst for effective international action on climate change mitigation.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed*

2.1 The Government should pursue a cap and trade scheme designed along the lines of Tradable Energy Quotas (TEQs).¹¹² TEQs strike the most efficient and equitable balance between the absolute need to achieve predefined carbon reductions, and support individuals and business to find the most efficient means of working within that carbon budget. TEQs supports the pursuit of renewable energy options that are unconstrained by the carbon budget.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

3.1 Personal allocations of carbon quotas, which could be accessible optionally with an oyster-style carbon card, secure direct feedback to the public in actively pursuing energy and carbon savings.

4. *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence*

4.1 A budget should be set for carbon dioxide equivalents. Fuels should be rated for their CO_{2e}. Other measurable activities such as, agricultural land use and cement manufacture should be considered for inclusion.

4.2 The CO₂ emissions reductions target of 60% by 2050 is inadequate on several fronts: The reductions need to be set in a global context. Currently no Global arrangement exists that defines and implements an emissions trajectory towards stable atmospheric concentrations. In the absence of such arrangements the Bill should recommend a global framework of Contraction & Convergence¹¹³ as the basis for a UK carbon budget. There is a globally agreed year on year "Contraction" of annual carbon budgets. The emissions permits that comprise these annual budgets are distributed between nations, with a "Convergence" over time to equal per capita distribution. Proxy figures for the global contraction budget and the year of international convergence will need to be specified.

4.3 The Bill and the climate change policy committee should formulate its core objectives on the basis of a UK contribution to mitigating dangerous climate change, of which reductions to green house gas emission is only one component.

4.4 The committee should explicitly recognise that: Climate stabilisation requires that radiative forcing (the difference between the flows of heat energy into and out of the earth's atmosphere) from all agents be reduced to zero and then sustained in near-zero equilibrium. And that further than this, stabilisation of the climate within acceptable levels of dangerous climate change may require a period of negative radiative forcing before the final equilibrium is achieved.¹¹⁴

¹¹² Fleming 2005.

¹¹³ As proposed by the Global Commons Institute and widely supported as the most pragmatic global framework for negotiating global constraint on carbon emissions.

¹¹⁴ Wasdell 2007.

5. *What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so*

5.1 The Government faces an administrative challenge in controlling UK carbon emissions. This can most effectively be managed through a carbon budget that defines a limited number of carbon quotas that are issued to individuals and auctioned to business. The quotas must be relinquished on purchase of fossil fuel carbon.

5.2 The control of carbon quotas will be made more challenging through potential leakage to overseas emissions that are incurred through imported goods and services. A programme of augmenting import taxes (policed by HM revenue and customs) with carbon import taxes will be required. The carbon-balance-of-trade currently stands at about 7% of the UK's carbon footprint.¹¹⁵

6. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target*

6.1 The primary objective of a cap and trade system is an assured limit to future emissions which is sometimes interpreted as a "reduction in emissions". As a mechanism for delivering limited emissions, cap and trade is only as effective as the cap. Therefore connecting a capped system in one country, to an uncapped system in another, results in puncturing the integrity of the first country's cap and consequential leakage of carbon.

6.2 International trade in carbon should operate strictly within a coalition of carbon capped countries. The option to trade will encourage the UK to help create the coalition, share best practice with other nations and develop legislation for certified international cap and trade arrangements.

6.3 The UK should look to trade with other nations to secure a number of benefits which:

- (a) increase liquidity of the certified and capped carbon market;
- (b) promote best practice of which this Bill has the opportunity to be an example;
- (c) find the most cost effective way of reducing overall global carbon emission; and
- (d) assist in technology transfer to reduce emissions.

6.4 Limitations on the number of "emissions reductions" that can be bought from overseas is an artefact of the language and framing of "carbon reductions". When carbon quotas are the basis of the budget for a cap and trade system, trade can be promoted without restraint, safe in the knowledge that the cap is absolute. Efficient reductions will be made everywhere.

7. *No comments.*

8. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

8.1 A proper design of the system used to implement the carbon budget will meet the Government's targets and negate the need for penalties.

8.2 TEQs envisages that all purchases of fossil fuels be conditional on relinquishing quotas. The scheme is self-enforcing at the level of fossil fuel vendors. Quotas would be relinquished by individuals and business to vendors at the point of fossil fuel sale. Vendors would require these quotas in order to balance their quota requirement for purchasing fossil fuels from primary producers or importers. The Government would only be required to audit the primary producers or importers. Where sales of carbon fossil fuels do not match quotas received, fines would be levied. Significant and or repeat offences would need to be penalised through restrictions on doing future business.

9. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations*

9.1 The strength of a cap and trade scheme comes from defining boundaries to which the cap applies, both in terms of the commodity being capped and the sectoral or geographic boundary it has. The UK as a whole provides a natural geographic boundary for a cap. Likewise, leakage will be minimised by applying the cap to all sectors of activity within the UK, private and public, industry and domestic.

¹¹⁵ Derived from: UK Carbon Attribution Model, Centre for Environmental Strategy, University of Surrey, 2005.

10. *No comments.*

11. *No comments.*

12. *Whether the delegated powers contained within the Bill are appropriate and adequate*

12.1 The delegated powers are both appropriate and adequate for laying the groundwork for a TEQs style scheme. It remains to be seen if they will be used appropriately.

12.2 The window of opportunity to address climate change effectively is small and shrinking. This Bill should include within its remit a fully defined mechanism for cap and trade.

12.3 If the objective of the Bill is to restrict the future emissions of greenhouse gases in the UK, its delegated powers are not adequate. The Bill should extend to defining a cap and trade scheme in as much detail as TEQs and more.

June 2007

Memorandum by the NHS Confederation (CCB 82)

The NHS Confederation welcomes the opportunity to respond to the consultation on the draft Climate Change Bill. We are generally supportive of the both the rationale and key elements of the Bill.

The NHS Confederation brings together the organisations that make up the modern NHS across the UK. Our membership comprises around 92% of NHS organisations across the UK. We work with our members to transform health services and health for the better. As an independent driving force, we do this by:

- influencing policy and public debate;
- connecting health leaders through networking;
- involving our members in our work; and
- representing NHS employers.

Climate change is a key priority for the NHS. The most recent findings from the Department of Health and Health Protection Agency report *Health Effects of Climate Change in the UK* confirm and add detail to concerns that increasing extremes of weather threaten to put severe strain on public health:

- more people will be hospitalised as a result of major emergencies;
- more frequent and severe heatwaves could result in an increase in heat-related deaths;
- cases of skin cancer and cataracts are likely to increase by 5,000 and 2,000 per year respectively;
- cases of food poisoning could increase by 10,000 per year; and
- a population under climatic stress is more likely to be prone to mental health problems.

The NHS is already taking action on climate change, for example through mandatory energy consumption targets for buildings. The NHS Confederation is working with its members to see how the NHS can act as a local leader on climate change. We are about to publish a report *Taking the temperature*, which examines the ways in which the NHS is already and can in future respond to global warning. This includes a number of examples of good practice from our members.

KEY POINTS

- The NHS is already taking action on climate change.
- The creation of minimum statutory targets will provide certainty over Government intentions and commitment, and facilitate effective investment.
- The NHS Confederation supports an independent Committee on Climate Change. It is imperative that this includes health experts, who can advise on both the public health implications of climate change, and the “on the ground” ability of the NHS to contribute to the target. The factors to be considered should explicitly include health.
- We believe the draft Bill does not place sufficient emphasis on adaptation which is a key issue for the NHS, with its mix of old facilities and new buildings coming on-line. It is important the progress referred to around the cross-Government framework regarding adaptation is accelerated. There may need to be financial incentives around upfront investment and the need for revenue support to projects with wider benefits in addressing climate change and where payback is longer-term, to ensure the NHS contributes as fully as possible to the target.
- Whilst we support regular reporting and emissions trading schemes, the additional transaction costs and bureaucracy associated with these should be minimised.

Setting statutory targets

The 60% target outlined in the draft Bill should be set as a minimum level, and the Bill should allow for this to be raised as further data on the science and economics of emissions becomes available. We agree with the initial focus on CO₂ but suggest the Bill should make explicit the process and timing for reviewing the inclusion of other greenhouse gases (GHGs).

Carbon budgeting

We agree with statutory budgets. We believe a five year period could be too long. The average length of UK Parliaments is four years and a five year period may be too long to ensure the target is sufficiently challenging to both incentivise and respond to technological innovation. As the average lifecycle for technology in the NHS is around 7–10 years, to allow for investment planning we agree with setting (at most) three budget periods in statute at any point in time.

Reviewing targets and budgets

We agree that targets can be reviewed, so long as this is on the advice of the independent Committee on Climate Change and agreed by Parliament. It is vital that the Committee members have the skills, experience, and independence necessary in order for a balanced and unbiased view of the factors that inform the carbon budgets can be taken.

Overseas credits, banking and borrowing

We agree that limited borrowing between budget periods should be allowed, though further consideration and guidance will be needed on how to minimize transaction costs and co-ordinate across sectors.

Compliance with carbon budgets and targets

We believe a legal duty for the Government to stay within the limits of its carbon budgets will provide certainty over Government intentions and commitment, and allow the NHS to plan its investment effectively.

The Committee on Climate Change

We strongly support an independent committee, with an advisory and analytical role, which includes a representative from the NHS. We would stress that the factors the committee needs to take into account should explicitly include health, and consequently the committee needs to include specific expertise in health, both from the perspective of the impact of climate change on health and health service provision, but also the ability to advise on the ability to the NHS to contribute to the overall budget and target from a more technological investment viewpoint.

We do not necessarily see there is a distinction between technical experts and stakeholder representatives; the NHS Confederation would be pleased to propose individuals who meet both criteria from amongst its membership.

Reporting

In principle we support regular progress reporting. We would ask, however, that the NHS is consulted for its views as the regulatory regime is developed as we would seek to avoid increasing the “burden of bureaucracy” upon the NHS and consequent diversion of activity away from areas where it might add greater value. We suggest an impact assessment would be helpful to determine the optimal frequency and content for reports.

We do however believe that much greater emphasis needs to be placed on adaptation as this is a key issue in the Bill for the NHS. It may be helpful therefore to consider a baseline report as soon as possible to identify the risks facing the NHS and the support needed in this area for change management.

June 2007

Memorandum by the Mid Yorkshire Chamber of Commerce and Industry (CCB 83)

The Joint Committee expects to concentrate its inquiry on the following themes:

1. What the main aims and purposes of the Bill are and why it is needed

The draft Bill is a clear indication of the Government view that the necessary behaviour changes will not take place purely on a voluntary basis in the absence of some legislative action. A major review by the Department for Transport about three years ago related particularly to car usage, emphasised this and produced evidence that individuals and the public generally, expected the Government to lead with action.

The draft Bill sets up the framework for the UK to achieve its long-term goals of reducing carbon dioxide emissions and ensure steps are taken towards adapting to the impacts of climate change. A longer-term framework is needed to enable UK industry and business effectively to plan and invest in technology and practices in order to move towards a low carbon economy.

The Bill follows publication of the UK Government Policy on Sustainable Development and criticism from independent advisory bodies that the Government was not doing enough to bring about reductions in emissions of greenhouse gases.

In his foreword to the consultation paper on the draft Bill published by DEFRA, the Prime Minister states that the Bill is the first of its kind in any country, which has serious implications in particular, for the competitiveness of UK industry and business resulting from unilateral action. It is laudable to take the lead by setting an example while seeking multi-lateral agreements, but it unacceptable to be locked into a position whereby the UK is permanently disadvantaged compared with countries, which are acting more 'flexibly' with regard to targets. This is all the more relevant in the context that the UK produces only 2% of global CO₂ emissions.

2. To what degree is it appropriate to legislate regarding carbon targets and budgeting and how should the balance between compulsory and voluntary action best be achieved and assessed

The setting of legal targets inevitably brings with it the need for legislation with regard to ensuring the achievement of these targets. Question 1 in the consultation paper on the draft Bill is—"Is the Government right to set unilaterally a long-term legal target for reducing CO₂ emissions". While the proposed five year targets are better than annual ones, MYCCI does not believe that the Government should set legal targets unilaterally i.e. irrespective of lack of equivalent action by other countries. A legal target does not give room for manoeuvre and reduces very considerably, if not completely, the scope for voluntary action.

3. Whether the omission of the role of local government from the draft bill will hinder public support for and engagement with, the aims of the legislation

This would not seem to be of major significance as the public is aware that with regard to issues of a national dimension, local authorities are acting merely as agents of central government. In any case, powers in themselves are not the answer and the will is also needed; local authorities have had the power to introduce road pricing for several years, but apart from central London and one or two small schemes in the provinces, the power has not been exercised.

4. Whether statutory targets should be set only for carbon dioxide and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence

Question 2 in the consultation paper by DEFRA is "Is the Government right to keep under review the question of moving to a broader system of greenhouse gases and budgets and to maintain the focus at this stage on CO₂". MYCCI responded in the affirmative and the basis of the added complexity to a massive commitment and would involve the UK taking on a wider greenhouse target.

The statutory targets should be set only for carbon dioxide at this stage, particularly because of its importance and is a big enough undertaking to grapple with and gain experience and setting a target for a basket of greenhouse gases would add considerable complexity and certainly should not be on a unilateral basis.

