

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.

Response from CPL Industries

CPL Industries is Europe's largest manufacturer and distributor of smokeless solid fuels. Operating since 1955, with over 500 employees, the company has invested substantially in diversification over the past few years with a focus on renewable products. Specifically the company is a leading specialist in wood pellet heating solutions for commercial and public sector organisations. As a supplier of heating fuels (both fossil fuels and renewable fuels) for both domestic and commercial purposes CPL has a specialised understanding of the opportunities to reduce emissions from heating. CPL has experienced the impact of government incentives through the RHI and the impact of price volatility of fossil fuels on the market.

We have provided answers to questions 5,6,7,8 and 10 and added some additional thoughts in answer to question 15.

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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:

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:

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:

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:

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:

The opportunity to increase renewable heating, particularly the role for biomass in off-grid areas remains strong yet the funding required to support potential uptake beyond April 2016 is uncertain. CPL is concerned that policymaker ambition may fall far short of the real potential for Renewable Heat over the period to 2032

Take up under the Renewable Heat Incentive has shown that biomass is a favourable option for replacement of fossil fuel systems when supported by incentives. It has also demonstrated that costs of installation will fall over time as the industry builds scale.

Since the RHI launched in 2011 there has been a total of 9,074 accredited biomass installations (8,407 small scale, 644 medium scale and 23 large scale) with a capacity of over 1,500MW¹. It has also been demonstrated that biomass for heating is the most efficient method of using this fuel; generating electricity by burning pure biomass is only approximately 30-35% efficient, while burning the same material to produce heat is usually more than 85% efficient². In addition, using CHP can achieve even greater efficiencies.

Despite the role that biomass can play in increasing use of renewable heating and lowering emissions, policy documents such as the bioenergy strategy take the view that available sustainable bioenergy resources are limited and therefore usage should be prioritised to a number of key sectors. For example, for space and hot water heating, bioenergy usage is expected to play a major role in off gas grid heating up to 2020 but faces a less certain future beyond this point.

In 2014 CPL published a paper 'Biomass Heat in the UK beyond 2020'³ in which we set out the substantial benefits of building a long-term biomass heating sector beyond 2020 and the need to re-evaluate the role of biomass heating beyond 2020. Factors supporting a re-evaluation of the

¹ <https://www.gov.uk/government/statistics/rhi-deployment-data-april-2015>

² <http://www.eea.europa.eu/media/newsreleases/bioenergy-production-must-use-resources>

³ https://www.coals2u.co.uk/files/images/CPL_Biomassv3.pdf

contribution from biomass for heating were set out in the following five areas:

1. Growing adoption and falling costs:

- The volume of installations under the Renewable Heat Incentive demonstrates biomass's popularity with consumers and investors.
- Market growth has triggered capital cost reduction, a trend expected to continue.

2. Retrofit ready:

- Biomass heating systems are particularly suitable from a cost and carbon standpoint for off-grid buildings including those unsuitable for thermal insulation or heating system modification.

3. Wider energy system benefits:

- A portfolio of heating technologies which includes biomass could alleviate stress on the grid and can lower costs for electric heat consumers.

4. Improved Sustainability

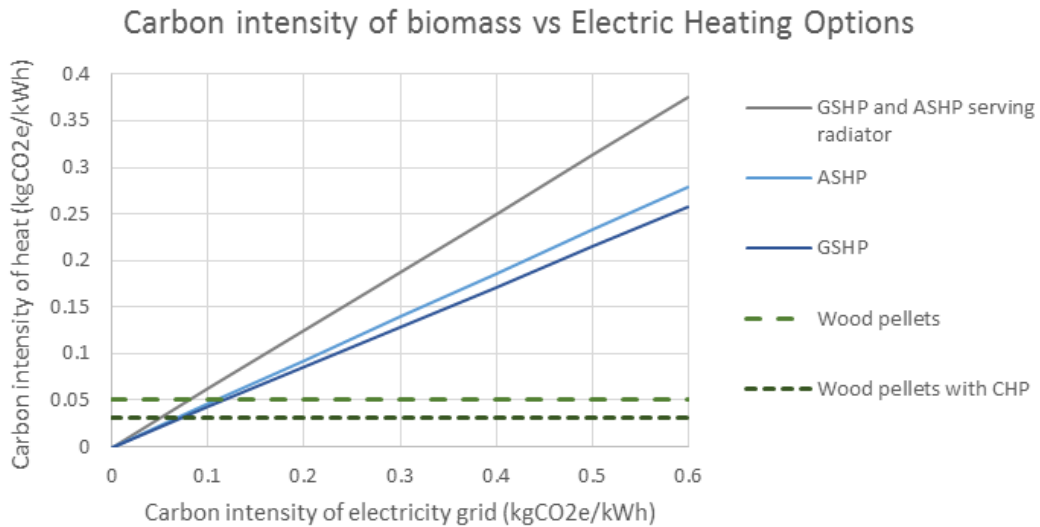
- Sustainability issues are being tackled by policymakers working with academics, NGOs and business at an international scale.
- Instruments to tackle key issues including reporting, resource management and Indirect Land Use Change are under development in order to manage greater volumes of biomass mobilisation.

