

Submission to the Environmental Audit Committee on the UK's fourth carbon budget

Summary

- In its response to the UK Committee on Climate Change (CCC)'s proposal on the fourth carbon budget, the Government has tried to strike a difficult balance between short-term economic pressures and long-term climate change risks in the face of limited progress in international mitigation discussions.
- It is welcome that the Government has chosen to adopt the recommended budget of 1,950 MtCO₂e. But the Government has propagated uncertainty into the future by making the level of this budget (i) conditional on EU progress on an EU emissions trajectory and (ii) potentially weaker by retaining the option to meet the budget through international carbon credits, which may not reflect any reduction in global emissions.
- The Government has also ruled out the CCC's suggestion that early mitigation action be strengthened by aiming for the Intended Budgets in periods two and three, not the Interim budgets. The CCC's aim in making this recommendation was to reduce the scale of the longer-term emissions reduction challenge.
- A key political motivation for these decisions appears to be to avoid significant cost to energy intensive industry during a period of serious economic difficulty. There is evidence that – although fears over industrial competitiveness loss and carbon leakage are a serious consideration – to date many industries have been rather successful in lobbying for compensatory measures such as free allowances that help alleviate these impacts.
- Opening the fourth budget up to review in 2014 might seem an effective way of ensuring that – in the face of any lack of commensurate EU ambition – the non-traded sectors do not bear a disproportionate burden of the total budget. But it also introduces unnecessary risk and cost into the UK's own emissions trajectory and raises questions about the feasibility of achieving the longer-term goal. This is unhelpful from the perspective of investors in clean technology and casts doubt on the Government's claims that there are significant opportunities (in terms of jobs and international trade) in developing a competitive advantage in key low-carbon technologies.
- Whether there is any advantage or not in international climate negotiations to the UK retaining such flexibility is not clear. The UK – and perhaps even the EU – currently has limited influence over key large emitting countries such as the US and China. Is the best strategy therefore to move relatively rapidly whatever others do, because in the long-run a low-carbon economy is the only sort of economy that will be sustainable?
- At this stage there is very little detail from the Government on how it will meet any fourth carbon budget. The Government's draft Carbon Plan (which currently takes into account the first three budgets), does not yet provide any details on costs, emissions reductions on a policy-by-policy basis, or a risk management strategy to achieve budgets in the face of higher-than-expected costs, slower-than-planned technology

deployment, or the non-feasibility of key technologies such as Carbon Capture and Storage. It is imperative that these issues are set out clearly in the policies and proposals plan that the Government has indicated it will publish in October 2011.

Choosing an emissions trajectory

1. In general, decisions on an emissions reduction path to a given mitigation target – in the UK's case, at least an 80 percent reduction on 1990 levels by 2050 – involve complex trade-offs between the scale of short-term and long-term mitigation effort, informed by judgements about feasible rates of emissions reductions and the costs of those reductions at different points in time. These judgements have to be made in the face of considerable uncertainty on the availability and viability of new technologies, as well as uncertainty over the strength of the economy, the availability of capital for investments in new technologies, and political uncertainty. This means that a risk-management approach is essential, specifically with measures in place to deliver emissions reductions if certain technologies prove too costly or less feasible to commercialise than originally thought.
2. According to the CCC's analysis, the fourth carbon budget will come at a time when significant emissions reductions will be required in the UK economy, in particular through decarbonising the power generation sector so that a number of other sectors in the economy may lower their emissions by becoming increasingly electrified over time (for example through penetration of electric vehicles in the transport sector, and heat pumps in the buildings sector).
3. Economic modelling studiesⁱ and engineering considerations suggest that affordable pathways to a low carbon future will:
 - Deploy a broad mitigation technology portfolio
 - Use fossil fuel for energy generation only with Carbon Capture and Sequestration (CCS)
 - Adopt a whole systems approach that integrates supply and demand
 - Exploit demand reduction and efficient/intelligent energy use.
4. The technical and economic feasibility of achieving the UK's 2050 target is likely to depend on a massive deployment of low-carbon technologies, and given the scale of the challenge in some sectors, it could also require the development of negative emissions technologies that can remove CO₂ from the atmosphere and sequester it safelyⁱⁱ.