5. What difficulties face the Government in controlling UK carbon emissions and determining the optimal trajectory towards the 2050 target and whether a system of five year carbon targets and interim targets represent the most appropriate of doing so

In view of the proposed legal commitment, the five year targets are to provide some flexibility to meet particular externalities i.e. the pressure of a very severe winter in one particular year on heating requirements. However, it has to be borne in mind that the emissions in each and every year count towards the budget. The interim targets provide the opportunity to assess progress and make adjustments to avoid

more drastic measures at a later date. It is noted that while the clause creating a duty on the Secretary of State to reduce the net UK carbon account to meet a target, a sub section allows the target to be amended by secondary legislation in certain circumstances. No doubt, there is in mind, the possibility of making targets even more challenging, but there is also the possibility of reduction in the face of unforeseen difficulties.

6. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target*

Question 7 in the consultation paper on the draft Bill is—“Do you agree that, in line with the Stern Review and with the operation of the Kyoto Protocol and the EU Emissions Trading Scheme, effort purchased from other countries, should be eligible in contributing towards UK emissions reductions, within limits set under international law?”

The response of MYCCI to this was in the affirmative. However, there is the issue of the quality of emission trading schemes and the genuineness of the balancing of emission liabilities. Even with the EU Emission Trading Scheme, there have been disparities, with some member states issuing their industries with more allowances than they needed, whereas the UK government has imposed a tight cap in line with European Commission guidance. There is good reason to believe that some of the ‘exchanges of credits’ in the international arena, are not completely genuine ie a paper exercise. At present, some individual countries have established carbon funds, including Denmark, Italy, the Netherlands and Spain. Perhaps the time has come for the establishment of an International Carbon Fund by international agreement, bearing in mind that the agreements under the Kyoto Protocol, expire at the end of 2102.

There is good reason to believe that some of the exchanges of credits in the international arena relating to carbon emissions are not completely genuine, ie a paper exercise. The suggestion has been made that an International Carbon Pricing Authority should be established, which would set a global price for carbon. Individual countries would have to put in place arrangements to ensure that such a price was reflected in investment decisions.

7. *Whether the proposed constitution, remit, powers and resources of the Committee on Climate Change are appropriate and the extent to which its function may overlap with and be partially dependent on forecasting and analytical activity within departments*

In its response to the consultation paper on the draft Bill from Defra, MYCCI supported the proposed Committee on Climate Change as a NDPB provided that there is proper representation for the business community. Just one of the eight factors listed for the Committee is ‘economic circumstances’, Another of the factors is ‘international circumstances’, which MYCCI trusts will cover what other countries are not doing with regard to restrictions compared with the UK.

Although it would have a strong analytical role, it should also be able to deliver advice and for it to be respected, particularly in relation to options. With regard to analytical activity in government departments, the available information is that certainly most of them are not doing a very good job so far, in responding to the challenges of climate change. Government departments can make a contribution by deeding in information, but the Committee on Climate Change would have the overarching role and in particular with regard to assessment.

The ancillary powers for the Committee on Climate Change are very important—namely, to do anything that appears to be necessary or appropriate for the purpose of, or in connection with the carrying out of its functions. One can imagine that one example is the right for information from any business or organisation.

MYCCI is pleased to note that in the clause that gives the Secretary of State power to give general and specific directions to the Committee on Climate Change, there is a subsection that provides that the Secretary of State may not direct the Committee as to what its advice should be or what a progress report should say.

8. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and if so, whether to would be an effective enforcement mechanism*

The real issue is the relationship with other countries. The Bill is hailed as the first of its kind in any country and is intended to show the UK is giving the lead, Therefore, if the targets are not met, does the Government take remedial action by shutting down power stations?! What is the purpose of legally set targets, unless there are consequences for failure to meet those targets?

9. *How the provisions of the Bill; will relate to the devolved parliament and assemblies (Wales and N. Ireland) and their administrations*

Due to devolution, the area of climate change is complex, bearing in mind that elements of energy policy are currently reserved matters. It is essential that the effects of the Climate Change Bill apply equally in all four countries of the UK even if powers are in a different name, i.e. from the Scottish Parliament instead of from Westminster.

10. *Whether the provisions of the Bill are compatible or appropriate within the framework of European targets*

There are no EU Directives at present to conflict with the Bill.

11. *How the contents of the Bill will affect international climate change activity*

The “leadership” of the UK is not likely to have a great affect on other countries that are major emitters such as the USA, China and India, which has not even signed up to the Kyoto Protocol. In any case, the UK is responsible for only 2% of the global emission of CO₂.

12. *Whether the delegated powers contained within the Bill are appropriate and adequate*

There are a range of policies available to achieve reductions in emissions. These include tax, voluntary agreements, additional regulations, awareness raising and trading schemes. Enabling powers, with particular reference to the introduction of trading schemes in various sectors, should be adequate. The ability to do this through secondary legislation is important in the context of acting flexibly and swiftly. Much will depend on the credibility of the arrangements for trading emission schemes and the genuineness of the exchange transactions. Businesses need as much advance information as possible about the Government’s intentions, so that they can properly plan.

June 2007

Memorandum by the Association for the Conservation of Energy (CCB 84)

INTRODUCTION

The Association for the Conservation of Energy is a lobbying, campaigning and policy research organisation, and has worked in the field of energy efficiency since 1981. Our lobbying and campaigning work represents the interests of our membership: major manufacturers and distributors of energy saving equipment in the United Kingdom. Our policy research is funded independently, and is focused on four key themes: policies and programmes to encourage increased energy efficiency; the environmental benefits of increased energy efficiency; the social impacts of energy use and of investment in energy efficiency measures; and organisational roles in the process of implementing energy efficiency policy.

We very much welcome the opportunity to submit this response to the committee. As would be expected, we are concentrating on the possible role in local authorities cutting carbon emissions through working in partnership to increase energy efficiency in their own estate, local private housing, and local businesses.

RESPONSE TO THE JOINT COMMITTEE FROM ACE

ACE believes that the overarching target in the Bill to reduce CO₂ emissions by 60% below 1990 baseline levels by 2050 is inadequate. The 2050 target should reflect current scientific opinion as to the cuts necessary to keep the UK within its “fair share” of global emissions compatible with keeping temperature rises below two degrees Celsius. This means that the 2050 target should be for at least an 80% reduction in CO₂ emissions. This would set an exceptionally vigorous example to the rest of the world.

In addition, it is of concern that there is no limit in the draft Bill on what carbon credits can be purchased from abroad. The Government should be aiming for 100 percent internal provision to achieve the UK target.

ACE believes strongly in the effectiveness of statutory targets, with the sanction of Judicial Review. These will not only give direction to Government—statutory targets are vital to give business the certainty it needs to make the appropriate investment decisions. For building materials (including energy efficiency materials), the investment required to increase production is immense, and local workforces must be trained up and retained. This is not a business where imports can be relied upon to make good a shortfall in UK production—imports are more expensive because of the bulky nature of the materials. For this reason and

several others, ACE supports sectoral targets, as set out in the proposed amendment to the draft Climate Change Bill. The Bill should oblige every government to publish a strategy for reducing emissions in line with carbon budgets, which should specify the emissions budget allocated to each sector (such as transport/power sector/local government) and the instruments by which the government will ensure that each sector stays within its carbon budget.

In addition, the five year “budget cycle” set by the UK government in its draft Bill is too long without adequate accountability. A cycle of Government reports, in Parliament, on annual “milestones”—a form of target—would be more appropriate. The UK’s share of aviation and shipping (presently ignored by HMG) should be included, and there should be a tight limit (also ignored by HMG) on carbon credits that can be bought from abroad to count towards UK targets.

It does not make sense to look at the UK’s approach to tackling climate change and CO₂ emissions without including the role of local authorities, which should have their own collective target set as part of the sector targets mentioned above.

Local councils have led the field on many environmental issues and induced national Government to follow—an example is the “Merton Rule” in planning. Unfortunately, active councils are exceptional, and research shows that other issues take a higher priority in most councils, with many claiming insufficient staff and financial resources to make progress on climate change issues. Many local authorities have reached the view that unless something is statutory, or they are measured on it, they are not going to do it. Therefore there needs to be a performance indicator, set by central government. Information from DCLG suggests this is being considered.

Following the setting of a target for local government, ACE suggests that councils can take action themselves on sustainable energy on these issues:

1. Councils should make sure their Building Control section enforces Building Regulations covering energy and thermal performance. Surveys have shown that 1 in 2 new houses currently fail to meet the current Part L standards.
2. The biggest barriers to some renewable technologies is the planning system, and there is a substantial gap between the varying high level policies of sustainability adopted by local authorities and the everyday decisions made by their development control officers and councillors.
3. Own estate: councils, such as Woking, who are interested in energy usually started by saving money on their own energy bills. To encourage the others, all local authorities (above tertiary level) should be included in the mandatory Energy Performance Commitment scheme (EPC), now renamed CERT.
4. Councils are major employers in their local area. Low-cost education schemes on saving energy not only help corporate bills, but there is some evidence that the employees use the techniques in their own homes.
5. Councils should work with energy suppliers to help enable Energy Efficiency Commitment measures to be installed locally. For example, the Council Tax reduction for householders installing energy-saving measures has attracted widespread support as an EEC promotion.

Specific Government support in terms of reformed Government policy is required to create more ESCOs and Decentralised Energy Systems: a government report is expected soon, and hopefully the practical reasons why district or distributed energy thrives in other countries such as Denmark—but not in the UK—will feed through into changes in legislation and regulation.

June 2007

Memorandum by the Aviation Environment Federation (CCB 86)

Aviation’s inclusion in the EU ETS will not necessarily mean that aviation is included in the Climate Bill targets

On 20 June David Miliband reassured the Committee that the issues preventing the inclusion of emissions from international aviation would be resolved as part of the negotiations around aviation entering the EU Emissions Trading Scheme. As this process is likely to be completed within 18 months, Mr Miliband sought to rebut accusations that aviation was being “punted into the long grass:

“Once we get the technicalities sorted out on an EU basis, we can incorporate them in a pretty quick way”¹¹⁶

¹¹⁶ Joint Committee on the Draft Climate Change Bill, 20 June 2007, Q691.

But the outstanding issue—how to allocate emissions from international flights to individual countries – **will not be solved by the EU in a way that would be acceptable internationally** (and lack of international agreement is the sticking point). As the Aviation Minister Gillian Merron said to the Committee on 13 June:

“The issue for me is one of calculation and it is not transferable from the basis on which I have described the EU ETS to international aviation across the globe.”¹¹⁷

In fact, the proposal from the European Commission states that:

“In order to reduce the administrative burden on aircraft operators, one Member State should be responsible for each aircraft operator. Member States should be required to ensure that **aircraft operators which were issued with an operating licence in that State**, or aircraft operators without an operating licence **or from third countries whose emissions in a base year are mostly attributable to that Member State**, comply with the requirements of this Directive.”¹¹⁸

In other words, as well as emissions from all UK airlines operating throughout Europe, the UK could be responsible for emissions from all flights to and from Europe by those US airlines whose main European base is Heathrow. Clearly, the UK would never accept these emissions as part of our national targets.

Even if the Commission alters this proposal in terms of its administrative responsibilities, the scheme is still virtually certain to cover **all flights to and from** the EU. This “double pot of emissions could only ever be divided up between Member States in such a way as to allocate to each more than would be a fair share of a truly global apportionment.

If Mr Miliband is indeed mistaken, the only fallback is a stalled process of international negotiation that could take a decade to resolve: aviation would be back in the long grass.

The Committee should urgently seek clarification of this point from Defra, as the Department for Transport appear to understand the matter differently.

June 2007

Memorandum by Stewart Stevenson MSP, Minister for Transport, Infrastructure and Climate Change, Scottish Executive (CCB 88)

You issued a call for evidence to your inquiry into the draft UK Climate Change Bill. I note that one of the topics on which you sought evidence was the way in which the provisions would related to the devolved parliament and assemblies and their administration.

I do not propose to comment at this stage on the way in which the Bill might apply in Scotland, As you know, the consultation paper on the draft UK Bill acknowledged that the Bill had been drafted with all powers and responsibilities appearing to rest with the Secretary of State and that it had not been determined how the functions of the Bill would be performed, whether by the Secretary of State, the Devolved Administrations or jointly.

My purpose in writing to you is to assure you that Scotland is taking action on climate change, We are committed to building on the work already done and developing it further. Joint work will now be going ahead between Defra and the Scottish Executive to clarify how the UK Bill proposals could be implemented. I trust that we shall be able to find an approach to the Bill which meets the requirements of all parts of the UK and assists us in achieving our shared goal to combat climate change.

