

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.

This response is submitted on behalf of Heatrae Sadia.

Heatrae Sadia is the UK's leading provider of electric commercial point of use water heaters and domestic and commercial hot water cylinders. The company is committed to designing and manufacturing products that are smarter and cleaner through the continuous development of our people and processes to help our customers feel warmer.

For any questions or comments on this submission, please contact Jon Cockburn:

jon.cockburn@heatraesadia.com

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:

Heatrae Sadia believes that the CCC should draw on as wide an evidence base as possible

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: This falls outside our area of expertise

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: This falls outside our area of expertise

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: This falls outside our area of expertise

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:

Heatrae Sadia is the UK's leading provider of electric commercial point of use water heaters and domestic and commercial hot water cylinders. The company is committed to designing and manufacturing products that are smarter and cleaner through the continuous development of our people and processes to help our customers feel warmer.

One of the biggest challenges in reducing emissions to 2032 is the decline in hotwater storage within domestic properties in the UK. Heatrae Sadia is calling for intervention to reverse this decline and ensure UK properties are ready for roll out of Low Carbon Heating Solutions

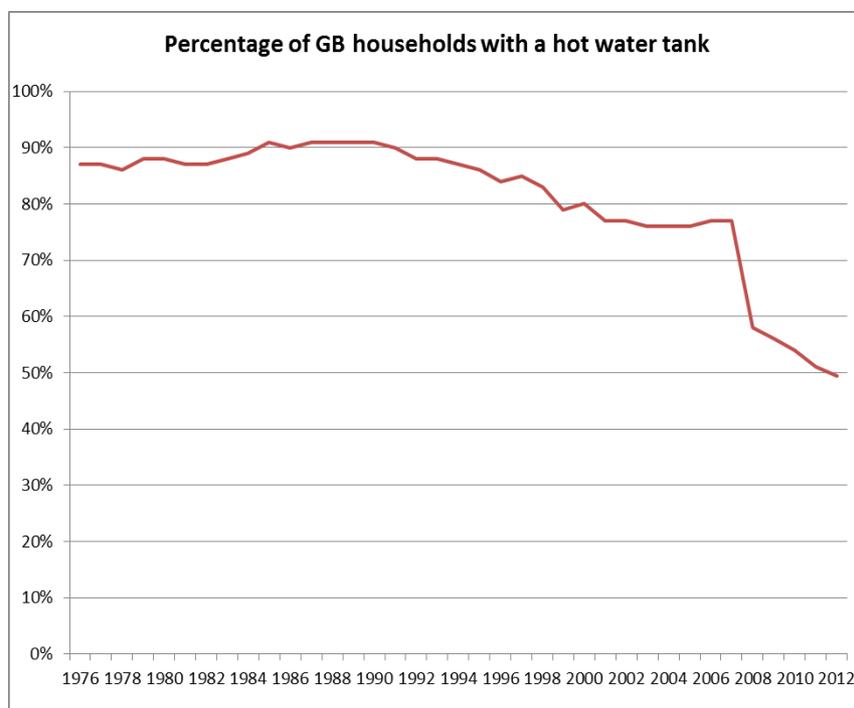
DECC already recognize that heating water for showers, baths and sinks demands around 87 TWh a year – over 20% of all heat demand from buildings. Reducing hot water demand is particularly challenging as demand is largely unaffected by improvement to buildings' fabric, and is relatively consistent across the age of buildings, and between seasons. Government retrofit policy has done little to focus attention on this issue.

Looking to 2032 and beyond, hot water could act as a valuable buffer or energy store, especially if combined with the roll out of electric heat pumps and other low carbon heating solutions. According to the DECC Heat Strategy 2013 - Hot water storage cylinders are present in 13.7 million UK households. If this heat store is aggregated across the UK it would total around 65 GWh of heat per day.

The share of the market for combination (or 'combi') boilers is however now approaching two-thirds of all boilers in the UK. Combi boilers instantly heat water as it flows through the unit, effectively removing the need for the hot water tank required for most other forms of heat supply. A substantial park of old inefficient cylinders exists with little incentive to replace.