The Fourth Carbon Budget

5. The UK Climate Change Committee's (CCC) recommendation of 1,950 MtCO₂e for the fourth budget (2023-27) was in their judgement already at the upper limits of what was feasible if the UK's 2050 emissions reductions target is to be met. It is therefore welcome that, despite considerable pressure, the Government has not at this stage chosen to adopt a higher budget.

6. Nevertheless, the Government's acceptance of the headline fourth carbon budget figure (1,950 MtCO₂e) appears to ignore the CCC's advice that it should be delivered through domestic emissions reduction action alone. Instead the Government has stated that it will keep open the possibility of using international offset credits to meet the budget. Whilst this may be one way of managing the risks of not meeting the budget through domestic action alone, it introduces uncertainty as to what domestic emissions reductions will be required during this period. Nor is it clear that international offsets from outside the EU ETS result in any genuine global emissions reduction.

7. In stating its intention to adopt a fourth budget of 1,950 MtCO₂e with flexibility to use international credits, the Government has not justified its rejection of the CCC's advice to lower the second and third carbon budgets to the Intended level (from the current Interim level that is set in legislation). This is a striking omission given that the CCC has clearly stated that there are a range of cost-effective measures that could meet the Intended budgets, and that early action is likely to be a more cost-effective strategy towards achieving the UK's long term (2050) target. Key measures that would increase ambition towards the Intended level for the second and third budgets include early deployment of electric vehicles, carbon capture and storage, heat pumps and solid wall insulation, all of which are likely to be required to achieve more ambitious future budgets, and which would therefore benefit from early and more gradual implementation.

8. In addition, opening up the fourth budget decision to review in 2014 might be deemed an effective way of ensuring that the UK's traded sectors do not get an easy ride relative to the non-traded sectors should the ambition in the EU Emissions Trading System fail to be increased. However, it introduces unnecessary risk and cost into the UK's own emissions trajectory and raises questions about the feasibility of achieving the 2050 goal, given that too much back-ending of effort towards meeting this long-term target is a potentially risky and costly strategy. This is unhelpful from the perspective of investors in clean technology and global mitigation efforts. This is especially true as the CCC's advice is clear on the point that early action on decarbonising the UK economy is preferable to delayed action from a cost-reduction and risk-management perspective. Furthermore, the Government has itself acknowledged that it requires a domestic policy framework that provides more investment certainty to UK power generators, through its carbon price floor and Electricity Market Reform (EMR) initiatives. Relaxing the traded sector (and possibly also the non-traded sector) parts of the fourth carbon budget in light of a lack of EU ambition appears to undermine this push for a more certain domestic investment framework.

9. An obvious motivation for the Government's review of the fourth budget in 2014 is the fear expressed by energy-intensive industries that their costs will increase relative to their overseas competitors should the UK cut its emissions faster than other countries in the EU and beyond, leading to lost competitiveness and carbon leakageⁱⁱⁱ. Such fears are proving to be one of the greatest barriers to securing more ambitious emissions reduction targets at the UK, EU and global levels. Researchers at the Grantham Institute, London School of Economics, and Carlos III University in Madrid, have recently undertaken an extensive survey of EU manufacturing firms which suggests that far too many industrial sectors are likely to benefit from compensatory free allowances under Phase III of the EU Emissions Trading System, covering the period 2013-2020 (in addition to the free

allowances that all industrial sectors currently receive in Phase II, covering the period 2008-12), resulting in an excessive transfer of EU citizens' taxes to these sectors^{iv}. This suggests that energy-intensive industrial groups may have been successful in heightening these fears in the pursuit of rents from free allowances.

