

The Fifth 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

Climate science and international circumstances are important criteria in setting carbon budgets.

- The science indicates the impacts associated with different levels of climate change and the limit on emissions globally if these risks are to be contained.
- International circumstances inform the prospects of future action to reduce emissions globally, potential requirements of the UK to contribute to those actions, and prospects for low-carbon technology development and carbon pricing.
- The EU places obligations on Member States to reduce emissions to contribute to reductions in the bloc as a whole. These imply a minimum level of effort for the UK's carbon budgets.

The Committee intends to draw primarily on the work of the IPCC, as published in the Fifth Assessment Report, in assessing the implications of climate science for the budget advice

The Committee's advice is based on 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 around 2020, 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. Individual parties are submitting pledges for effort beyond 2020, with the details of the agreement to be discussed in Paris late in 2015.

The EU has agreed a package that requires a reduction in emissions of at least 40% on 1990 levels by 2030, on the way to an 80-95% reduction by 2050. The UK Government supported this package, while arguing for an increase to 50% in the context of a global deal.

The US and China have jointly made pledges for the period beyond 2020. The US has pledged a reduction of 26-28% by 2025 versus 2005, requiring a doubling of the rate of carbon reduction compared to 2005-2020 and on a trajectory to economy-wide cuts of the order of 80% by 2050. China has pledged to peak CO₂ emissions around 2030, and to make best efforts to do so earlier.

Question 1 *The IPCC's Fifth Assessment Report will form the basis of the Committee's assessment of climate risks and global emissions pathways consistent with climate objectives. What further evidence should the Committee consider in this area?*

ANSWER:

In the view of Oil and Gas UK, the IPCC's Fifth Assessment Report provides an adequate scientific basis for the Committee's assessment. The Committee may wish to consider further work on world energy and GHG emissions projections due to be published by the IEA in June and November 2015.

Question 2 *To what extent are the UN talks in Paris likely to have implications for the Committee's advice beyond the pledges and positions announced in advance of the talks?*

ANSWER:

The outcome of the Paris talks may set the context for the advice provided to the UK government but we would urge the CCC to focus on ensuring the consistency of its advice with (1) the UK 2050 target of at least 80% reduction and (2) the EU 2030 energy and climate package agreed in October 2014. The Paris talks may give an indication of international sentiment but the conference may not produce measurable and feasible commitments from non-EU parties which would serve reliably to guide UK commitments for 2028-32.

It is essential that the UK's targets and decarbonisation pathway remain broadly in line with those of other major developed countries if the UK is to remain internationally competitive and it is able to avoid undue carbon leakage within and beyond the EU.

Question 3 *Based on the available evidence, does the EU 2030 package reflect the best path to its stated 2050 ambition? How might this package change, specifically its targeted emissions reduction, either before the end of Paris or after Paris?*

ANSWER:

We support the degree of ambition and the design of the EU 2030 package; a single GHG target binding on Member States, non-binding renewables and energy efficiency targets, EU ETS reform and national flexibility to pursue least-cost decarbonisation. The governance process for EU compliance should not re-introduce binding renewables and efficiency targets, even if the Paris talks were to deliver a credible, binding international agreement which was more ambitious than that expected by EU in 2014.

In our view, the CCC advice on the Fifth Carbon Budget should be in line with the UK's net carbon budget implied in the EU 2030 package. Effort-sharing by Member States has not yet been agreed but the Fifth Budget should not be set at a level of ambition which is different from that implied by the EU 2030 package. Consistency between the EU 2030 package and the Fifth Budget should be an objective of the CCC in formulating its advice in order to ensure clarity for businesses and for consumers.

Question 4 *How does the UK's legislated 2050 target affect its ability to support international efforts to reduce emissions, including its position in negotiations? Does the level of UK carbon budgets have any additional impact (over-and-above the 2050 target) for the UK in international discussions?*

ANSWER:

The UK Climate Change Act provides a possible model for other nations to entrench policy designed to decarbonise their economies. The recent performance of the UK economy since 2012, relative to other developed economies, may also encourage the belief that legislative decarbonisation targets are consistent with economic growth and the improvement of living standards. However, the UK model may not be easily replicable elsewhere because of the unusual position enjoyed by the UK regarding energy security, developed market mechanisms and institutional arrangements, including EU membership. The UK should recognise that other states and regions may not possess these advantages and consequently their commitments to decarbonise will need to take a different form. This in turn should inform our own assessment of the competitive impact of our own commitments, the risk of carbon leakage and our own level of ambition.