June 2007

Memorandum by Mr Aubrey Meyer, Global Commons Institute (CCB 89)

1. Details of the respondent:—Aged 43, Aubrey Meyer put brackets around a career in music and co-founded the Global Commons Institute (GCI) in London in 1990. Since then he has campaigned at the United Nations negotiations on climate change to win acceptance of the management of global greenhouse gas emissions through the framework of, “Contraction and Convergence” (C&C). In 1998, he won the Andrew Lees Memorial Award for this and, in 2000, the Schumacher Award. In 2005 the City of London made a life-time’s achievement award to him, saying that from the worlds of business, academia, politics and activism, he had made the greatest contribution to the understanding and combating of climate change having led strategic debate or policy formation. The citation read, “*in recognition of an outstanding personal contribution to combating climate change at an international level through his efforts to enhance the understanding and adoption of the principle of Contraction and Convergence.*” C&C is now cited as, “. . . destined to become one of the most important principles governing international relations in the 21st Century. It is a powerful ethic that incorporates global justice and sustainability” and Aubrey [in a recent edition of the *New Statesman*] as “*one of the ten people in world likely to change it.*”

¹¹⁷ Joint Committee on the Draft Climate Change Bill, 13 June 2007, Q417.

¹¹⁸ http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0818en01.pdf (para 16, page 13).

2. How Contraction and Convergence (C&C) works and the growing and expert support for it, is laid out in some detail on the DVD created by the UK All Party Parliamentary Group on Climate Change published in May 2007.¹¹⁹ 50,000 copies of this DVD have been requested and distributed globally since that time.

GENERAL STATEMENT

3. The United Nations Framework Convention on Climate Change (UNFCCC) was signed at the Rio Earth Summit in 1992. Its objective is to avert the growing climate crisis by stabilising the dangerously rising concentration of greenhouse gas concentration in the global atmosphere caused by human emissions. Its principles are precaution and equity. In a phrase, this means ending unequal rights to use the atmosphere as a dump for emissions without limit as failing to do this will result in the political deadlock that leads to catastrophic rates of global climate change.

4. The objective and principles of the UNFCCC are the legally agreed global basis of success. As stated by the Convention's Secretariat in 2003 and many others, these give rise to an international process of emissions Contraction and Convergence (C&C) where, on the basis of equal rights per person to emit, the global total of emissions must fall fast enough to secure the Convention's objective—safe and stable greenhouse gas concentration in the global atmosphere. This constitutional but flexible rationale was specified to Government in the Report of the Royal Commission on Environmental Pollution [RCEP 2000—"Energy the Changing Climate"].

5. This year [2007] UK government's 'climate-bill' makes the first attempt anywhere to actually legislate for the reduction of the greenhouse gas emissions from human sources. While the Government deserves credit for making this effort, it hardly had a choice given their increasingly vivid statements about the seriousness of the climate change problem.

6. The key is for the bill to be effective:—and the 60% cut in UK emissions by 2050 it proposes is inadequate as any internationally equitable arithmetic based on this will in total exceed any chance for achieving safe and stable greenhouse gas concentration in the global atmosphere.

7. For reasons never explained, and apparently still preferring a global "upstairs-downstairs" relationship between developed and developing countries where the difference between per capita emissions go from very high to very low, the UK Government's bill has cherry-picked its UK national figure [minus 60%] from the Royal Commission while rejecting the international C&C rationale from which it was derived and then advocated as a whole by the RCEP. This is common knowledge globally.

8. Consequently, the practice needed to secure the UNFCCC's objective will continue to fail at an accelerating rate as the overall situation deteriorates for as long as the UK government fails to advocate the constitutionally disciplined numeracy of C&C needed for success with the UNFCCC.

9. Rising greenhouse gas concentration in the atmosphere is an accumulation of human emissions; since emissions are still rising, inevitably concentration is rising too. In total, human global greenhouse gas emissions are like water from a tap flowing into a bath where as the atmosphere the emissions accumulate. To prevent overflow the tap must be turned right off. Instead, the tap of emissions is flowing faster than ever; worse still is the acceleration of this. Natural sinks for these gases—forests and oceans—are like the drain plug in the bath. Where previously around half of the annual build-up of gas in the atmosphere was drained away via these sinks, they are now proportionately less active as sinks and in some cases actually show signs of becoming sources; forests burn, oceans warm and are less biologically active as they acidify and retain less carbon dioxide. In short, the tap is running faster than ever, the drain is blocking up, and the bath level is accelerating upwards and we continue cause the problem faster than we act to avoid it.

10. As James Hansen, James Lovelock, the latest Intergovernmental Panel on Climate Change (IPCC) Report and many others have repeatedly stressed, this process can accelerate beyond any hope of our controlling it, where the consequences will be disastrous for all the children. To deal with this and give them a chance, emissions must fall rapidly and we must do enough soon enough globally for them to keep the objective of the UNFCCC achievable. Children should be turning this rational demand on their parents with a vengeance.

11. In March the UK Government circulated a draft of the climate bill for public consultation where it abandons all reference to the Royal Commission and to C&C. It says hopefully instead that the UK contribution is to place "a clear and credible pathway to a statutory goal of a 60% reduction in carbon dioxide emissions through domestic and international action by 2050." This is hopeless as it is both globally random and internationally inadequate. Against the requirements of the UNFCCC, the figure is a white flag to the changing climate and a red rag to developing countries.

¹¹⁹ Copies of the DVD can be obtained by written request to GCI aubrey.meyer@btinternet.com. Alternatively, interview material is retrievable at this link: http://www.gci.org.uk/images/Contraction_and_Convergence_Challen_et_al.mpg. The DVD also includes a heuristic animation of Contraction and Convergence for a risk analysis of different rates of sink-failure endorsed by prominent industry persons. It is retrievable at this link: http://www.gci.org.uk/images/Contraction_and_Convergence_Risk_Analysis_Sink_Failure.mpg

12. While our Prime Minister calls for developed and emerging economies to work together towards a new binding and inclusive post-Kyoto framework where each country, its businesses and its people play their parts, the Environment Minister of Pakistan comes to Chatham House in London to say that C&C is an idea whose time had come. While the Indian Government calls for the ending of global apartheid in the *Daily Telegraph* saying that the case for C&C is “unassailable”, they reject in perpetuity being positioned as second class climate “petitioners”, promising instead as ‘partners’ never to let their average per capita emission go above the average of the developed countries.

13. The very grave danger we now face is that vacuous ‘sustainable development’ defaults to the futile model of “separate development” that nearly led to a racial conflagration in “apartheid” South Africa.

14. For the UK lead to be clear and credible it must embrace this lesson as a global constitutional truth. The bill needs to enshrine C&C like a global bill of rights. It flies in the face of sanity to go on defending internationally unequal claims on the atmosphere and violate the global limits that are needed to save us all from what the Prime Minister has called a looming “climate catastrophe”. Defending inequality sustains a conflict that has festered at the UN for the last 15 years. Unless stopped it will end in tears.

15. Only when the Government rises to this constitutional challenge by referencing C&C-logic to the emissions control aspirations in the climate bill, can they rightfully claim to lead with the global example that ensures reconciliation with each other and the planet.

SCOPE OF COMMITTEE’S INQUIRY—THE COMMITTEE FOCUSES ITS INQUIRY ON THEMES STATED IN ITALICS. GCI ANSWERS FOLLOW EACH QUESTION [& REF APPGCC C&C DVD PROVIDED]

1. *What the main aims and purposes of the Bill are and why it is needed*

The aims of the Bill are to make into UK law the requirements of UK in the light of its status as a signatory to the United Nations Framework Convention on Climate Change (UNFCCC). The draft bill has an emissions control figure [– 60% UK emissions by 2050 against a 1990 baseline] that is based on no stated rationale or methodology that demonstrates an awareness of the need to solve the climate problem faster than we are creating it. This awareness is needed and its omission is a fundamental flaw in the bill as it stands.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed?*

As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, the UK is already required by international Law to define and deliver its share of the international task defined by the objective and principles of the UNFCCC. Unless and until the rule of law ceases to apply and chaos reigns, all voluntary actions are governed by this institutional reality.

Assessing this task in the sense of global proportionality is fundamental to resolving the challenge and applying this assessment. The absence of having rationally assessed the problem, renders the climate bill into a “symbolic” statute as it potentially governs a merely half-hearted, insufficient and so wasted effort.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

The public individually and both public and private institutions cannot be expected to support, and indeed are unlikely to support, measures that are seen—in the absence of a clear and credible global rationale and a global commitment to this—as doing too little too late.

4. *Whether statutory targets should be set only for carbon dioxide; and the extent to which the proposed 60% emissions reduction by 2050 is adequate, based on the most recent appropriate evidence*

Based on the most recent appropriate evidence of sink-failure and enhance positive feedback to global warming, the control figure is inadequate and irrational; divorced from now available empirical data and feedback about this, it is globally random. CO₂ emissions must be globally rationed according to the Contraction and Convergence (C&C) methodology [on which this figure was originally based]; in the light of this new evidence and simple risk analysis [see DVD]. With this, all and indeed any national statutes set consistent with the internationally agreed C&C objective and principles of the United Nations Framework Convention on Climate Change (UNFCCC) have a chance of being effective. Without this, all and any statutes to this stated purpose are vulnerable to the charge of irrationality and will be overwhelmed.

5. *What difficulties face the Government in controlling total UK carbon emissions and determining the optimal trajectory towards the 2050 target; and whether a system of five year carbon budgets and interim targets represents the most appropriate way of doing so?*

The difficulties faced by this and indeed all governments, here and abroad over the next few decades are “quantum”. We need to know where we are and where we are going in relation to, but also in concert with, everyone else [ie jointly and severally] throughout the multi-decadal period relevant to the integral of emissions that is consistent with achieving the objective of the UNFCCC. This by definition is “teleological” and this is not moment to go out of focus. It means that the “optimal trajectory” cited nationally is inextricably linked with the “optimal trajectory” internationally/globally. The suggested distinction and choice between UK annual, or UK five-year, budgets is meaningless in the absence of a global rationale. This is where the UK bill is at its weakest—the control figure is devoid of any such rationale and this makes this “choice” and efforts to resolve it appear theoretical and even pedantic.

6. *The extent to which carbon sequestration and the use of credits from overseas investment projects should be permitted; and whether the Bill should specify the maximum amount and type of carbon credits from such sources which should count towards the target*

“Carbon credits” from “sequestration” and the various forms of “off-sets” are largely symbolic in the absence of a rigorous accounting system which in turn is rigorously defined by a clear and credible international framework enumerated of the objective and principles of the UNFCCC. Subject to this C&C framework, all forms of carbon avoidance should be encouraged; without it they will be largely meaningless.

7. *Whether the proposed constitution, remit, powers, and resources of the Committee on Climate Change are appropriate; and the extent to which its function may overlap with, and be partially dependent on, forecasting and analytical activity within departments*

Similarly the UK’s intended ‘national’ committee on climate change is largely symbolic in the absence of a rigorous accounting system defined by an international framework enumerated off the objective and principles of the UNFCCC. Subject to this framework, the creation of this committee and reference to its work will be relevant and essential.

8. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

Similarly the UK’s intended judicial review with enforcement mechanisms for non-compliance will be largely symbolic in the absence of a rigorous accounting system defined by an international framework enumerated off the objective and principles of the UNFCCC. Subject to this framework, the review and enforcement procedures will be relevant.

9. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations*

The relevant unit of globally devolved powers will probably for the UK be from the European Union downwards. Provision of the bill that are devolved from the UK national government to the regions will not be credible if the bill remains as it presently is, including if the EU itself remains unreferenced to any credible global rationale.

10. *Whether the provisions of the Bill are compatible or appropriate within the framework of European Union targets*

See answer to Question 9.

11. *How the contents of the Bill will affect international climate change activity*

This is actually the apex question in this list. The difficulty we all face is that globally we are already well advanced in a process of having cumulatively created this problem much faster than we are responding to avoid it. CO₂ emissions and GDP remain almost perfectly correlated so the problem is double-jeopardy. Damages from climate change—albeit from a lower based—grow on average at twice rate of GDP. Also the benefits of this \$ growth are asymmetric largely favouring the one third of global population who enjoy 94% of US\$-equivalent purchasing power. The two thirds of population who share the remaining 6% are also taking most of the real climate damages. Without C&C this is a recipe for conflict on a scale without precedent. [www.gci.org.uk/briefings/ICE.pdf].

12. *Whether the delegated powers contained within the Bill are appropriate and adequate*

In the absence of the C&C framework they, like the bill itself, are neither.

July 2007

Memorandum by Sustrans (CCB 90)

1. *What the main aims and purposes of the Bill are and why it is needed*

We will not rehearse the imperatives facing us as a result of human engendered climate change. The Bill is needed so as to ensure that the UK responds adequately to those imperatives, and we submit that it must establish a framework which ensures that UK greenhouse gas emissions fall by 3% or more year-on-year from now on, in compliance with a to be established UK Carbon Budget.

It should legislate to:

- Reduce UK carbon emissions by at least 3% each year up to 2050.
- Set binding carbon budgets with annual milestones, to make sure that emissions reductions do not go off track again.
- Include the UK's share of international aviation and shipping in the carbon budgets.
- Provide annual reporting against those carbon budgets, scrutinised by a genuinely independent committee with the power to advise on the level of corrective action to be taken if carbon emissions go over budget.
- Oblige all Governments from now on to publish a strategy for reducing emissions in line with the carbon budgets, which should specify the emissions budget allocated to each sector (such as transport or power generation), and the instruments by which the Government will ensure that each sector stays within its carbon budget.
- Clarify the role of local government in reducing emissions.
- Address the measures needed to secure a change in public and corporate behaviour.
- In the context of transport, enable steady reductions in the distance we travel and the goods that we use are transported.