10. Whether there is any advantage or not in international climate negotiations to the UK retaining flexibility to review its fourth budget is not clear. The UK – and perhaps even the EU – currently has limited influence over key large emitting countries such as the US and China. Overall it might well be better for the Government to commit to a low-carbon transition pathway regardless of what others do, as a signal to investors that over the long term it is serious about achieving a low-carbon target. This would also be in line with its view that there are significant opportunities (in terms of jobs and international trade) in gaining a competitive advantage in key low-carbon technology areas.

The Carbon Plan

11. The Government's Carbon Plan (March 2011) sets out a number of measures to address each sector of the economy, taking into account the first three budgets. But in its current draft form, the Plan does not yet explicitly provide costs or planned emissions savings for these measures, so it is difficult to gauge the effectiveness of the Plan. Clearly more relevant detail must be included in the policies and proposals plan to meet the fourth carbon budget that the Government has stated it will publish in October 2011. It is imperative that this updated plan makes clear how the Government will support low carbon investments in a broad portfolio of technologies and how it will mitigate against the considerable risks of excessive technology costs, potentially unworkable technologies and / or slower-than-planned for commercialisation rates. There are a number of areas where the Government should offer greater clarity, as outlined below.

12. Carbon Capture and Storage (CCS) is arguably the most critical single unproven global technology for achieving climate change abatement. The CCC stated in its advice on the fourth carbon budget that demonstration of four CCS plants around the middle of this decade is crucial to support the decarbonisation of power through the 2020s. We look forward to urgent action on setting out a clear development pathway for this critical technology.

13. Progress on the licensing of safety aspects of the new nuclear programme is subject to the conclusions of the Weightman review. However, finalising the economic framework for new nuclear stations in such a way as to give confidence to investors is now probably the critical and most urgent step. The Government has through the Electricity Market Reform and carbon price floor consultations set out proposals for a minimum carbon price and other low carbon incentives. The CCC argues that tendering of contracts for low-carbon capacity would provide most confidence about delivery of required investments at least cost to the consumer, and we look forward to the Government setting out more precise details of such contracts.

14. As the current fossil fuel-based power generation system is replaced by a low carbon generation mix, the system will face the challenge of meeting electricity demand

with a supply mix increasingly made up of variable output renewable (primarily wind), largely base-load nuclear, and CCS which has not yet been demonstrated as a demand-responsive technology. It will be important for the Government to set out how it will manage this energy systems integration challenge.

15. On the demand side, the Government's Green Deal is an imaginative initiative aimed at making the benefits of efficiency gains more accessible to consumers. However, a number of policy actions will be required to address the challenge of decarbonising buildings, including: the need for timely and accurate data on energy use in buildings; education, up-skilling and certification of key professionals involved in installing low-carbon heating and cooling technologies; and the provision of clear information on the costs and energy saving potential of key technologies and measures^v. A detailed plan of action to address these multiple policy challenges would be welcome.

16. Overall the credibility of the Government's commitment to the fourth budget should be judged primarily by the measures that it takes in these critical areas in the coming months, rather than the level of the fourth budget alone.

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ⁱ See the studies from the Energy Modelling Forum 22 (EMF22) published in Energy Economics, Volume 31, Supplement 2, Pages S63-S306 (December 2009)

ⁱⁱ See AVOID Report WS2D1R18, The Potential for the Deployment of Negative Emissions Technologies in the UK, at <http://www.avoid.uk.net/>.

ⁱⁱⁱ See for example comments from the Chemical Industries Association: <http://www.theengineer.co.uk/carbon-budget-could-wipe-out-uk-chemicals-industry/1008698.article>

^{iv} Policy brief available at: <http://cep.lse.ac.uk/pubs/download/pa010.pdf>

^v See for example the IEA's (May 2011) Technology Roadmap on Energy efficient buildings: heating and cooling equipment, available at: http://www.iea.org/papers/2011/buildings_roadmap.pdf