The move away from using hot water storage and lack of willingness to install a hot water tank will prove to be a further barrier to the uptake of technologies that utilise a heat store to operate efficiently, for example heat pumps or solar thermal. In new build, it may be the case that a hot water tank was never installed at all.

Figure 1 overleaf demonstrates the sharpening decline in usage of hot water storage:



Source: Table 3.22: Installed hot water tank insulation in UK 1976-2012, DECC – Energy Consumption in the UK 2014

Additionally, consideration should be made for retrofit opportunities in residential and commercial properties that do not require wet central heating. For these properties modern unvented cylinders such as a Heatrae Sadia Megalfo Eco, will deliver a fast and efficient source of hot water while also providing fuel savings. Policies such as Green Deal and ECO have done little to support retrofit of hot water storage heaters.

By placing buildings at the heart of delivering carbon budgets, making them efficient, and using them to produce energy directly through low carbon and renewable sources, we will deliver more affordable, secure and low carbon energy for the UK. Using the Government's own "Pathways" calculator, analysis by the Sustainable Energy Association shows that this will cost the economy around £12bn per annum less than the Government's current plan. This is equivalent to a £189 saving per year, every year, for every UK citizen.

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:

Perhaps the biggest challenge to overcome is in the domestic owner occupier sector as it is these properties that are hardest to regulate with the successes to date coming either through costly incentives (such as Feed in Tariffs) or regulation passed by Governments with powerful majorities (Part L change for Condensing Boilers 2005).

Other than some pockets of activity with GDHIF, FIT & RHI there is very little impetus for owner occupiers to do anything meaningful with respect to carbon and energy efficiency. As noted in our answer to question 5, consumers are more often than not, taking steps to move away from more efficient or low carbon ready solutions by removing hot water storage.

Whatever policies are enacted, education of consumers and installers in preparation for mass market LZC roll out is essential and should start now for example, by highlighting the benefits of maintaining a hot water cylinder within a property. Smart metering and smart control, together with time of use tariffs could also play a big role in helping change consumer behaviour post installation.

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:

It is important that we make the right decisions and take the right action now as heating systems installed in 2015 could well be in operation beyond 2032. If we do not take action now then by 2032 the task will be far more challenging as consumer behaviour and building design will continue to evolve in ways which do not necessarily support decarbonisation

Policy certainty will help drive investment in technology development. Long term binding commitments, with real “teeth”, and certainty are essential rather than the short term 5 year government cycle we seem to work with today.

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:

Large-scale investment in the retrofit of the UK’s building stock should be treated as a National Infrastructure Priority. 80% of dwellings in 2050 have already been constructed.

While significant numbers of measures have been installed in recent years, the inconsistent nature of policy means that challenges presented by our building stock still remain. The National Infrastructure Strategy lists investment in buildings as a possible infrastructure priority and Heatrae Sadia is supporting the call for this to be Government’s preferred approach to financing building improvements, targeting 1m deep retrofits each year by 2020.

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:

There is a significant inconsistency in the National Infrastructure plan as a requirement for energy efficiency and distributed generation of renewable energies is not included.

Since the 2008 financial crash, the conversation around policies which are perceived to be “green” has changed; polling shows that public support for policy intervention depends on “value for money”. We further believe that the benefits of investing in buildings, and then integrating these buildings together, far outweigh the cost of investment.

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:

Heatrae Sadias' Smarter, Cleaner, Warmer ethos is testament to the importance of carbon budgets and government policy in driving business activity. In adopting this approach Heatrae Sadia is better positioned for the changes the future will bring to the water heating industry.

Carbon Budgets provide a guide in planning and decision making, however the key driver is policy intervention. We would like to see Government adopt a similar long term approach with respect to policies designed to meet carbon budgets, rather than the current stop start approach in areas such as Green Deal and ECO.

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: This falls outside our area of expertise

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

ANSWER:

Clear and stable long-term policy frameworks are required. An overarching and binding plan for energy solutions in buildings which stretches across Government Departments and individual policies could make a significant impact.

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: This falls outside our area of expertise

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: This falls outside our area of expertise

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

ANSWER: This falls outside our area of expertise