

CUTTING CARBON AND SUSTAINING GROWTH: THE IMPORTANCE OF VALUING AND TRADING CARBON

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1. Firstly I'd like to thank the organisers for allowing me the opportunity to speak here today. I would also like to welcome Peter Young's comments, and the contributions of the Aldersgate Group to the policy process in this area. It is tremendously powerful to have a balanced and reasoned business voice in this debate, supplementing the normal sectoral lobbying – perfectly valid and helpful though that often is.
2. The dialogue between government and business – as well as our discussions with researchers and the environmental lobby – challenges us and helps us to make better policy. I would also like to thank Peter Young – on behalf of government – for his personal contribution to the work of the Commission for Environmental Markets, Employment and Productivity, set up by Gordon Brown following the publication of the Stern Review.³
3. The UK Network for Environmental Economics (UKNEE) is a great forum for bringing together environmental economists from across the UK, allowing the exchange of ideas and cutting edge research. The Government Economic Service is always interested in the research and work going in the academic community, and is keen to apply new ideas and research to policy-making in order to obtain better outcomes.
4. The GES has increased greatly in size in recent years, and now numbers well in excess of 1000 professional economists across government

¹ www.defra.gov.uk

² www.eftec.co.uk/uknee

³ Commission on Environmental Markets and Economic Performance: Report, November 2007. www.defra.gov.uk/environment/business/commission

departments. The use of evidence in policy-making has been a key driver of this increase, as economics plays a key role in providing the evidence base for considering different policy options.

5. Defra has itself seen a significant expansion in our economic analysis recently, with many of our economists now working in the Office of Climate Change – a cross-cutting unit working across all government departments⁴ - as well as our own Climate Change Economics team, and a new Natural Environment Economics team set up to deal with challenges surrounding ecosystems, marine environment, noise, and the rural environment. The increasing use of evidence and economic analysis is a key part of policy-making in Defra, ensuring better outcomes for citizens, business, taxpayers, the economy and the environment. Policy-makers in Defra are now well-versed in the language of efficiency and cost-effectiveness.

6. Tackling climate change is Defra's highest priority, and a key priority for the Government as a whole. This is a policy area which is often controversial and challenging, both in terms of the politics and the underpinning analysis. Economics is playing a key role in shaping the overall domestic and international frameworks, as well as informing at a detailed level the design of individual policy instruments.

7. We need to take action both domestically and internationally to tackle this truly global challenge.

8. Domestically, the Climate Change Bill is currently going through parliamentary scrutiny. This will, for the first time anywhere in the world, set binding carbon budgets across the whole economy that Government will be required to meet. Internationally, the UK continues to push for a global agreement to succeed the Kyoto Protocol, with the Bali Roadmap to Copenhagen providing international agreements for further negotiations.

9. Within the scientific community, there is increasing consensus that climate change is a result of anthropogenic greenhouse gas emissions. On the economics, the Stern Review made the case for taking early action to

⁴ www.occ.gov.uk

mitigate climate change: if we make the right policy choices the costs of action are likely to be far smaller than the costs of inaction – with action costing perhaps 1 per cent of global GDP, and inaction costing 5-20% of global GDP. The impact the Review has had also provides a powerful demonstration of the way in which economic analysis can succeed in shaping and accelerating the policy agenda domestically and internationally.

10. I will focus on two fundamental aspects of climate change policy – how to set our targets for stabilising emissions in the atmosphere, and how to reach these goals through concrete policies.

11. Integrated assessment modelling, which combines the scientific and economic aspects of climate change, provides key evidence on the underlying economic fundamentals surrounding the costs and benefits of taking action on climate change. The evidence provided by such modelling exercises is only one of the inputs into the political decision that will be taken by global leaders during negotiations.

12. At the UK level, we are taking further steps to ensure that the scientific and economic evidence informs the targets that we adopt. Keeping us honest in this will be a key task of the new Committee on Climate Change, which will advise Government on the appropriate level of budgets, given the best available evidence. Sam Fankhauser, a distinguished economist who is a member of the Committee, is chairing the next session this morning. The targets that are set in legislation on an ongoing basis will make carbon-budgeting integral to overall economic decisions. Underpinning this, the Government announced this week that the first five-year carbon budgets would be set alongside the Chancellor's Budget in 2009.⁵

⁵ See paragraphs 6.15-6.18, HM Treasury: 'Budget 2008: Stability and opportunity: building a strong, sustainable future' www.hm-treasury.gov.uk/budget/budget_08

13. The Stern Review recommended a three-pronged approach to dealing with climate change: a price on carbon, technology policy, and policies to address barriers to behavioural change. To assess the costs and benefits of alternative approaches to cutting emissions, and the carbon impacts of other policies, we now apply a shadow price of carbon across the whole of government in the UK – a consistent value which we include in appraisal and evaluation of all new public policy options and investments likely to have a significant impact on carbon emissions.