2. *To what degree is it appropriate to legislate regarding carbon targets and budgeting, and how should a balance between compulsory and voluntary action best be achieved and assessed*

In order to have any realistic chance of avoiding an average increase of more than 2°C, urgent and substantive changes are needed. In view of the current trends, our view is that legislation is needed without further delay. The best mix between compulsory and voluntary action should be a matter for the proposed committee on Climate Change to decide, so long as that committee is truly independent of Government.

3. *Whether the omission of the role of local government from the draft Bill will hinder public support for, and engagement with, the aims of the legislation, and what measures should be included in the Bill to secure a change in public behaviour*

The important question is how will the changes in behaviour and infrastructure that will be needed across the UK be delivered. Local government will have a crucial role to play and that role should be acknowledged in the legislation. The measures to be included in the Bill do not need to deal with how changes in public behaviour should be secured in any particular sector; instead the Bill must set clear, legally binding targets and set out what bodies are to be responsible for the delivery of those targets.

4. *Whether it is possible for the Government to regulate total UK emissions through the use of emissions trading schemes and other policy instruments, and whether carbon budgets over five years are the most effective way of doing so*

We accept that there is a limited (arguably interim) role for trading and support the Cap and Share approach. We argue however that there should be a specific limit on the proportion of traded emissions; if the budget period is five years, such a limit could be set at no more than one years' worth of shortfall from the percentage target in any budget period. While we accept the utility of carbon budgets, we believe that they will be most effective if each successive Government is made fully accountable for the level of carbon emissions generated while they are in power on an annual basis.

5. *Whether the target of 60% emissions reduction by 2050 set in the Bill is adequate, based on the most recent appropriate evidence*

80% is a minimum target based on current scientific consensus and may not be sufficient; the Bill must explicitly refer to the need for the UK to play an equitable part in ensuring that average global temperature rises lower than two degrees Celsius. Even on current science, there are strong arguments which indicate that 450 ppm concentrations of CO₂ imply a 46–85% chance of exceeding a 2°C increase in temperature.¹²⁰ Further, emissions were rising by less than 1% annually but now appear to be increasing by 2.5% per year.¹²¹

6. *Whether the proposed Committee on Climate Change will be able to provide truly independent advice on budgets and cost-effectiveness, given the designated resources at its disposal and the extent to which it may find itself dependent on departmental forecasts and analyses (eg the DTI energy model)*

It is crucially important that the committee be truly independent, including ensuring that it is properly resourced so that it is not dependent on departmental forecasts and analysis. We recommend that appointments be reviewed and approved by the Environmental Audit Committee.

7. *The legal consequences of the Government failing to meet the targets set in the Bill, including whether the Secretary of State should be subject to judicial review and, if so, whether it would be an effective enforcement mechanism*

We consider judicial review to be an appropriate enforcement mechanism and anticipate that it would be effective.

8. *How the provisions of the Bill will relate to the devolved parliament and assemblies and their administrations*

Devolved administrations should be encouraged to play a positive role in the achievement of carbon reductions across the UK.

10. *How the contents of the Bill will impact on international climate change activity*

In line with our view that the Government is to be commended for taking a world lead in this matter, the opportunity should be taken to set a high standard of commitment to reducing climate change emissions for others to follow across Europe and globally.

May 2007

Memorandum by Professor The Lord Norton of Louth (CCB 91)

CONSTITUTIONAL POSITION

The Bill appears to be distinctive in constitutional terms. I have not had an opportunity to determine if the provisions of Clause 1 of the Bill are unique in constitutional terms but I know of no obvious precedent.

It is not unusual to impose statutory duties on a public authority to meet specified goals but these are duties that the authority is deemed able to fulfil within the powers and resources vested in it. The goals may be drawn in such broad terms as to constitute what are sometimes termed “target duties”, embodying recognition that they may not realistically be met in full.

Clause 1(1) of the Draft Climate Change Bill imposes a very specific duty—to *ensure* that “the net carbon account for the year 2050 is at least 60% lower than the 1990 baseline”—that does not obviously permit of ambiguity (other than in the use of the term “target” in the heading) and one that is beyond the capacity of the Secretary of State to deliver in that it relies on circumstances that are beyond his control. The same consideration applies to the provision of Clause 2(1)(b). The Bill empowers the Secretary of State to create means designed to help deliver statutory obligations but which are not necessarily sufficient to enable those obligations to be met.

The problems created by this Clause 1(1) obligation can be illustrated by analogy. Imagine a provision imposing a duty on the Secretary of State to ensure that levels of crime in, say, 2030 are 50% less than those pertaining in 2000, or one imposing a duty to ensure that the annual rate of inflation by 2020 is no more than 1%. The Secretary of State may be given powers designed to help deliver the goal, such as to give directions to Police Authorities or to create a Monetary Policy Committee. They are helpful and may even be deemed necessary, but they are not sufficient for ensuring that the Secretary of State can meet the obligation imposed on him. These illustrate both the problems inherent in the provision and those that may arise through

¹²⁰ Baer and Mastrandrea, 2007 High Stakes, IPPR.

¹²¹ Raupach et al, forthcoming, Global and regional drivers of accelerating CO₂ emissions.

creating such a precedent. The problem is not one of target setting, nor of embodying a target in statute, but rather the imposition of a duty to meet a target, the fulfilment of which relies on circumstances beyond the control of the body vested with that duty.

The provisions of Clause 1(1) give statutory force to what is presently a non-statutory goal. The latter allows flexibility and avoids embodying in statute that which is not enforceable. The Consultation Document (para 5.44) asserts that the provision would be amenable to judicial review: “The legal duty would mean that a Government which fails to meet its targets or stay within budget would be open to Judicial Review (JR)”. However, it is not clear what remedy is open to the courts in the event of non-compliance. The Secretary of State must ensure that the target is met. Clause 10 imposes a duty on the Secretary of State to lay a report before Parliament providing the data that will enable a determination to be made as to whether the target set in Clause 1 has been met. Clause 10(7) provides that the statement must be laid no later than 21 May 2052 and 10(6) provides that “Whether the target in section 1 (the target for 2050) has been met shall be determined by reference to the figures given in the statement laid before Parliament under this section”. This appears to preclude Judicial Review other than in respect of the statement laid before Parliament by the Secretary of State. There appears, therefore, to be two problems. First, is it clearly a matter for determination by the courts? It is a statutory duty but one where fulfilment of that duty is to be determined by reference to data in a statement laid before Parliament. Is it not therefore a matter for Parliament, which has the power to call the Secretary of State to account, rather than the courts? Should not the courts thus defer to the remedy available through Parliament? However, if Parliament is to be the body that calls Government to account for failing to meet its obligation, why does that obligation need to be enshrined in statute, given that Parliament has the means to call Government to account for failing to meet a stated goal, whether statutory or otherwise? Second, *if* it is justiciable, what remedy is available to the courts if they determine that the Secretary of State has failed in his statutory duty?

Could the duties be made more legally enforceable? No penalties are prescribed for a failure to fulfil the statutory duty. It is not clear what penalties could or should be imposed and, if there were to be penalties built into the Bill, the political implications that would result in 2049–2050 in terms of finding people to occupy relevant ministerial positions. It is also not clear what the rationale would be for imposing penalties for failing to meet the statutory duty. If the Government is not able to meet the target by 2050, it is not clear what penalties would encourage it to fulfil it any quicker than it is able to do.

In short, it is not clear what the rationale is for imposing a duty to ensure that a target is met which it is beyond the Government’s capacity to ensure is met. The problems relate purely to Clauses 1(1) and 2(1)(b). What may be termed the constitutional mischief could be remedied by not imposing a duty on the Secretary of State *to ensure* that the provisions are met.

PARLIAMENTARY AUTHORISATION FOR CHANGE

The Bill specifies targets but provides that the Secretary of State may by order amend those targets. The Delegated Powers and Regulatory Reform Committee has also, I understand, drawn attention to the broad powers of delegation conferred by Clause 28.

The extent of the powers vested by these provisions raise the question as to whether the affirmative resolution procedure is adequate. Parliament, in my view, should exercise extreme vigilance where powers are conferred enabling a minister to amend the provisions of primary legislation. This was a view I pursued during the passage of the Regulatory Reform Bill in 2001 and the Legislative and Regulatory Reform Bill in 2006. The Legislative and Regulatory Reform Act 2006 embodies provision for a super-affirmative order procedure (s18) and I would consider that the use of such a procedure may be appropriate for orders changing the targets specified in this Bill as well as for the broad powers delegated by Clause 28. Such a procedure would ensure that parliamentary scrutiny was extensive and that both Houses were satisfied that the changes were appropriate.

June 2007

Supplementary memorandum by the Met Office (CCB 100)

1. During oral evidence on 16 May, Dr Dave Griggs offered to provide a written scientific critique of inaccuracies in some of the arguments that were made by Lord Lawson of Blaby. In addition, Helen Goodman MP asked what the current view is on the level of parts per million of CO₂ equivalent which would be needed to hold to a two degree increase in climate.

2. A critique of some of Lord Lawson’s assertions is provided below together with a response to Helen Goodman’s question (cross-referenced to the relevant question(s) in the transcript of evidence). The key points are: there is consensus on the science in the recognised scientific community; sea levels rose up to 2mm per year during the 20th century and models suggest there will be a greater rise during the 21st century, which could affect very significant numbers of people; there are clear warming trends over longer periods in both the Northern and Southern Hemisphere; there is a possibility that the rise in temperature over the next 100 years could be similar to the large rises in temperature between the peaks of the ice ages and warm

interglacial periods, which took some 5,000 years; CO₂ is the single most important anthropogenic agent of climate change; research carried out at the Met Office Hadley Centre can indicate the likelihood of a given CO₂ equivalent concentration resulting in a global temperature rise below 2 degrees.

Q32—*Scientists are divided on the science*

3. There is consensus on the science throughout the recognised scientific community as reflected through the work of the Intergovernmental Panel on Climate Change (IPCC). IPCC is both an intergovernmental body and a network of the world's leading climate change scientists and experts. The IPCC Physical Science report of the Fourth Assessment (2007) was written by 152 coordinating lead authors and lead authors from over 30 countries and reviewed by over 600 experts. The Summary for Policymakers was approved by officials from 113 governments and represents their understanding—and their ownership—of the entire underlying report. It is this combination of expert and government review that constitutes the strength of the IPCC. In addition, the national science academies of the G8 nations and Brazil, China and India, three of the largest emitters of greenhouse gases in the developing world, have signed a statement on the global response to climate change. The statement stresses that the scientific understanding of climate change is now sufficiently clear to justify nations taking prompt action and calls on world leaders to take action.

Q37, 43 and 50—*Sea level is rising very slowly*

4. As a global average, sea level increased by between 1 and 2 mm/yr during the 20th century, as measured by tide gauges at the coast. Since the early 1990s satellite measurements suggest the global average sea level may have risen by as much as 3 mm/yr. The measurements also show that sea level does not rise by the same amount everywhere, and the local rates of rise may also vary over time (including a time scale of decades) due to natural variability.

5. Morner (2004) suggested that a fall in sea level had occurred in the region of the Maldives but a more recent study by Church et al. (2006) found no evidence of this fall. The models in the IPCC Third Assessment (see Gregory et al., 2001) and Fourth Assessment suggest further increases in the region of the Maldives are likely in the future. Central model estimates of future sea level rise suggest a greater rise during the 21st century than occurred during the 20th century.

6. Without any adaptation, and even with significant mitigation, the number of people affected by sea level rise by the 2080s might exceed 250 million per year, depending on the sensitivity of the climate model used (Nicholls and Lowe, 2004). Indeed, even with stabilisation of atmospheric CO₂ at 550 parts per million (ppm) during the next 200 years, it is likely that sea level will continue to rise for millennia.

7. The potential to adapt to sea level depends on location. Raising flood defences is a viable solution in some locations (eg London) but in other areas, such as Bangladesh where there is a very large deltaic coastline—and also a very large population—it is likely to be very difficult, even if GDP increased significantly.

Q41—*The Southern Hemisphere has cooled in the 21st Century*

8. Hemispheric temperatures vary inter-annually because of natural phenomena such as the El Niño—Southern Oscillation. This is clear from Annex A which shows annual combined land surface air and sea surface temperature anomalies (°C) for the period 1850–2006, relative to the average for 1961–90 for the globe and hemispheres. Accordingly, any trends calculated over a period as short as the first seven years of the 21st Century will be unreliable estimators of long-term change. The uncertainties in Annex A arise mainly from gaps in the coverage of data, and make short-term trend estimation even more hazardous. However, the figure shows clear warming trends over longer periods in both hemispheres and the globe; and this warming greatly exceeds the uncertainties.

9. Nevertheless, model simulations of anthropogenic global warming indicate less warming over the Southern Ocean than elsewhere (Chapter 10 of IPCC AR4); so the multi-decadal warming in the Southern Hemisphere as a whole may be expected to be somewhat less than in the Northern Hemisphere. Models also suggest that warming over land will exceed that over ocean, and this also implies a smaller warming in the Southern Hemisphere. The map of temperature anomalies in 2006 (Annex B) shows, albeit imperfectly as expected for a single year, both these features.

