

Review of the Fourth Carbon Budget - Call for Evidence

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Question and Response form

When responding please provide answers that are as specific and evidence-based as possible, providing data and references to the extent possible. Please limit your response to a maximum of 400 words per question.

Questions for consideration:

A. Climate Science and International Circumstances

The Committee's advice assumes a climate objective to limit central estimates of temperature rise to as close to 2°C as possible, with a very low chance of exceeding 4°C by 2100 (henceforth referred to as "the climate objective"). This is broadly similar to the UNFCCC climate objective, and that of the EU.

In order to achieve this objective, global emissions would have to peak in the next few years, before decreasing to roughly half of recent levels by 2050 and falling further thereafter.

The UNFCCC is working toward a global deal consistent with such reductions, to be agreed by 2015. Earlier attempts (e.g. at Copenhagen in 2009, before the fourth budget was recommended or legislated) have failed to achieve a comprehensive global deal to limit emissions.

It is difficult to imagine a global deal which allows developed countries to have emissions per capita in 2050 which are significantly above a sustainable global average, implying the need for emissions reductions in the UK of at least 80% from 1990 levels by 2050.

The EU has not yet agreed a package beyond 2020, but the European Commission is consulting on a range of issues relating to development of climate and energy targets for 2030. In its 2011 Roadmap for moving to a competitive low-carbon economy, the Commission suggested a reduction in emissions of 40% on 1990 levels by 2030, as being on the cost-effective path to an 80-95% reduction by 2050. The UK Government has signalled its support for a 40% reduction by 2030, and for an increase to 50% in the context of a global deal.

China has made ambitious commitments to 2020 which would, if delivered, cut carbon-intensity relative to GDP by around 45%.

The United States could achieve its Copenhagen Accord commitment to reduce emissions by 17% on 2005 levels without the need for further federal legislation.

Question 1: Does the scientific evidence justifying the climate objective remain the same as in 2010? In particular, is there new evidence on climate change impacts?

We would expect the IPCC 5th report, due to be published in September this year, to be important in coming to a conclusion on whether there are any changes in the evidence that need to be taken into account.

Question 2 Have the emissions pathways consistent with achieving this objective changed? In particular, is there new evidence on climate sensitivity to emissions?

Again we would expect any conclusions on this question to be consistent with the 5th IPCC report.

Question 3 Does the climate objective remain in play given international developments? Has the likelihood of getting global agreement changed significantly since the budget was set, and if so why?

- The 4th budget was set in June 2011 after the UNFCCC Copenhagen meeting. At the Durban conference in December 2011 it was agreed that a legal agreement on post-2020 climate change should be adopted by 2015 at the latest. The EU Commission has recently consulted on how to shape the international climate change regime between 2020 and 2030. The outcome of the 2015 agreements will be essential for setting European and ultimately UK goals for emissions reductions covering the period of the 4th budget.
- The setting of UK budgets must be aligned with the European and International processes.
- If a global agreement is reached by 2015 then the UK budget must be aligned with EU commitments under this agreement. If on the other hand, a global

agreement has not been reached then a UK trajectory to reduce emissions by 80% by 2050 could be out of line with global competitors. The potential for both these outcomes should be considered in the review of 4th UK budget.

We would support a delay in any changes to the UK budget until after agreement has been reached at an EU and global level.

Question 4 *How have the prospects for a new EU package for 2030 changed since the Committee's advice and the setting of the budget? What implications do the latest expectations have for the fourth carbon budget?*

- While the process for agreeing a new EU package on climate and energy for 2030 has begun it is likely to be a slow process. We do not expect to see a finalisation of the package until after the new Commission is in place at the beginning of 2015. However, the importance of the EU ETS to meeting climate change targets has been recognised by a number of stakeholders including the UK Government and UK carbon budgets must also continue to reflect the central importance of ETS in achieving emissions reductions targets. While decarbonisation of the electricity sector is critical to achieving a low carbon economy, it is important to distinguish between carbon budgets (which reflect net UK carbon emissions and reductions are capped by the ETS) and actions needed to decarbonise the electricity sector.
- Long term clarity on the ETS trajectory will provide certainty for investors and the UK budgets and at this point it will become clearer what level of ambition will need to be delivered through the non-traded sector.