14. Defra's new shadow price of carbon itself reflects 'best' estimates of the social costs of the damage arising from climate change, drawn from the Stern Review. Our knowledge of the science and economics of climate change is improving, but there is clearly considerable uncertainty. However, our approach is broadly validated by comparing the numbers based on the social cost of carbon for the appropriate emissions trajectory with the value which would be needed to bring on stream sufficient abatement measures to meet our medium term emissions targets in the UK.

15. Some may be tempted to respond to the underlying uncertainty by giving up on analysis and evidence altogether, eschewing the very idea of trying to value carbon in policy making. Others have suggested that – because the shadow price of carbon allows projects they don't like – including roads and airports - the methodology can't be right.

16. These arguments are completely untenable. Firstly, making policy involves making decisions – decisions about how to use the human, financial and environmental resources we have for the greatest good of society. And to choose between these competing needs, we have to find a means of weighing them up, using the best available evidence. Secondly, specifically for carbon, as we cut emissions dramatically over the coming years it is critical that the emissions which remain are in their highest-value uses, avoiding unnecessary costs and constraints which jeopardise the whole objective of radically cutting emissions by undermining its acceptability. We need to make choices about how, where and when we cut carbon emissions, and how we use the emissions that are left.

17. That is what we have done with the shadow price of carbon. The consistent use of a single value across the whole of government, factored into all policy and project appraisal, has the effect of ensuring that we seek out the lowest cost abatement opportunities in developing policy responses to climate change.⁶ Applying the shadow price of carbon consistently beyond traditional areas of policy on the environment identifies new opportunities to cut carbon at low cost - for example in the construction and maintenance of public buildings such as schools and hospitals or in transport policy. That is why its use beyond environmental policy is at least as important as using it to design policies whose main objective is to cut carbon.

18. Much has been written in the media about the carbon emission reduction targets that the UK is setting. Some groups have proposed 80% instead of 60% reductions. But why is 80% the figure correct? Why not 65%, 75% or indeed 100%? What difference would this make to the overall costs of climate change: damage, mitigation and adaptation costs? There is a clear role to be played by economic analysis in helping us to decide between these different targets. The Government has asked the Committee on Climate Change to look at this question so that the choice can be made based on the best available evidence.

19. Of course, the policy decisions we make in relation to climate change often involve difficult trade offs with other environmental goals. We use valuations on environmental goods, or more accurately, bads, such as carbon emissions in order to identify as accurately as we can the trade-offs over dimensions as diverse as public services, consumer goods and indeed non-carbon environmental services.

20. For example, a move to more diesel-engine cars may reduce carbon emissions, but can have adverse impacts on air quality (which will impact correspondingly on the population's health). The increased usage of biofuels

⁶ Special allowance is made for the potential dynamic gains from technological advances which reduce abatement costs and/or raise abatement capacity, in assessing measures which focus on research, development and early deployment.

has impacts on net lifecycle emissions, the extent of which varies across different feedstocks and methods of production. At the same time, we need to consider non-carbon environmental impacts, ensuring that the relevant sustainability criteria are met.

21. In the case of the Severn Barrage, the Government will be looking at the potential carbon benefits, but at the same time considering some of the other associated impacts. The framework through which all these impacts thus has to be evaluated needs to be robust to trade-offs between different types of goods and services today, as well as robust to trade-offs over time between the same or different goods and services.

22. The valuations themselves involve hard-to-value impacts such as human life, ecosystems, biodiversity, and health effects. Revealed and stated preference studies are clearly of vital importance in establishing what total economic value is derived from the use and existence of such services. These areas are challenging, of course. But using economic valuations means making a 'positive' decision, based on the available evidence, rather than 'passive' decisions that rely on nothing other than preconceived views.

23. The guidance we issued in December⁷ raised the shadow price of carbon substantially – it is nearly 50 per cent higher in 2040 than on the previous basis. Nevertheless there have been calls for the shadow price to be three times this level – reflecting the damage that would be done if we assume that global emissions remain on their historical trajectory, and that no one else in the world outside the UK acts to cut emissions.