Q42—*Warming will be “very gentle”*

10. The largest temperature changes of the past million years are the glacial cycles, during which the global mean temperature changed by 4°C to 7°C between ice ages and warm interglacial periods. However, the data indicate that the global warming at the end of an ice age was a gradual process taking about 5,000 years. In the last hundred years the Earth's temperature has risen by 0.74 C. It is thus clear that the current rate of global climate change is much more rapid and very unusual in the context of past changes. Projections for the end of the 21st century, using a high emissions scenario, has a likely range of 2.4 to 6.4 C, the upper

bound of which is equivalent to the difference between the peak of an ice age and a warm interglacial period. In other words, it is possible that we could see a temperature rise in 100 years that we would normally expect to take place over 5,000 years.

Q47—*Polar bears having survived considerable climate change in the past*

11. A comprehensive review by the US Fish and Wildlife Service concluded that shrinking sea ice is the primary cause for the decline seen in polar bear populations. Moreover, there is no paleoclimatic evidence for a totally ice-free Arctic in summer during the past 800,000 years.

Q48—*Although CO₂ levels are increasing, this is only a small component of climate change, and water vapour is a much more important greenhouse gas*

12. It is true that CO₂ is not the only agent of climate change, but it is the single most important anthropogenic one. Other anthropogenic greenhouse gases such as methane, nitrous oxide and CFCs also contribute. Anthropogenic aerosols such as sulphates have also had an impact on climate, and in fact have tended to counter some of the greenhouse warming. The Summary for Policy makers of the IPCC WG1 report (page 4) shows clearly the different contributions from many different climate forcing factors. CO₂ accounts for about 72% of the total warming due to long-lived greenhouse gases.

13. It is also true that water vapour is an important greenhouse gas. The greenhouse effect happens naturally, and water vapour is the most important component. Water vapour is present naturally in the atmosphere but also responds to changes in climate—warmer air can hold more water vapour. So, as the climate changes due to anthropogenic greenhouse gases, a feedback of the climate is to increase the water vapour and hence produce more warming. This is discussed in more detail in Dr Gordon's response to Lord Teverson at Q79.

Q50—*There is great uncertainty about what is going to happen over the next 100 years*

14. Recently, new methods have emerged to estimate the probability (chance) of the level of future climate change. Probabilities are conditioned on different emissions pathways and different methods do produce slightly different results because of different assumptions used in their production. Nevertheless, some consensus is emerging. Annex C shows a collection of "probability distribution functions" of global mean temperature change for the periods 2020–29 and 2090–99 expressed relative to the 1980–99 average for 3 emissions scenarios. For the SRES B1 scenario¹²², the best estimate of warming in 100 years time is around 2 °C, but warming as low as 1 degree and as high as 3 degrees cannot be ruled out. For the A1B scenario, the best estimate warming is around 3 degrees with a range of 1.7–4.4 °C. For the A2 scenario, the best estimate warming is around 3.5 °C, with a likely range of 2.0–5.4 °C.

Q75—*What is the current view on the level of parts per million of CO₂ equivalent which would be needed to hold to a two degree increase in climate?*

15. It is not possible to give a definitive level of global greenhouse gases concentrations (measured in parts per million of CO₂ equivalent, CO₂e) that would lead to stabilisation of temperature at say 2C above pre industrial levels due to uncertainties in the modelling of the climate system. However work carried out at the Met Office Hadley Centre can indicate the likelihood of a given CO₂e concentration resulting in a global temperature rise below a certain level. This research suggests that a CO₂e concentration of 390ppm would lead to an 80% chance of staying below 2C above pre-industrial temperatures. A concentration level of 430 ppm would lead to a 50% chance of staying below a 2C increase. However research in other centres has led to slightly different results. Annex D shows a graph of the probability of exceeding 2C against concentrations of CO₂e.

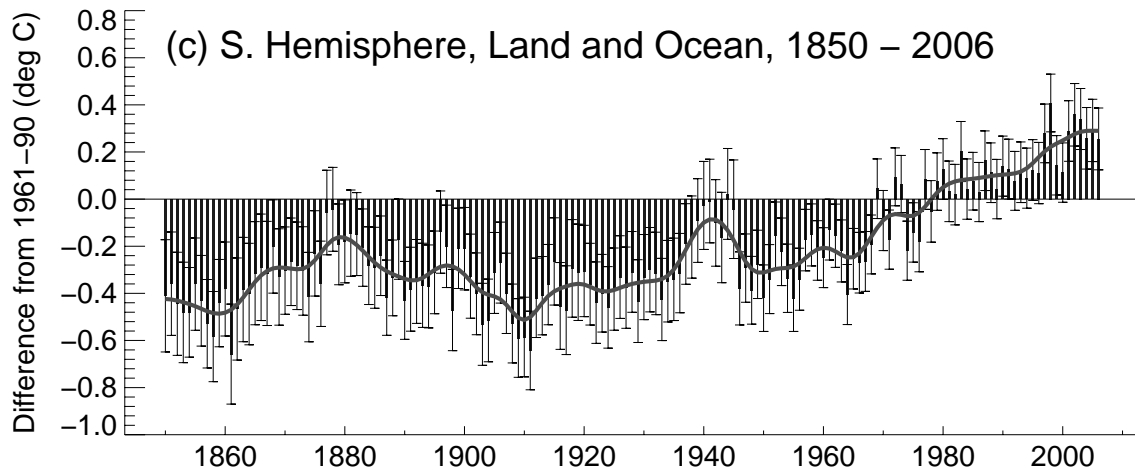
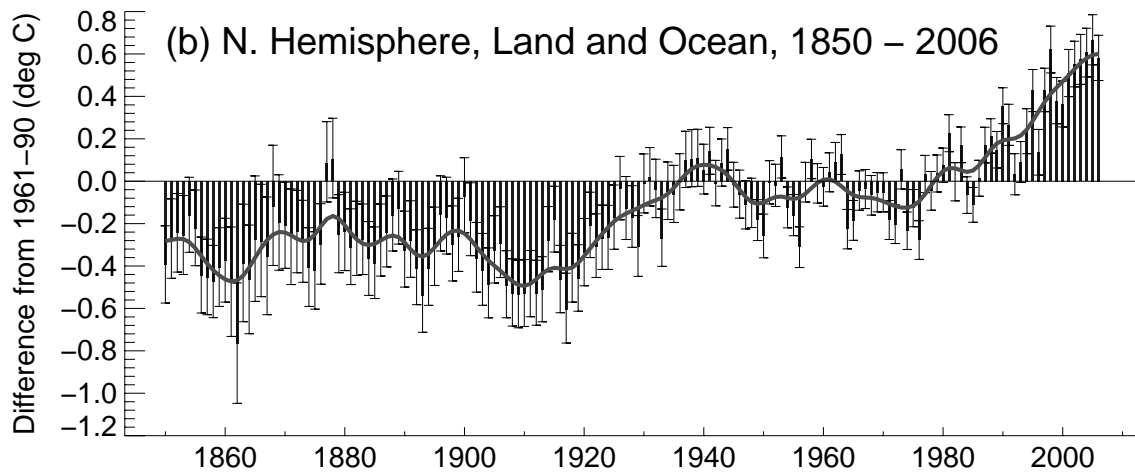
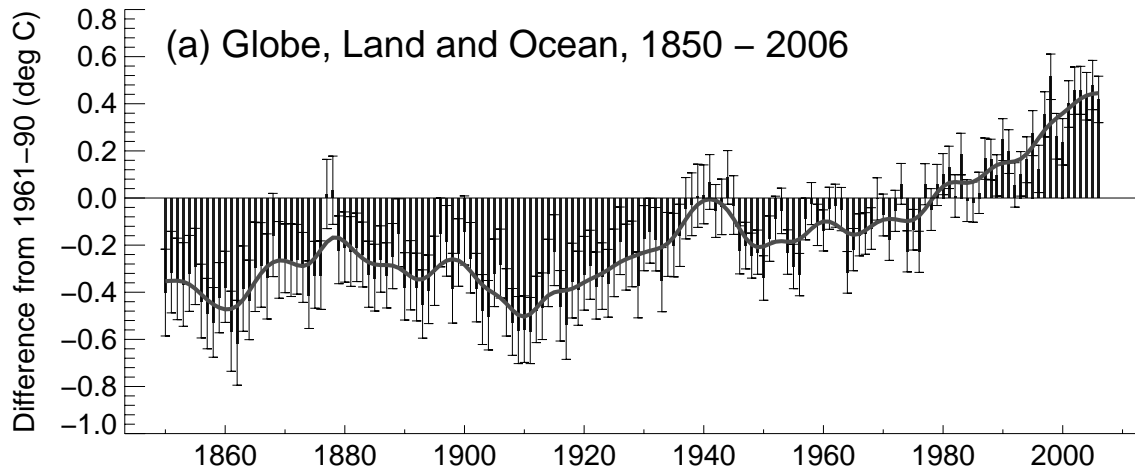
July 2007

¹²² The emission scenarios of the IPCC special report on emission scenarios (SRES) are summarised at the end of the IPCC Fourth Assessment Report WG1 summary for policymakers:<http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>

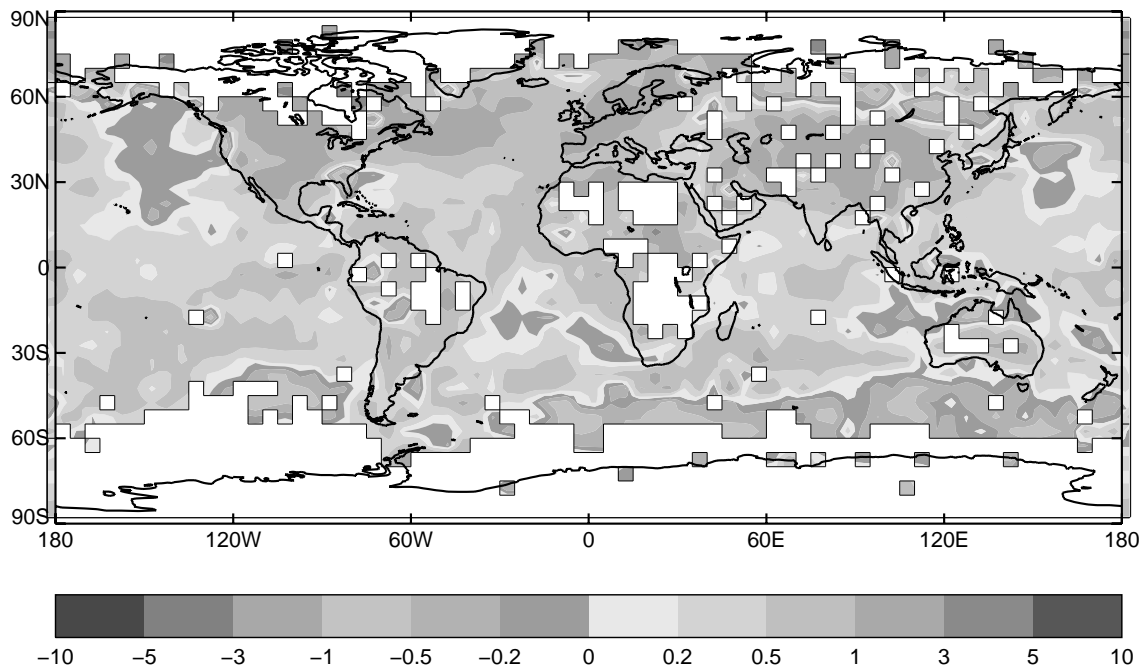
Annex A

ANNUAL COMBINED LAND SURFACE AIR AND SEA SURFACE TEMPERATURE ANOMALIES (°C: BLUE BARS) FOR THE PERIOD 1850–2006, RELATIVE TO THE AVERAGE FOR 1961–90