Question 5 *What flexibilities are appropriate to reflect possible future changes in EU and international circumstances?*

- Structural reform of the ETS is essential as part of EU energy and climate change strategy. Although the current Commission have started the process and may produce legislative proposals by the end of this year, it is very

unlikely that the legislative process will be completed before 2015 at the earliest and could be as late as 2017. The emissions reduction trajectory (and also any cancellation of back-loaded allowances) must be taken into account in setting UK budgets. There may need to be continued flexibility for UK budgets beyond the 2014 review to ensure that UK budgets are consistent with future ETS trajectory.

- In addition the UK budgets must have the flexibility to accommodate any future changes to the EU ETS. For example if additional sectors were added to the ETS (for example domestic heating or transport) this could have implications for achieving the UK budgets

B. Technology and economics

In recommending the level of the fourth carbon budget, the Committee developed scenarios which embodied cost-effective emissions reductions to meet the 2050 target.

These scenarios, set out in detail in the Committee's report *The Fourth Carbon Budget – Reducing emissions through the 2020s*, include substantial investment in low-carbon power generation, roll-out of low-carbon heat (heat pumps and district heating), development of the markets for ultra-low emissions vehicles and a combination of energy efficiency measures and fuel switching in industrial sectors.

They were based on official emissions projections together with an assessment of the cost and feasibility of abatement options. Since 2010, official emissions projections have been significantly reduced in the industry and waste sectors, meaning that meeting the legislated 4th carbon budget would require less effort than originally envisaged.

Question 6 *Is there any new evidence to suggest that the type of scenarios upon which the budget was based are no longer feasible or cost effective?*

Investment in low carbon generation.

- The current trajectory for low carbon generation in the CCC 4th carbon budget report suggests a reduction in carbon intensity of power generation to 50g/kWh by 2030.
- While the current EMR draft delivery plan and expected investment in low

carbon generation to 2020 looks consistent with CCC assumptions in setting the 4th budget, it is investment in the period 2020 -2030 that will be needed to deliver the CCC ambition of 50g/kWh.

- Achievement of this objective will be challenging and both the cost and cost effectiveness will be influenced by a number of factors including fuel prices, European emission reduction targets and resulting carbon prices. The impacts on both domestic consumers and industry need to be taken into account.
- However, any changes in the assumptions around the level of investment in low carbon generation that is feasible or cost effective should not have an impact on the level of the carbon budgets which need to remain consistent with ETS targets.

Low carbon heat and energy efficiency

- The current level of the budget is challenging for the non-traded sector, the effective target for the non-traded sector in the 4th budget is 1260 Mt compared with current projections of 1465Mt.
- The CCC annual progress reports are useful in identifying whether we are on track to meet the reductions needed. There has been a dip in the rate of installation of energy efficiency measures which could in part be a result of moving from a subsidy based system to one where the ‘able to pay’ market is required to pay for its own energy efficiency investment. However this does highlight the need to create cultural and behavioural changes that increase customer demand for energy efficiencies.
- Although the scenario for energy efficiency improvements may be achievable the focus of discussion around carbon budgets needs to shift from investment in low carbon generation to the change in behaviour that will be needed to achieve the necessary reductions. Wasting energy or using it inefficiently needs to be seen as socially unacceptable.
- Achieving the scenarios that underlie the carbon budgets requires additional electrification of both heating and transport. This will depend on relative prices of electricity and other fuels and the incentives to move away from fossil-fuel based technologies. The cost of carbon is included within electricity prices (EU ETS and carbon price floor) but not other fuels – expansion of the ETS to other sectors (or at least a consistent price for carbon) would support the achievement of this scenario. However expansion of ETS to other sectors will need to be accounted for in how UK carbon budgets are set.