24. This is a bit like saying that the problem of global warming can be addressed in the UK alone. Of course the UK can show global leadership. But the UK accounts for only 2 per cent of global CO₂ emissions. So the idea that we should adopt a framework consistent with going it alone plainly makes no sense.

⁷ Richard Price, Simeon Thornton and Stephen Nelson: 'The social cost of carbon and the shadow price of carbon: what they are, and how to use them in economic appraisal in the UK', Defra, UK, December 2007.
<http://www.defra.gov.uk/environment/climatechange/research/carboncost/>

25. But if we nevertheless behaved as if others will do nothing, and set policy in the UK to try to compensate, the result is that the UK will effectively do too much, taking on too much of the global cost of mitigation itself relative to other developed countries, and in the process probably achieving less carbon abatement for any given cost than we would if cost-effective action were taken elsewhere. Moreover, in undermining economic growth, such an approach would undermine support for the decisive action we do need to take to move towards a low carbon economy. That is not a sensible way to think about this problem.

26. Over the next months we will be examining whether we should change the basis for calculating the shadow price of carbon – moving from an approach based on highly uncertain damage functions which underpin the social cost of carbon, to an approach which tries to set the shadow price at the level needed to generate our emissions targets. The new approach will reflect new and better estimates of marginal abatement costs now and in the future.

27. In scoping this work we have drawn on extremely helpful peer review comments from the academic community. This again demonstrates the importance of maintaining close ties between economists in policy and academia. Stephen Nelson will be elaborating on the guidance and our possible new approach in the Climate and Carbon workshop in the next session this morning.

28. In the longer-term, we clearly want to move towards a world where abatement occurs where it is most cost-effective. Our vision is for a worldwide carbon price, via a global emissions trading scheme, allowing the problem to be dealt with at least cost, wherever in the world abatement occurs. Given the global nature of the problem, and the necessity of a global response, this long-term vision is the most effective way to tackle climate change.

29. We must be very clear that this proposition does not imply equal effort across different countries. On the contrary, the benefit of such a global carbon market approach allows climate change to be tackled both efficiently–

through reducing emissions at least cost – and fairly – through sharing the burden of effort fairly between states on the basis of their ability to pay and their historical responsibility for climate change. Sir Nicholas Stern argues for example that developed countries should take responsibility for – that is pay for – perhaps 80 or 90 per cent of the world's emissions reductions.⁸

30. It is only through establishing global scarcity of emissions and trading them that we will generate flows of private capital on the scale needed to finance the development and deployment of low-carbon technologies worldwide, particularly in countries with rapidly growing demands for energy such as India and China.

31. There are those who argue that the use of international carbon credits are a cop out, or some sort of 'green betrayal'. This is nonsense. The use of international credits is not a cop-out but an imperative if we are really serious about financing cuts in carbon emissions around the world on the scale required. And in climate change it is after all the global scale of the challenge that really matters.

32. A global carbon market will take time to take shape. The EU Emissions Trading Scheme is evolving with greater scarcity. Emissions trading schemes outside Europe are beginning to emerge. Once such schemes are at a further stage of development, it will be possible to investigate potential linkages between them. For example, the Chancellor announced in the Budget this week that the UK Government will work with California to collaborate on investment in new energy technologies and to build links between emissions trading schemes. The UK and EU are already in informal discussions with other states on potential linkages between schemes.

33. Such linkages offer the potential steadily to increase the scale and scope of the international carbon market, and the size of the capital flows at

⁸ Sir Nicholas Stern: "Climate Change, Ethics and the Economics of the Global Deal" by Sir Nicholas Stern, the 2007 Royal Economic Society (RES) Public Lecture, November 2007. Stern argues that "...even a minimal view of equity demands that the rich countries' reductions (direct or purchased) should be at least 80 per cent".
<http://www.lse.ac.uk/collections/pressAndInformationOffice/newsAndEvents/archives/2007/NickSternLectures.htm>

stake, moving towards the long-term ideal of a capped global carbon market – or interlinked markets and equivalent systems.

34. For me these are among the biggest public policy challenges of our time. We simply could not address these problems effectively without the rich contributions from economists in academia, consulting, civil society and business, represented in the room today. I am also delighted that – though we call this the UK network – this country continues to attract some of the best international talent in this field.

35. We welcome your views on the economics of climate change and other aspects of the natural environment which are being discussed today. So please stay in touch with us, and enjoy the rest of today's proceedings.

36. Thank you for listening.