5. Technology Innovation

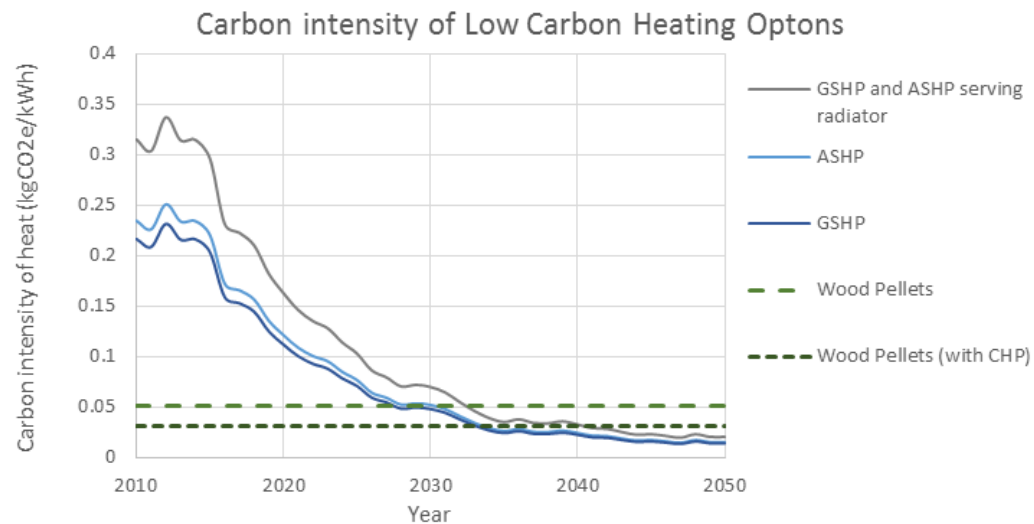
- New technologies such as torrefaction will help to unlock additional feedstock opportunities, increasing overall supply, reducing pressure on alternative uses for bioenergy.

The paper included an analysis of emissions reductions demonstrating that biomass especially where the pelletisation process uses CHP has much lower carbon intensity than other heat sources. This is particularly

important before the grid is decarbonised which is not expected to be until 2030 or even later.



A comparison of the average carbon emissions associated with producing 1 kWh of heat at different carbon intensities of the electricity grid with wood pellets, air source heat pumps (ASHP) and ground source heat pumps (GSHP). Source: Ecuity modelling. SPF values and pellet emissions from EST and CPL/ Ecuity respectively.



Carbon emissions of current heat pumps and biomass technologies as the grid decarbonises towards 2050. Source: Ecuity modelling.

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:

The consumer or individual can have a strong role in delivering emissions reductions through behaviour change for example, by choosing a low carbon heating option which is most appropriate given their demand characteristics.

Although costs are coming down quickly and are getting closer to cost-parity on a lifecycle cost, the upfront costs of renewable heating installations remain very high for commercial as well as households. Therefore deployment of these technologies currently relies on incentives. For consumers and individuals to adapt their behaviour, policymakers must provide leadership and sufficient carrots and sticks to generate initial take up and deployment of these technologies.

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:

To achieve emissions reductions in the long-term means we must focus now on developing technologies and on market/regulatory frameworks which do not depend on subsidy.