The UK has a potentially influential role to play in (1) the development and deployment of low-carbon technologies where we have particular existing experience or expertise, such as CCS, offshore wind and marine-based technologies and (2) in developing appropriate international market-based mechanisms which will promote least-cost decarbonisation and will help to attract

financing to low-carbon developments.

B. The cost-effective path to the 2050 target

The carbon budgets need to set a path that is achievable from today without being over-optimistic about what is achievable in later periods to prepare for the 2050 target.

The Committee has previously set out scenarios for 2030 that balance effort before 2030 with potential opportunities from 2030 to 2050. The scenarios aim to include ways of reducing emissions that are likely to be relatively low cost and actions that will develop options that may need to be deployed at scale by 2050.

These scenarios, reviewed in detail in the Committee's report *The Fourth Carbon Budget Review – the cost-effective path to the 2050 target*, 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.

The scenarios also reflect detailed assessments of what is practically deliverable, and the Committee monitors progress towards them as part of its statutory duties. The *2014 Progress Report to Parliament* indicated that current policy would not be enough to meet the fourth carbon budget, but that the 'policy gap' could be closed at affordable cost.

The set of policy options required to close the gap include:

- Strengthening the EU Emissions Trading System.
- Setting a clear objective for Electricity Market Reform (EMR) beyond 2020.
- Focusing on low-cost residential energy efficiency.
- Simplifying policies targeting commercial energy efficiency.
- Tackling financial and non-financial barriers to low-carbon heat.
- Pushing for strong EU targets for new vehicle efficiency in 2030.

The Government has subsequently published various documents, including its formal response, as required under the Climate Change Act, and the National Infrastructure Plan. The Plan includes investments of around £100 billion in low-carbon power generation in the 2020s, in line with the scenarios from the EMR Delivery Plan that reach 100 gCO₂/kWh by 2030. It also has significant investments in offshore oil and

gas and in the road network. This includes £15 billion of new spending on roads and around £50 billion on offshore oil and gas.

Question 5 *In the area(s) of your expertise, what are the opportunities and challenges in reducing emissions to 2032, and at what cost? What may be required by 2032 to prepare for the 2050 target, recognising that this may require that emissions in some areas are reduced close to zero?*

ANSWER:

Oil & Gas UK represents the upstream oil and gas industry, comprising producers, contractors and supply and service companies. At the end of 2014, the industry had recovered 43 billion boe out of the current estimate of ultimately recoverable resources of 55-66 billion boe. The UK Continental Shelf (UKCS) is a relatively mature and high-cost producing province by international standards. As resource depletion proceeds, the position of UKCS operations become more vulnerable to extended periods of low prices, an escalation of unit operating costs and competition from imports from non-EU sources. As existing resources are depleted, we will see further offshore installations decommissioned. The Infrastructure Act 2015 introduced the requirement to Maximise Economic Recovery of UK oil and gas resources (MER UK) and the new Oil and Gas Authority will seek to ensure this is achieved optimally to 2032 and beyond.

We currently expect that over the next 15 years (to 2028-32) that hydrocarbon production and total GHG emissions from the UKCS will record a net decline, even if production between 2014 and 2019 shows a slight increase. Therefore, in our view, MER UK is entirely compatible with the progressive decarbonisation of the UK economy and the setting of progressively lower carbon budgets.

According to national inventory data, in 2013, UK upstream GHG emissions (including onshore terminals) were 17.8 mt CO₂e or about 3% of total UK emissions. Emissions have declined progressively every year since 1998 (27.4 mt CO₂e) as production has declined. We expect this long-term downward trend to continue to 2032, assisted by the gradual incorporation of new, more energy-efficient facilities in the overall production mix. However, the rate of decline of GHG emissions is unlikely to match that of hydrocarbon production in this period. In other words, we expect to see a continuation of the historical trend of a slow, progressive rise in the emission intensity of UK oil and gas production as UKCS resources are depleted.