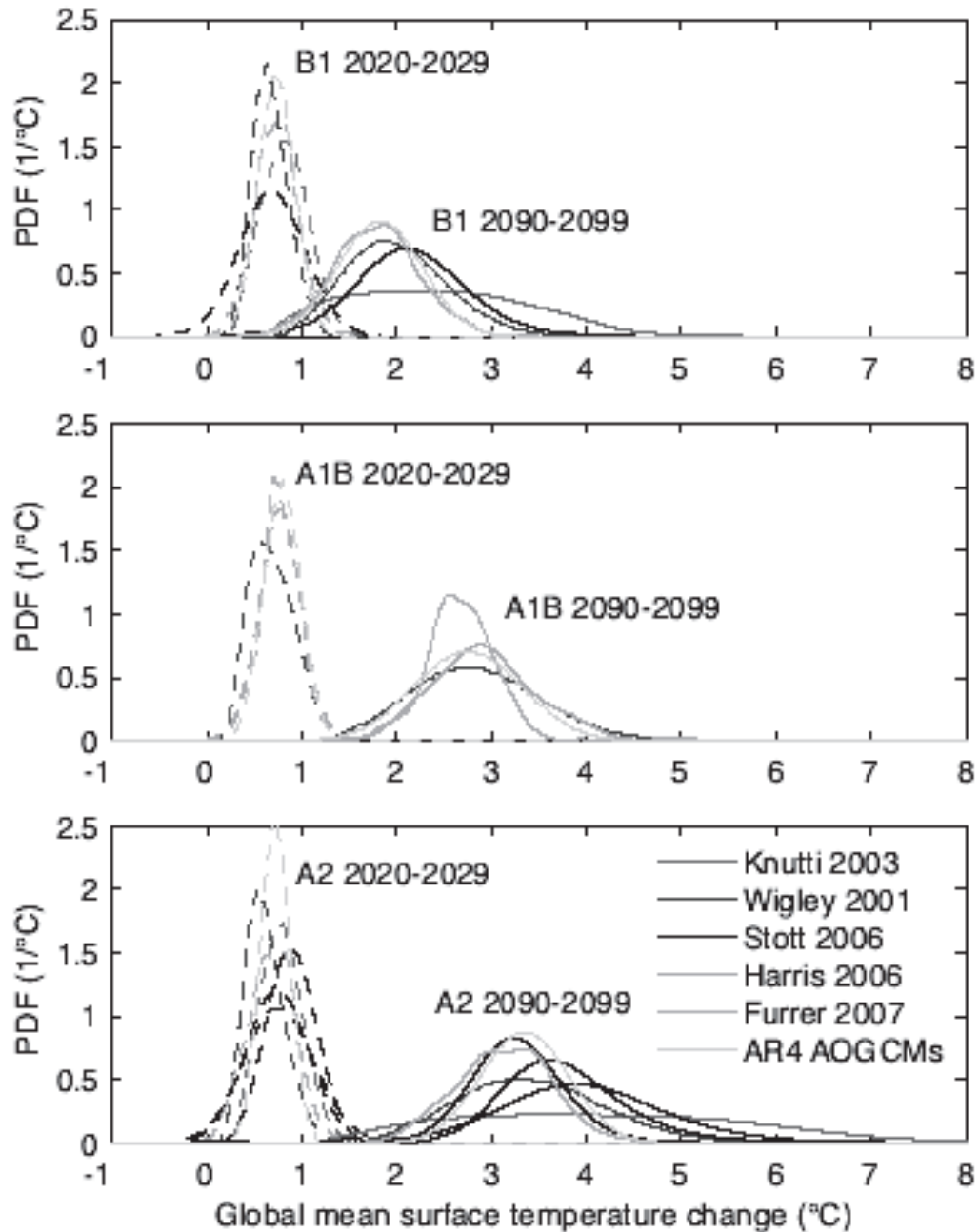
Note: values have a 90% likelihood of being in the uncertainty ranges (black bars) but are more likely to be near the centres of these ranges than at the edges. The smooth red curves, based on the annual values, highlight the interdecadal variations.

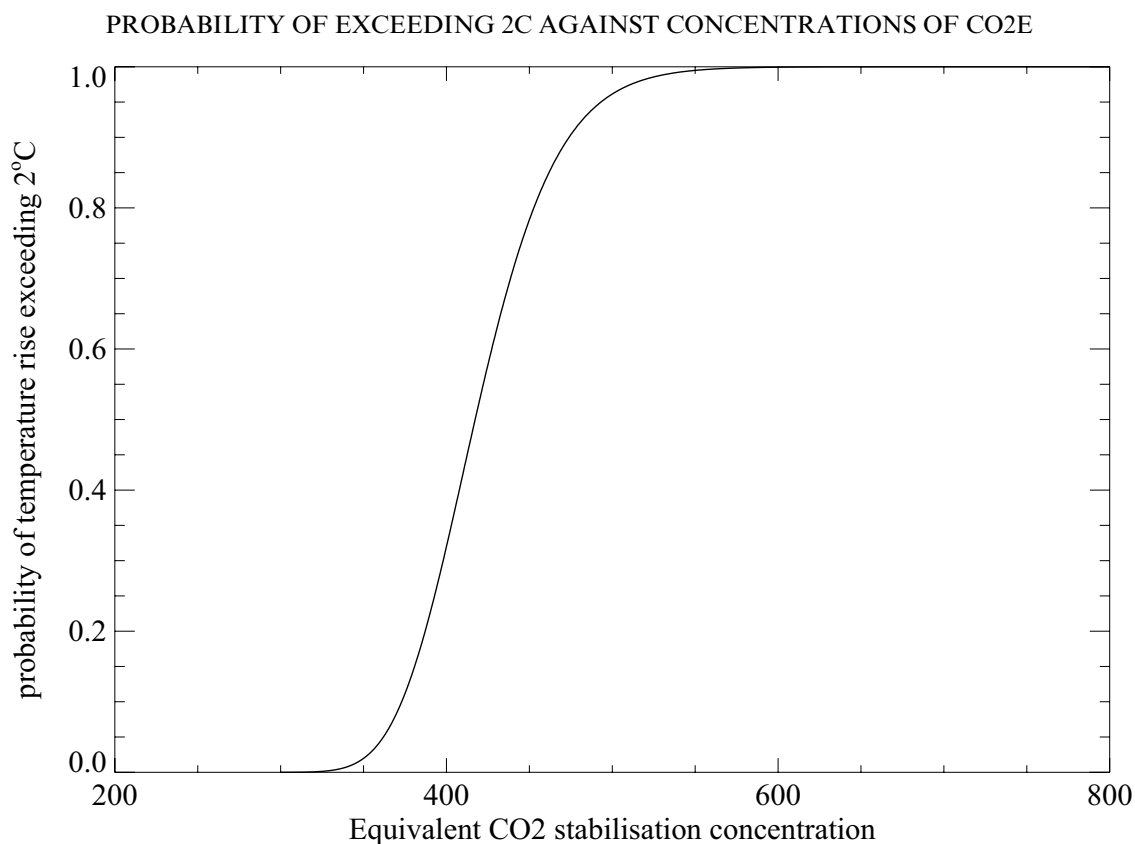


LAND SURFACE AIR AND SEA SURFACE TEMPERATURE ANOMALIES
(°C, RELATIVE TO 1961-90) FOR 2006



PROBABILITY DISTRIBUTION FUNCTIONS OF CHANGES IN GLOBAL MEAN TEMPERATURE CHANGE EXPRESSED WITH RESPECT TO THE 1980–1999 AVERAGE FROM THREE EMISSIONS PATHWAYS. (CURVES ARE SHOWN FROM VARIOUS STUDIES)





Supplementary memorandum by easyJet (CCB 101)

REFORMING APD

INTRODUCTION

1. easyJet attended a hearing of the Joint Committee on the draft Climate Change Bill on 13 June 2007. During the hearing easyJet offered to provide a paper setting out its concerns with Air Passenger Duty, how APD does not adequately support environmental objectives and how it could be reformed.

Q377 Chairman: You have made reference a couple of times to the Air Passenger Duty. Could you drop us a note setting out what it is that you do not like and what form of Air Passenger Duty would be more equitable and more valuable?

Mr Barker: We can certainly do that, yes.

2. This paper addresses the environmental issues surrounding APD, and outlines how APD could be reformed to properly reflect the climate change related impact of flying and to provide airlines and passengers with the right incentives to reduce the environmental impact of their flying. The proposed reform is revenue neutral and does not reduce the overall burden on aviation.

THE ENVIRONMENTAL PURPOSE OF TAXING AVIATION

3. The traditional rationale for an environmental tax is to raise the cost of a good to cover its environmental externalities. Aviation has a range of environmental externalities, which are addressed by a range of instruments. For example aircraft noise is regulated by a combination of international agreements and local airport level controls, and local air quality is addressed through European Union controls. However there is currently no instrument that explicitly tackles the impact of aviation on climate change, which is why easyJet supports aviation joining the European Emissions Trading Scheme (ETS) as soon as is possible.

4. easyJet believes that if there is to be a revenue raising instrument targeted at aviation, it should address climate change, and that it should provide incentives for airlines and passengers to increase the environmental efficiency (in terms of emissions) of their flying. APD provides very little or no incentive for airlines and passengers to improve their environmental efficiency. It may have some benefit for the environment by increasing the cost of flying, so reducing demand, but it does not provide any incentives to improve the environmental efficiency of flying. Indeed it provides a relative incentive for more environmentally damaging flying as it increases the cost of long-haul flights by a lower proportion than short-haul flights.

5. Aviation affects climate change through both CO₂ emissions and a range of other effects. However, there are still considerable uncertainties related to the science of the non-CO₂ effects of aviation and agreed methods for determining the climate change impact of the non-CO₂ effects of aviation have still to be established (as they vary between flights). Therefore easyJet believes that a reformed APD should focus on the CO₂ emissions of aviation.

6. The CO₂ emissions from aviation are directly related to fuel consumption. However, while a tax on fuel has many theoretical advantages, current law and bilateral treaties with other countries mean that this option is not possible.

THE INEFFECTIVENESS OF APD AS AN ENVIRONMENTAL TAX

7. While APD may be an efficient way of raising revenue for the Exchequer, there are four main reasons why it is not an effective environmental tax. The first of these is that it taxes the number of passengers on a flight, not the aircraft. Secondly, it does not take proper account of the distance flown. Thirdly, it does not capture freight aircraft or private jets. And finally, it excludes transfer passengers, further distorting the relationship between tax and environmental impact.

8. A good environmental tax reflects the environmental impact of an activity, therefore incentivising a reduction of that environmental impact. Achieving this requires the tax charged on an activity to be proportional to its environmental impact. This is not the case with APD.

9. Table 1 sets out easyJet’s estimates of the relation between the APD paid on a sample of flights, and the emissions of those flights. Each row of the table sets out the ratio of the APD paid on two comparison flights against the ratio of the emissions from those flights.

10. Taking the first row as an example, it compares a British Airways flight from London to Milan and an easyJet flight from London to Milan, both on the same aircraft type (an Airbus A319). The British Airways flight will generate about 30% less revenue for the Exchequer than the easyJet flight; as it will have fewer seats, a smaller proportion of these seats are filled (on short-haul flights airlines such as easyJet have significantly higher load factors than traditional airlines) and it will carry transfer passengers (on whom the airline does not have to pay APD). The estimate takes account of the existence of business class passengers on the British Airways flight (who pay more APD), and uses standard load factors and transfer passenger proportions in the calculations.

11. While the British Airways flight to Milan pays only two-thirds of the tax paid on the easyJet flight, it will have similar levels of emissions (the ratio is not exactly one as the airlines fly from different airports in London). The average number of passengers on an easyJet flight (on an Airbus A319) is 132, whereas the estimated average on a British Airways flight using the same aircraft is about 94. The environmental impact per passenger is therefore significantly lower on the easyJet flight (as it carries more passengers), but the tax does not reflect this.

12. The difference between the ratios of the tax paid and emissions becomes starker when comparing short and long-haul flights. The second line of the table compares a British Airways flight to New York (on a Boeing 747) to an easyJet flight to Milan. The British Airways flight is estimated to pay almost eight times as much in APD, but to have over 20 times the amount of emissions; the disparity is even greater for a flight to Los Angeles.

Table 1

THE RELATION BETWEEN THE APD PAID ON A FLIGHT AND THE EMISSIONS FROM THAT FLIGHT¹²³

| <i>Comparison flights</i> | <i>Ratio of APD paid on flight</i> | <i>Ratio of emissions</i> |
|------------------------------|------------------------------------|---------------------------|
| BA to Milan/easyJet to Milan | 0.69 | 1.03 |
| BA to JFK/easyJet to Milan | 6.81 | 20.86 |
| BA to JFK/Virgin to JFK | 0.82 | 1.00 |

¹²³ The emissions estimates take no account of weight variations between aircraft, lighter aircraft emit less as they burn less fuel, this could add a variance of 10% to the estimates provided.

| <i>Comparison flights</i> | <i>Ratio of APD paid on flight</i> | <i>Ratio of emissions</i> |
|---|------------------------------------|---------------------------|
| BA Boeing 747 to JFK/BA Boeing 777 to JFK | 1.33 | 1.54 |
| BA to LA/easyJet to Milan | 7.67 | 32.90 |
| BA to LA/BA to JFK | 1.13 | 1.58 |

Source: easyJet estimates and BA data on fuel consumption

13. Table 1 shows how APD fails to reflect the environmental impact of a flight, as it does not reward environmentally efficient flying (more people on a plane), and it under-taxes long-haul flights.

14. There is a further critical weakness in APD, which is that it does not provide any marginal incentive on airlines to improve their environmental efficiency. Buying newer cleaner aircraft does not lead to a lower APD bill, and nor does increasing the number of people carried on a flight.

REFORMING APD

15. easyJet believes that APD should be reformed to reflect the environmental impact of a flight. The tax should be on a flight, not on passengers, and it should vary in line with the environmental impact of a flight. Given the uncertainty of the climate change science on non-CO₂ impacts the tax should target CO₂ emissions.

16. Reforming the tax to reflect the environmental impact of a flight requires the tax to reflect both the type of aircraft used, as different aircraft have different levels of emissions per km flown, but also the distance the aircraft flies, as distance is a critical factor in the environmental impact.

17. easyJet believes that a reformed APD should tax as closely as possible the actual emissions from every flight departing a UK airport. This could be achieved by using models of the emission profiles of each type of aircraft, combined with the distance between the departure and arrival points of each flight. Estimating emissions on this basis is simple, and the required information resources already exist.