Question 7 *In particular, does the possibility of shale gas in the UK change the economics of the fourth carbon budget?*

- The cost of gas is a key factor in the cost of delivering the fourth carbon budget. Clearly if shale gas has a significant impact on gas prices then it will impact on the cost of delivering climate change objectives. However, it is currently unclear what the scale of any impact will be on European wholesale markets.
- It is important that scenarios for future budgets are robust against a range of energy prices. The ETS will ensure the targets for the traded sector are delivered provided that UK budgets remain consistent with EU targets.

Question 8 *Should the budget be tightened to reflect headroom due to significantly lower emissions projections (e.g. due to slower than expected economic growth) since 2010?*

No.

While emissions projections for the 4th budget period were 2440Mt in 2010, 2210 Mt in 2011 and had fallen to 2155 Mt in 2012 these projections are still significantly higher than the current budget of 1950 Mt.

However when taking out the assumed traded sector cap (690Mt) this gives non-traded sector emissions projections (against target for the non-traded sector of 1260) Mt as

2010 – 1750 Mt
2011 - 1520 Mt
2012 - 1465 Mt

If the budget remains at 1950 Mt and there is no change to ETS cap the non-traded sector would need to achieve emissions of 1090 Mt ie a significant reduction from current projections of 1465 Mt.

C. Other issues

As required by the Climate Change Act, in designing the fourth carbon budget we considered impacts on competitiveness, fiscal circumstances, fuel poverty and security of energy supply, as well as differences in circumstances between UK nations. Previous high-level conclusions on these were:

- **Competitiveness** risks for energy-intensive industries over the period to 2020 can be addressed under policies already announced by the Government. Incremental impacts of the fourth carbon budget are limited and manageable.
- **Fiscal impacts.** The order of magnitude of any fiscal impacts through the 2020s is likely to be small, and with adjusted VED banding and full auctioning of EU ETS allowances could be neutral or broadly positive.
- **Fuel poverty.** Energy policies are likely to have broadly neutral impacts on fuel poverty to 2020, with the impact of increases in electricity prices due to investment in low-carbon generation being offset by energy efficiency improvement delivered under the Energy Company Obligation. Incremental impacts through the 2020s are likely to be limited and manageable through a combination of further energy efficiency improvement, and possible income transfers or social tariffs.
- **Security of supply** risks due to increasing levels of intermittent power generation through the 2020s can be managed through a range of flexibility options including demand-side response, increased interconnection and flexible generation. Decarbonisation of the economy will reduce the reliance on fossil fuels through the 2020s and thus help mitigate any geopolitical risks of fuel supply interruption and price volatility.
- **Devolved administrations.** Significant abatement opportunities exist at the national level across all of the key options (i.e. renewable electricity, energy efficiency, low carbon heat, more carbon-efficient vehicles, agriculture and land use).

Question 9 *Is there any new evidence to suggest that (incremental) impacts of the fourth carbon budget on competitiveness, the fiscal balance, fuel poverty*

and security of supply have become unmanageable?

- Provided that it is explicit that the 4th carbon budget applies to net UK carbon emissions (and that territorial emissions do not have to be equal to net emissions) and that the ETS remains as the main mechanism for delivering investment in low carbon technologies, the 4th carbon budget should not have a significant impact on competitiveness. It is additional mechanisms (such as the carbon price floor), which do not achieve any additional carbon reductions but add costs to customers, that have an impact on competitiveness.
- Policies in the non-traded sector have the potential to impact on fuel poverty particularly if energy efficiency measures continue to be paid for through increased energy bills. These policy costs will continue to add to customer bills in future and will start to have a disproportionate impact on households that cannot or do not reduce energy consumption. Again this highlights the need for the focus of meeting carbon budgets to shift to behavioural changes and to target policies such as ECO specifically to improve the housing stock for homes occupied by vulnerable households.

Question 10 *Is there any new evidence on differences in circumstances between England, Wales, Scotland and Northern Ireland that suggest the need to change the budget?*

Question 11 *Is there anything else not covered in your answers to previous questions that you would like to add?*