As an energy-intensive industry, all major sources of CO₂ emissions from combustion on the UKCS fall within the EU ETS; other regulations tightly control other sources of emissions such as venting and flaring. Oil & Gas UK supports EU efforts to reform the ETS and to make carbon pricing an effective instrument

provided that (1) they ensure an appropriate and fair degree of carbon leakage protection from non-EU producers which do not face such carbon costs and (2) they do not jeopardise new investment and the objectives of MER UK. Unfortunately, in Phase III, offshore electricity generation is not eligible for free allowances. Such generation accounts for 30-40% of total offshore CO2 emissions. Since almost all UK offshore platforms do not have a connection to the onshore grid and have to generate their own power for operations, this represents an unwelcome and unjustified anomaly in current ETS allocations. It may also serve as a disincentive to investment to move to electrically powered and lower-emission operations at existing platforms. We are seeking to have this distortive anomaly corrected in Phase IV of the ETS and to ensure a level playing field among energy-intensive industries, regardless of the overall level of carbon leakage protection for such industries.

In the key area of onshore electricity generation, O&GUK does not support the idea of a power sector decarbonisation target in 2030 since we believe that this would restrict the flexibility which was a welcome part of the agreement over the EU climate and energy package. Furthermore, there is considerable uncertainty today over UK electricity demand in 2030, the possible contribution of new nuclear capacity and the role that interconnectors will play in meeting that demand.

Question 6 *What, if any, is the role of consumer, individual or household behaviour in delivering emissions reductions between now and 2032? And, separately, after 2032?*

ANSWER:

All consumers of energy, including major users such as upstream operators, have a responsibility to respect legal and regulatory requirements regarding emissions from their operations and in doing so they will contribute to progress towards national and international decarbonisation targets.

Question 7 *Is there evidence to suggest that actions to further reduce emissions after 2032 are likely to be more or less challenging to achieve than actions in the period up to 2032?*

ANSWER:

Oil & Gas UK does not today have data or information which would allow us to distinguish the period after 2032 from the period before 2032. The shape of the UKCS offshore sector in 2032 and the level of production and emissions will be the result of a complex interaction of commodity prices, future investment, the success of MER UK, the fiscal regime, the rate of decommissioning, new extraction technology and the success of future exploration.

However, there are several broad trends observable in the offshore oil and gas extraction. Efforts to reduce emissions and emission intensity from individual assets and from a fixed portfolio of assets become progressively more 'challenging' and costly as the underlying resources base is depleted. Furthermore, the scope for retro-fitting emission reduction equipment at offshore platforms is sometimes restricted by space and the constraints imposed by the original platform design. At the same time, one can observe that the emission performance of new assets of a particular size entering production today tend to be more energy-efficient than those from earlier decades, reflecting technological progress and improved design in the intervening period. However, countering this trend is the progressive reduction in the average size of new discoveries and new field developments as the UKCS becomes more mature.

Question 8 *Are there alternatives for closing the 'policy gap' to the fourth carbon budget that could be more effective? What evidence supports that?*

ANSWER:

While there may indeed be a 'policy gap' in meeting the Fourth Budget (2023-27), provisional temperature-corrected UK emissions data for 2014 and market events suggest that the 'gap' may not be as large it was projected in July 2014. Furthermore, it is now likely that the UK net carbon account will fall within the limit set for the Second Budget (2013-17).

Since July 2014, the EU energy and climate package has been agreed, reforms of the EU ETS have been confirmed, there has been steady progress towards the deployment of renewables generation and coal-fired generation has begun to fall. Recent announcements about the closure (and conversion) of existing coal plant promise a steady reduction of generation from unabated coal to 2025.

In the traded sector, we believe that the focus of policy should be on (1) more rapid coal-to-gas substitution in electricity generation and (2) the deployment of a first phase of CCS. In our view, an accelerated switch from coal to gas offers the lowest cost means to accelerate the steady reduction in power sector emissions at

acceptable costs into the 2020s. The existing trend could be accelerated by the reform of eligibility criteria for participation in the capacity market auctions.

As far as CCS is concerned, the UK now has an opportunity for the first large-scale CCS deployment. The dependence of publicly acceptable, least-cost decarbonisation in the UK between 2030 and 2050 on the widespread deployment of CCS provides a powerful reason to conclude by early next year commercial arrangements which will permit investment in one or both of the current demonstration projects. The CCC's own advice on the Fifth Budget may have to take account of the uncertainty over CCS in 2028-2032 if a final investment decision on these projects has not been taken by the time it is submitted.