18. The only barrier to a reformed APD of this kind is the legal constraint on taxing fuel. The Energy Products Directive (updated by EC Council Directive 2003/96) requires Member States to exempt fuel used for commercial aviation from any fuel duties. An interpretation of this directive by the European Court of Justice suggested that this extends to taxes based on estimates of fuel use, and as they are directly linked, estimates of emissions from fuel use.

19. easyJet is not in a position to provide a legal opinion on whether its preferred reform of APD would be illegal under EU law. However, it does believe that APD should be reformed so as to tax emissions as closely as possible, and that this tax should in some way reflect the aircraft used on a flight and the distance flown.

CONCLUSION

20. easyJet believes that APD needs to be reformed, to reflect the actual environmental impact of a flight, and to provide airlines and passengers with the right incentives to improve the environmental efficiency of their flying. Without such reform APD will continue to have no real impact on the environmental performance of aviation.

July 2007

Supplementary memorandum by the Department for Environment, Food and Rural Affairs (CCB 102)

QUESTIONS TO THE BILL TEAM

1. *How was the 2050 target for a 60% reduction in CO₂ emissions below 1990 levels arrived at?*

The reasons for a 60% CO₂ reduction target, as set out in clause 1, are as follows:

- The 60% target stems from the Royal Commission on Environmental Pollution report, cited in the 2003 Energy White Paper, and has been the target that has had the most consensus across stakeholder groups as an ambitious commitment for the UK.
- The UK target of a 60% reduction in CO₂ emissions is consistent with the EU's recognition that to avoid temperatures rising higher than 2°C above pre-industrial levels, global greenhouse gas emissions need to fall by between 15 and 50%, with reductions in developed countries of between 60 and 80% against 1990 levels. The UK target is also consistent with the range proposed in the Stern Review.

- CO₂ emissions are the biggest challenge for the UK—this is expanded on in our response to Question 3.
- The UK target is both challenging and credible; but the Government has made provision in the draft Climate Change Bill that would allow for this target to be amended in the light of significant developments in climate science or in international law or policy.

2. *How was the interim target of a 26–32% reduction in emissions below 1990 baseline levels by 2020 arrived at? Why is there an upper limit of 32%?*

This range, set out in clause 3(1)(a), represents a quantification of the “real progress” target for 2020, set out in paragraph 1.18 of the 2003 Energy White Paper. The rationale behind an upper limit is set out below:

- The 2020 target range is an important interim milestone on the trajectory to 2050 to assist in the setting of the first three carbon budgets, which will take place immediately after the Bill comes into force (by 31 December 2008 at the latest).
- The range gives a degree of certainty on the trajectory to 2050 and the level of the first three carbon budgets (whose precise level will be determined taking into account the factors in clause 5(2)). The 26% minimum emissions reduction target ensures that progress must begin in earnest—emissions reductions cannot be put off until nearer 2050 and must be at least 26% by 2020.
- The 32% cap provides a further degree of certainty on the trajectory to 2050, minimising unpredictability on the ultimate level of carbon budgets. This is especially important for businesses planning major investments as it caps the level of UK effort within a predictable range.
- The precise level of the range was arrived at in 2003 following a broad assessment of mitigation pathways to 2050, taking account of the need to address cumulative emissions over time. In framing the Bill, we also took careful account of the developing international context and in particular the recent announcement (at the Spring Council) of an EU greenhouse gas emissions reduction target of 20% (on a unilateral basis) and 30% (contingent on wider international progress). The UK’s proposed target range for 2020 is broadly consistent with the new EU targets (depending ultimately on the burden sharing arrangement agreed across the EU).
- If there was some sudden technological advance that made it easier and more cost effective to reduce emissions faster, the 32% cap would not be a barrier to greater cuts by the UK. If emissions reduced faster, the UK could simply come in below the budget for 2018–22 and bank the emissions savings forward. The 32% upper limit in other words only applies to the setting of the budgets (in order to provide certainty on the level of the legal target); but there is no limit on how far budgets can be “undercut” in practice, for example as a result of policies over-delivering against expectations.
- The draft Bill also has provisions allowing the 2020 target to be amended in the light of significant developments in climate science or in international law or policy (clause 3).

3. *Were any other targets proposed or considered?*

Annual targets were considered but were considered inflexible and impractical. They would not be consistent with the UK’s international obligations, which are based on five year budgets. In particular, it would be impractical to manage annual budgets for the half of emissions covered by EU ETS, since that system operates on five year periods and firms can trade freely within the EU to meet their obligations.

The international community has taken this approach for good reasons. For example, evidence shows that annual fluctuations in the weather can cause big impacts on emissions, as people turn up their heating. Lower temperatures in 1996 and 2001 for example were correlated with increases in emissions of around 3–4% compared to the years either side.

Targets for other GHGs were also considered, but it is considered action should be focused on CO₂ (at least initially) for the following reasons:

- CO₂ emissions are the biggest challenge for the UK, accounting for over 80% of total emissions in 2005. As such, the proposed CO₂ emissions reductions would substantially reduce the UK’s contribution to climate change.
- CO₂ has proven harder to tackle—whilst emissions of non-CO₂ greenhouse gases have fallen by 44% since 1990, CO₂ has proven much more challenging, with cuts of 5% since 1990 (or 11% taking account of trading under the EU ETS).

It therefore makes sense to focus primarily on CO₂ at this stage.

4. *How was the facility for “banking” and “borrowing” between budget periods justified?*

Some flexibility in the timing of emission reductions is desirable to respond to unforeseen circumstances. Allowing both the banking and limited borrowing of emissions rights between carbon budget periods allows for adjustment to the emissions reduction pathway without affecting total cumulative emissions nor, crucially, unduly harming the credibility and predictability of the emissions reduction pathway.

Banking provisions create an incentive for early action to reduce emissions, and ensure the benefits of over-performance in a budget period are recouped. Their inclusion in the draft Bill mirrors their use under the Kyoto Protocol, where a country can bank its assigned amount for use in future commitment periods, and EU ETS, where allowances can be carried forward within a phase for use against a future year’s emissions. This provision may be used to help cater for uncertainties in future budget periods, such as unanticipated changes in fuel prices or a series of cold winters).

The Government will be required to seek the advice of the Committee on Climate Change before invoking the borrowing provisions, which are strictly limited—only up to 1% of the subsequent budget may be “carried back” (clause 8(2)). This would allow the Government to make a judgement if faced with a slight overshooting of the carbon budget whether it would be preferable (for example on cost grounds) to purchase carbon credits from overseas to meet the budget; or to borrow and plan to introduce more stringent requirements in the subsequent budget.

This small additional flexibility is set in the context of fixed medium and long term targets and will help ensure that these targets, which the UK is adopting unilaterally, can be met in the most efficient way.

It is envisaged that this provision may be used in the event of an unexpectedly cold winter in the last year of the budget, leading to increased CO₂ emissions due to increased fuel demand, and insufficient time to compensate for this before the end of the budget period without taking draconian or unnecessarily expensive measures which would have comparatively little environmental benefit.

Borrowing also helps to address the fact that we will not know our exact emissions for a budget period until some time (13 months) after the budget. For example it could be used if it looked as though (according to latest available estimates) we were on course to meet a budget, but outturn data later confirmed that we had over-emitted by a small amount. In this regard it is similar to End Year Flexibility (EYF) in financial budgeting.

A discussion of the rationale behind banking and borrowing is set out in paragraphs 5.36–5.38 and 5.39–5.43 of the consultation document on the draft Climate Change Bill, available from:

<http://www.defra.gov.uk/corporate/consult/climatechange-bill/consultation.pdf>

The partial Regulatory Impact Assessment (RIA) published alongside the draft Bill sets out further analysis on the costs and benefits of banking and borrowing, in paragraphs 5.1.40–5.1.53. The RIA is available from:

<http://www.defra.gov.uk/corporate/consult/climatechange-bill/ria.pdf>

5. *Will strict limits be applied to the proportion of each target which can be met by purchasing “carbon credits” from overseas?*

The Government considers it undesirable to set a unilateral UK legal limit on the use of overseas credits, but rather to be bound by its obligations under international law. Currently, under the Kyoto Protocol, international legal constraints include recognising the principle of “supplementarity”, that use of overseas “carbon credits” is to be supplemental to domestic action in reducing greenhouse gas emissions¹²⁴. This principle is set out in the Marrakech Accords.

The promotion of emissions trading—building on the EU ETS, other regional trading schemes and the Kyoto flexible mechanisms—is a central plank of the UK’s international negotiating strategy. Trading offers the world the best prospect of achieving significant emissions reductions at least cost, a means to co-ordinate international action, and the prospect of creating significant flows of carbon finance to help meet the “incremental costs” of decarbonisation for developing countries.

It therefore makes sense for the UK’s domestic legislation to allow and encourage trading to meet demanding unilateral targets, as part of our wider international strategy. It would make no sense for the Bill to restrict the UK or UK organisations from using existing or future flexible trading mechanisms, as this could increase costs for the UK and reduce finance flows to developing countries without environmental gain.

This does not mean that all (or an unlimited amount of) emissions reduction effort should or would be achieved overseas. The appropriate balance between domestic and overseas effort will vary from budget to budget. That is why the Committee on Climate Change is given a duty to advise on the right balance for each budget, in accordance with clause 20(1)(b). This will, for example, allow the Committee to advise on

¹²⁴ Noting that the supplementarity principle in international policy relates only to countries’ international commitments, which currently extend only to 2012 under the Kyoto Protocol. This issue is however high on the agenda in discussions on the post-2012 international framework.

the long-run cost implications of purchasing credits internationally, taking into account the timescales for delivering cost effective abatement within the UK, and the importance of avoiding “lock-in” to long-term high carbon capital assets. The Committee will also want to take account of the considerable potential for cost-effective measures to reduce emissions in the UK through energy efficiency improvements.

6. To what extent will the Secretary of State—who makes the final decision on carbon budgets and apportionment of effort between reductions in domestic emissions and the use of “carbon credits”—have to adhere to the recommendations made by the Committee on Climate Change?

The intention of establishing the Committee on Climate Change is to bring a high degree of independent analysis—conducted in an open and transparent way—to bear on the question of the optimal path for the UK towards meeting its long-term emission reduction goals. “Optimal” in the sense that the social and economic benefits are maximised and costs minimised.

Whilst the Secretary of State is not legally bound by the Committee’s advice, he must take it into account and, given the statutory framework, and the fact that the Committee is expected to be a source of significant technical expertise, the Committee’s advice will carry a great deal of weight in reaching any conclusions. If the Secretary of State did decide to depart from the Committee’s recommendations then the usual principles of public law would require him (ie impose a duty on him) to give reasons for doing so.

Ultimately, however, it is right that the Secretary of State should retain accountability for the decision on the level of budgets, since this will have potentially far-reaching consequences for UK citizens and businesses. It is also important that the Government sets the budgets in the full knowledge of the policy “levers” that it intends to use to meet them.

7. What restrictions will there be on the powers of the Secretary of State in altering or amending either budgetary periods or carbon budgets?

Various restrictions on the powers of the Secretary of State to alter or amend either budgetary periods or carbon budgets are contained within the draft Bill.

The power to alter budgetary periods—including the length of budgetary periods and the start and end dates—is found in clause 12(1). Clause 12(2) only permits the alteration of budgetary periods where it is necessary to do so in order to keep the periods in line with similar periods under international agreements. Clause 12(3) ensures that no period of time can be left without a budget. Clause 12(5) provides that an order amending a budgetary period is subject to the affirmative resolution procedure, so there will be an opportunity for Parliament to debate and vote for or against the alteration.

Clause 13 deals with the alteration of carbon budgets. Different rules apply to the alteration of carbon budgets, depending on whether the alteration is made before or after the budgetary period has started:

- A carbon budget can only be changed before the budgetary period has begun (see clause 13(3)) if the Secretary of State considers that there have been significant changes affecting the basis on which the carbon budget was set. These changes could affect any of the factors in clause 5(2), or any other factors relevant to the initial decision, but the change must in all cases be “significant”. The Secretary of State’s decision on whether a change is “significant” is subject to normal public law principles, so the decision must be reasonable (in the *Wednesbury* sense), take everything relevant into account and be unbiased.
- A carbon budget can only be changed after the budgetary period has begun (see clause 13(4)) if the Secretary of State considers that there have been significant changes in the factors underlying the original decision since the start of the period itself. The same principles as are set out above apply to the “significance” test. No budget can be amended after the final accounting day for the period (see clause 13(5)).
- Before changing any budget, the Secretary of State must obtain, and take into account, advice from the Committee on Climate Change (see clause 13(2)).
- Any order changing a carbon budget is subject to the affirmative resolution procedure (see clause 13(6)), so the Secretary of State will have to explain all his reasoning and there will be an opportunity for the House to debate the issues and vote for or against the amendment. This ensures the same procedure and authority is used to set and amend budgets.

8. What consideration was given to the scope of the Bill, and whether it should include targets for local government?

The framework established by the Bill is designed to ensure that the UK as a whole remains within budgets. Everyone—central Government, local government, businesses, individuals—has a role to play in reducing emissions, but the Bill does not set out individual targets; it is predicated on the principle that it is clearly best to reduce emissions at the lowest cost and avoid unnecessarily constraining flexibility as to where

emissions reductions are made. It may well be easier for some local authorities and regions to make reductions more easily or cost-effectively. Moreover there are also data availability issues, whereby collection at very local level would likely be difficult, costly and present bureaucratic difficulties.

