PEER REVIEW: DEFRA PAPER ON THE SHADOW PRICE OF CARBON

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1. The paper is an important and timely contribution to the climate change policy formulation and delivery. The existing position – based upon the social cost of carbon (SCC) is now dated and inadequate to the task. However, as drafted, significant revisions are required in structure, content and presentation.

2. The starting point is to state clearly what the question or questions are to which the social price of carbon (SPC) and the SCC are supposed to be answers. These are multiple and far from obvious. Some examples include:

   - What is the least cost method of achieving the 2010, 2020 and 2050 targets?
   - What should the 2020 and 2050 targets be?
   - What role should market prices for carbon play in policy implementation?
   - What numbers should be used for the appraisal of public projects?

   The paper should set these out in the first section.

3. The second point is the role of a number: is it the summation of all the externality value of carbon emissions, or just one aspect? In policy terms, this relates to the use of a single carbon instrument (the price) and other measures directed at quantities, information or related market failures. If there are multiple instruments, the role of a single number is confined to general policy questions.
4. The paper is correct to identify the powerful role of consistency that a single number brings and it is important to stress that the implication is that no policy area should be excluded from its application.
5. There is a problem of domain: whether the target is national or international (and whether partial or complete). The SCC is a global number, but if there are unilateral national targets, then the policy question about least cost mechanisms requires a different number to be used – what might be called a constrained SCC or SPC.
6. The paper focuses very much on the choice between an SPC and an SCC. In theory in perfect competition price and cost are equated: i.e. it does not matter which is used. However in all other cases, it does matter. It is argued that the SCC should be used to arrive at global targets, but that the SPC should be used to reflect UK willingness to pay. This is based upon the idea that the SCC is exogenous, and the SPC is endogenous. This is not quite right: the SPC as presented in the paper is a measure of the implications of the targets the UK has chosen to adopt, and these are not exogenous. The SCC includes willing ness to pay, and this is also not strictly endogenous.
7. The paper discusses SCC and SPC separate from the market price. The market price – for example from the EUETS – is the outcome of policy choices about quantities. These are endogenous, and if the SPC is construed as in the paper, it has a direct relationship to the market price. That relationship depends upon the credibility of targets: the UK might adopt a 2010 20% unilateral target, but it is not – and has never been – credible. The EUETS national allocation is credible in that it is established in private sector property rights.
8. This last point has an important implication: if the UK chooses to achieve targets via CDMs, rather than domestic emissions reductions, it might be argued that it is the world CDM price which is the correct price to use for policy appraisal. What matters here is not what governments say they intend to achieve, but credible targets. Otherwise it is possible that too high a price might be

used in policy appraisal, ruling out projects that would otherwise go ahead if the carbon emissions are offset via CDMs.

9. The Stern Review SCC is open to serious challenge (and has been). It is very hard to understand why the Stern SCC should be used as a SPC in the UK for policy analysis: almost all the arguments in the paper suggest that this is not the appropriate approach (even if the Stern number was correct).
10. Though leadership may be important, the adoption of a specific SPC or SCC has nothing strictly to do with it, and this should be dropped from the paper.
11. The revision of the number over time is extremely important – especially for the private sector trying to anticipate future investment opportunities. This should be a task set in a regular cycle and devolved to the new Climate Change Committee (CCC).
12. The CCC will in any event need to take these estimates into account in establishing the five year carbon budgets, and it will be extremely important to the credibility of the carbon budgets that the methodology for the linkage is explicitly made.
13. The 2% annual uprating is based or very weak grounds – and it would be much better to spell out the considerations and revise say every five years, than rely on weak and crude estimates of a linear approach.
14. The innovation market failures should be addressed through specific policy instruments: it is important not to over-load the SCC or SPC with multiple market failures.
15. Furthermore, it is important that interventions to address innovation market failures are not technology specific.
16. The discount rate section is quite crude and there is little explanation of the link to 3,5%.
17. The discussion of the link between cap-and-trade and SPC is not very clear.
18. The paper does not have a conclusion, and it is extremely important to bring the various considerations in the paper together to explain how they fit into the overall SPC and SCC.
19. It is recommended that the paper sets out a summary at the outset, as well as having an introduction.