Question 9 *Are the investments envisaged in the National Infrastructure Plan consistent with meeting legislated carbon budgets and following the cost-effective path to the 2050 target? Would they have wider implications for global emissions and the UK's position in international climate negotiations?*

ANSWER:

The National Infrastructure Plan (NIP) included upstream oil and gas for the first time in 2014. It was also prepared and published at a time of great uncertainty over future capex since it was a time of falling oil prices and fiscal and regulatory reform. Its capex estimate of £53bn investment in the period from 2014-15 to 2018-19 is close to the figure of £46bn published by O&GUK in February 2015 for the period 2014-18. However, the evolution of *new* capex commitments, after existing projects are completed, remains highly uncertain in light of the changed investment climate provoked by the fall in oil prices in 2014.

In the upstream sector, there is no close or strict link between financial measures of upstream capex and future production or emissions because of the wide cyclical fluctuations in capital costs. DECC projections of UKCS resource depletion suggest that there will still be offshore production in the UK in 2050 but at a very low rate (<0.5 mboe/d). We offer no view on the current prospects for liquids and gas production from onshore shale resources given the very limited drilling activity to date. If onshore shale resources do not deliver significant production by the mid-2020s, then conventional resources on the UKCS are likely to continue to dominate indigenous production and its contribution to UK energy supply security for the foreseeable future.

C. Budgets and action

The UK's statutory 2050 target requires actions across the economy to reduce emissions. Many of these actions will be driven by (UK and devolved) Government policy and implemented by businesses and consumers. There will be an important role for Local Authorities in successful delivery.

Although the carbon budgets do not require specific actions, they provide an important indication of the overall direction that policy will take in future. Once set, carbon budgets can only be changed if there has been a significant change in the relevant circumstances set out in the Climate Change Act.

Feedback from businesses as part of the Committee's 2013 Call for Evidence for the review of the fourth carbon budget was that stability is an important and valuable characteristic of carbon budgets.

Question 10 *As a business, as a Local Authority, or as a consumer, how do carbon budgets affect your planning and decision-making?*

ANSWER: Not applicable.

Question 11 *What challenges and opportunities do carbon budgets bring, including in relation to your ability to compete internationally? What evidence do you have for this from your experience of carbon budgets to date?*

ANSWER:

At present, the bulk of upstream oil and gas activity worldwide is not subject to carbon pricing, carbon budgets or carbon constraints, even in countries where they are subject to other environmental regulations. Europe is therefore something of an exception in this respect. As part of the traded sector, UK oil and gas producers are now familiar with the operation of the EU ETS and seek only to ensure fair treatment with other energy-intensive industries over future carbon leakage protection and no undue obstacles to the achievement of the aims of MER UK (see reply to Q5).

Question 12 *What would you consider to be important characteristics of an effective carbon budget? What is the evidence for their importance?*

ANSWER:

Ambitious but achievable through acceptable policies, sustainable, consistent with the UK share of EU commitments, equitable in international terms, responsive to energy supply security, sensitive to the costs imposed on low-income consumers, compatible with MER UK and appropriately set in relation to previous budgets.

D. Other issues

The Climate Change Act requires that in designing the fifth carbon budget we consider impacts on competitiveness, fiscal circumstances, fuel poverty and security of energy supply, as well as differences in circumstances between UK nations. High-level conclusions on these from our advice on the fourth carbon budget 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 13 *What evidence should the Committee draw on in assessing the (incremental) impacts of the fifth carbon budget on competitiveness, the fiscal balance, fuel poverty and security of supply?*

ANSWER:

Question 14 *What new evidence exists on differences in circumstances between England, Wales, Scotland and Northern Ireland that should be reflected in the Committee's advice on the fifth carbon budget?*

ANSWER:

There are overwhelming advantages to all parts of the UK of an integrated energy market within Great Britain and close interconnections between GB and Ireland. International obligations have been assumed by the UK and it is essential that further devolution does not lead to excessive costs in meeting these obligations, nor lead to additional costs in the UK's own path of least-cost decarbonisation to 2050. The carbon budget may be sensitive to the ambitions and preferences of the devolved administrations but the Committee must be alert to the risks of introducing additional costs and constraints into UK decarbonisation policy.

Question 15 *Is there anything else not covered in your answers to previous questions that you would like to add?*

ANSWER: No