Action by local authorities and regions is therefore likely to be an important element of the achievement of the Government's climate change objectives. For this reason, the Government is currently considering how the new local government performance framework, to be introduced post-2008, will include an appropriate focus on action on climate change, sufficient to incentivise more authorities to reach the levels of the best.

The new framework was proposed in the Local Government White Paper (2006), which sets out Government's aim of changing the way we work on a number of issues¹²⁵. In particular, the White Paper shifts the balance of local accountability from councils acting alone to a partnership-based approach. Through this approach, a number of named local partners will have a duty to cooperate in the agreement of new performance targets in Local Area Agreements and to have regard to those targets in their work. No decisions have yet been taken on what targets to introduce—this will form part of the CSR—but any target set for a local area under the new arrangement is therefore likely to be the responsibility of a broader grouping than just the local authority. Enshrining specific local government targets in legislation would be inconsistent with the direction of travel in terms of local devolution and flexibility generally, and with the local partnership approach.

In addition, local authorities at district, county, unitary and metropolitan borough level all have differing sets of responsibilities and influence, and every local area has a unique social, physical and economic profile, making target-setting for each individual authority a very complex issue. The Government very much supports moves by individual authorities and areas to develop their own targets for reducing carbon emissions as part of Local Area Agreements; this flexible approach provides a robust way of channelling local government's contribution to the Bill's national-level targets.

Government is also working closely with Regional Development Agencies and others to support the important role they can play in reducing emissions at a regional level. The Energy White Paper sets out in more detail the important contribution RDAs will make to the achievement of our emissions targets—for example, supporting low carbon technologies and supply chains or taking forward regeneration schemes demonstrating high standards of energy efficiency. Many regions are already beginning to consider the implications of the Bill for their investment priorities and strategies.

9. How will the reporting procedure—both for annual progress reports by the Committee on Climate Change, and the statement at the end of each budgetary period laid before Parliament by the Secretary of State—ensure complete transparency and accountability?

By providing the independent Committee on Climate Change with a role in reporting on progress towards targets and budgets, it is envisaged that the framework will contain the necessary degree of transparency and accountability. Government will respond publicly to the Committee's reports in a similar way it responds to the recommendations of Parliamentary Select Committees.

The statement made to Parliament at the end of each budgetary period will be based on the annual statements of UK emissions the Secretary of State is obliged to produce under clause 7 of the draft Bill, and for this reason will ensure transparency by consisting of publicly available data.

Clauses 7 and 9 of the draft Bill set out exactly what the annual statement and final figures to Parliament are required to consist of. Please also see paragraphs 5.78–5.86 of the consultation document, and section 5.4 of the RIA, for a discussion of the reporting framework in general.

10. What are the penalties for not meeting the target within a budgetary period? Is Judicial Review adequate sanction?

Any Government will be under a considerable amount of political pressure to stay within budget so as not to breach a high profile legal duty under the Bill. In the unlikely event that this happens the Government would be open to Judicial Review (in England, and possibly Scotland). We consider this is an adequate sanction for the reasons set out below.

Clause 2(1)(b) places the Secretary of State under a legal duty to ensure that the net UK carbon account does not exceed each carbon budget and is mirrored by clause 1(1) in relation to the 2050 target.

In relation to England, if the Secretary of State breaches either duty, then he will have acted unlawfully and his action could be subject to judicial review in the High Court. The court would almost certainly be prepared to make a declaration that he had unlawfully breached his duty. It would be for the court to decide what order to make.

¹²⁵ Please note the Local Government White Paper applies to England and Wales only

The UK's constitution places enormous weight on the rule of law, so declarations by the courts are taken very seriously by Government and do lead to action; no government sets out with the intention of breaking the law. This in itself makes declaratory judgments an adequate sanction. The possibility of other sanctions will lead to even greater caution and encourage action.

In Scotland, an application for judicial review could be made to the Court of Session by a person with suitable title and interest. The Court of Session has the power to ensure that the Secretary of State does not exceed or abuse his jurisdiction, or fail to do what his jurisdiction, power or authority requires. It will not, however, substitute its view on the merits of the decision reached by the Secretary of State. The action that the Court of Session might take would therefore depend on what the Secretary of State had done in the particular instance to seek to meet the duty. There is also a power for the Court of Session to direct that statutory duties be performed, providing that the duties are sufficiently clear and precise.

But it is also vital to consider the whole legislative framework that is being put in place. The imposition of a legal duty is about more than legal process and a legal blame game. It is about achieving reductions in the net UK carbon account over time, and fostering a new multilateral agreement to reduce global emissions. Legal duties will bind present and future governments and be based on a political consensus requiring action; long-term duties on the government carry greater force than individual or party political commitments. Legal duties carry a great deal of weight at Ministerial level and in the civil service; both the ministerial and civil service codes recognise the need for public servants to stay within the law. Legal duties offer greater certainty of action to businesses and to parties negotiating with the UK Government.

11. *The Government must report to Parliament on policies and proposals for adaptation to climate change no later than three years after enactment of the Bill, and then no more than every five years thereafter. How was this decision arrived at?*

The five year reporting period was chosen as it is felt that, in terms of risks to the UK, there will be little benefit gained from reporting on a more regular basis as our understanding of the risks will not significantly change over that short term period. It will also allow for an in-depth report which is based on the most up to date scientific and socio-economic evidence. A five year reporting period reflects other major scientific reports such as the IPCC (approximately every six years) and the updating of the UK's climate change scenarios (which have taken place at four yearly intervals to date).

The three year period is felt necessary in order to ensure that the first report is full and thorough.

It is also expected that this timeframe will ensure there will always be a report on adaptation produced between the final progress reports of the Committee on Climate Change following the end of a budget period.

Explanation of terms used in the draft Bill

- | | | |
|---|----------------------------------|---|
| a | UK CO ₂ emissions | CO ₂ emissions from sources within the UK (defined in clause 14). |
| b | UK CO ₂ removals | Removal of CO ₂ from the atmosphere as a result of land use, land use change or forestry activities in the UK (defined in clause 14). |
| c | Net UK CO ₂ emissions | UK CO ₂ emissions less UK CO ₂ removals (defined in clause 14). Net CO ₂ emissions are to be set out in both annual statements of emissions (clause 7) and in publishing final figures for a budgetary period (clause 9). Net UK CO ₂ emissions = UK CO ₂ emissions—UK CO ₂ removals |
| d | Carbon credits | An amount representing reductions in greenhouse gas emissions, removals of greenhouse gas emissions from the atmosphere or amounts of greenhouse gas emissions allowed under a scheme or agreement imposing a limit on greenhouse gas emissions (eg assigned amount units (AAU) under the Kyoto Protocol). If carbon allowances are bought from overseas, these effectively finance emissions reductions abroad, and lower the UK's overall contribution to CO ₂ emissions. They should therefore be offset against (ie subtracted from) emissions in the UK. The Secretary of State is to make regulations determining which credits may be used, their CO ₂ equivalency, and the circumstances where a credit may be set against net UK CO ₂ emissions (defined in clause 16, with further details given in clause 17). |
| e | Carbon debits | The same units as carbon credits, the difference being that these represent UK emission rights that are sold overseas. They therefore allow entities outside the UK to emit more than they otherwise would have done, which means that they add to the overall CO ₂ emissions for which the UK is responsible—hence they should be added to UK emissions. The Secretary of State is to make regulations determining which type of debits are to be taken into account, their CO ₂ equivalency, and the circumstances where a debit may be added to net UK CO ₂ emissions (defined in clause 16, with further details given in clause 17). |

- f Net UK carbon account Net UK CO₂ emissions as decreased by any carbon credits used to offset net UK CO₂ emissions, and increased by any carbon debits (defined in clause 18).
- $$\text{Net UK carbon account} = \text{Net UK CO}_2 \text{ emissions} - \text{carbon credits} + \text{carbon debits}$$

The net UK carbon account is essentially the total quantity of (net) CO₂ emissions that are allowed in any budgetary period. If the net UK carbon account exceeds this limit, then there are two provisions that would bring the Government into compliance:

- Use of borrowing provisions, allowing up to 1% of the subsequent carbon budget to be carried back to meet the earlier budget, subject to the advice of the Committee on Climate Change (clause 8);
- In the event of “significant changes” arising since the budget was set (or last altered) which affect the basis on which it was set, the Secretary of State may amend the budget by affirmative resolution procedure, subject to the advice of the Committee on Climate Change (clause 13).

International mechanisms and credits

Annex I Party: The industrialized countries listed in this annex to the Convention which were committed to return their greenhouse-gas emissions to 1990 levels by the year 2000. They have also accepted emissions targets for the period 2008–12. They include the 24 original OECD members, the European Union, 14 countries with economies in transition and Liechtenstein and Monaco.

Assigned Amount unit (AAU): A Kyoto Protocol unit equal to 1 metric tonne of CO₂ equivalent. Each Annex I Party issues AAUs up to the level of its assigned amount. This is defined in Article 3 of the Kyoto Protocol as being equal to the percentage of greenhouse gas emissions permitted to meet the Party’s Kyoto target, calculated as CO₂ equivalents for its emissions in the base year¹²⁶ and multiplied by five to reflect the length of the commitment period (ie 2008–12). Assigned amount units may be exchanged through emissions trading.

Certified Emissions Reductions unit (CER): A Kyoto Protocol unit equal to 1 metric tonne of CO₂ equivalent. CERs are issued for emission reductions from Clean Development Mechanism (CDM) project activities. Two special types of CERs called temporary certified emission reduction (tCERs) and long-term certified emission reductions (lCERs) are issued for emission removals from afforestation and reforestation CDM projects.

Clean Development Mechanism (CDM): A mechanism under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries, and receive credits for doing so which they may apply towards meeting mandatory limits on their own emissions.

Emission Reduction units (ERU): A Kyoto Protocol unit equal to 1 metric tonne of CO₂ equivalent. ERUs are generated for emission reductions or emission removals from Joint Implementation (JI) projects.

Joint Implementation (JI): A mechanism under the Kyoto Protocol through which a developed country can receive Emissions Reduction Units (ERUs) when it helps to finance projects that reduce net greenhouse-gas emissions in another developed country (in practice, the recipient state is likely to be a country with an “economy in transition”). An Annex I Party must meet specific eligibility requirements to participate in JI.

Please see <http://unfccc.int> for further details.

International Climate Change Timetable

| | <i>EVENT</i> | <i>OPPORTUNITIES/PURPOSE</i> |
|------|---------------------------|--|
| 2007 | | |
| June | G8 Summit in Heiligendamm | Central plank of German Presidency ambitions on climate change. Need for strongest possible UK support for Presidency aims to seek wider G8 and + 5 buy-in to EU Spring Council conclusions on climate change and energy, particularly elements for post-2012 framework (informed by the results of our joint work in this area with South Africa) |

¹²⁶ For the UK this is 1990 for CO₂, methane and nitrous oxide, and 1995 for HFCs, PFCs and sulphur hexafluoride.

| | <i>EVENT</i> | <i>OPPORTUNITIES/PURPOSE</i> |
|-------------|---|---|
| September | 3rd meeting of Gleneagles Dialogue Ministerial meeting—Germany Possible UN General Assembly Heads of Government debate on Climate Change | Opportunity to secure further support from key developed and developing countries to UK / Germany / EU proposed elements of post-2012 framework. New UN Secretary General considering key debate on climate change |
| November | IPCC AR4 published | Complete publication of scientific and economic analysis on mitigation and adaptation. |
| December | COP13 and COP/MOP3 in Bali | Essential to launch negotiations on global and comprehensive post-2012 agreement, to be concluded by December 2009. |
| <i>2008</i> | | |
| March | Gleneagles Dialogue Ministerial (Japan) | Develop coherent framework proposal coordinated with Regional Development Banks and IEA. |
| May | UNFCCC Subsidiaries Bodies meeting in Bonn | |
| June | GLOBE G8 + 5 legislators forum in Japan | Deliverable: statement from G8 + 5 legislators to G8 leaders along lines of UK policy including post-2012 frameworks and recommendations for future of Gleneagles Dialogue process. |
| July | Japanese G8 Summit | Influence G8 partners to take action on conclusions report. |
| November | COP14 and COP/MOP4 Poland | Setting the stage for final negotiations in anticipation of agreement in 2009 |
| <i>2009</i> | | |
| May | UNFCCC Subsidiaries Bodies meeting in Bonn | |
| November | UNFCCC COP15 and COP/MOP5 in Copenhagen | Aim to have an agreement on Future (post 2012) Framework. |

GLOSSARY OF TERMS

European Union Meetings:

- ECCP—European Climate Change Programme
- EU ETS—European Union Emissions Trading Scheme

United Nations Meetings:

- UNFCCC—United Nations Framework Convention on Climate Change
- COP—Conference of the Parties. It is the “supreme body” of the Convention and is the highest decision-making authority.
- COP/MOP—Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol.
- IPPC—Inter-Governmental Panel on Climate Change
- CDM—Clean Development Mechanism