A major opportunity is the introduction of a fully functioning Carbon Tax, as demonstrated in Ireland.

Ireland has adopted a more sustainable strategy for reducing emissions by imposing taxes on the use of fossil fuels and tax relief for use of certain renewable fuels. The strategy has proved so far

successful and could be replicated in the UK. It is also delivering investment in the low carbon economy with CPL and other organisations undertaking major capital investment.

Background

In 2010, Ireland enacted a carbon tax which imposed taxes on most of the fossil fuels used in both domestic and commercial operations based on each fuel's CO₂ emissions. This initially applied to kerosene, gas oil, liquid petroleum gas, fuel oil and natural gas. The tax has been gradually increased starting at €15 per tonne of CO₂ in 2010 which added about €75 on average gas bills in Ireland. It was then extended to solid fuel in 2013. In 2014 the carbon tax was increased to €20 per tonne CO₂ translating to €52.67 per tonne on coal and €36.67 per tonne on peat briquettes which added around €1.20 on a 40kg bag of coal.

Additional amendments to the Solid Fuel Carbon Tax were published in the 2013 Finance (No.2) Bill in October 2013. A significant benefit of the amendment is tax relief on solid fuel products with a biomass content of 30% or more. This favourable tax regime provides support for the use of reduced carbon solid fuels and also complements Irelands 'smoky' coal ban. The changes to the tax regime are set out below:

- **30% tax reduction for products with a biomass content of more than 30%, but less than 50%.**
- **50% tax reduction for products with a biomass content of 50% or more.**

These new taxes (and others in other areas) have delivered results and Ireland has seen emissions drop evidenced in the Energy in Ireland report 1990-2013. The changes in behaviour have occurred which contributed significantly to emissions reduction and this has been achieved despite the economic situation in the last seven years.

Investment:

In June 2013 CPL Industries announced the development of a new state of the art smokeless fuel plant at the Port of Foynes in Ireland. The plant will have an initial capacity of 200,000 tonnes of briquette per year and will create around 142 jobs.

The plant will also create a need for locally grown biomass materials, hopefully prompting a growth in biomass production in Ireland, and

subsequently, an increase in business for local farmers.

Whilst deployment of low carbon products and solutions depends on subsidy with uncertain long term budgets, the effect will be unpredictable as the Feed in Tariff and RHI scheme demonstrate. As a result investor behaviour tends to be speculative and short term, rather than strategic and long-term. CPL has witnessed investors withdraw from biomass installations due to the threat of tariff degeneration making the investment too uncertain.

If we cannot build sufficient support, trust and investment at this stage then the challenge in 2032 will be greater. We will have a higher target but without having built the supply chains and availability of technologies to support this.

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:

CPL supports the proposals for closing the 'policy gap' in particular tackling financial and non-financial barriers to low-carbon heat. We would be keen to see as part of this the exploration of torrefaction/hydro-thermal carbonisation (HTC) which is currently gaining traction in other parts of Europe for its ability to produce high density, low carbon heat and make use of wide range of feedstocks which otherwise would go to waste.

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:

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:

Carbon budgets and the related policies for delivering on these budgets have had a significant impact on decision making. In particular, when CPL developed a renewables arm the RHI scheme played a part in supporting growth in this area.

However, as outlined in the answer to question 7 certainty of investment is crucial for businesses. The uncertainty of long-term support for the RHI and the impact of tariff depression had an impacted on the ability to attract investors for some commercial installations.

CPL therefore supports the feedback from businesses as part of the Committee's 2013 Call for Evidence for the review of the fourth carbon budget - that stability is an important and valuable characteristic of carbon budgets. However it is not just the carbon budgets, but the policies that underpin these budgets.

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:

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

ANSWER:

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:

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

ANSWER:

Further Support is Required for Advanced Conversion Technologies

Our 2014 Paper 'Biomass Heat in the UK beyond 2020'⁴ outlined CPL's belief in the role for Advanced Conversion Technologies (ACTs), or pre-processing of biomass through technologies such as torrefaction and hydro-thermal carbonisation.

Advanced Conversion Technologies typically deliver benefits by increasing the homogeneity and energy density of feedstocks. They also facilitate a wider range of sources for feedstocks including previously unsuitable

⁴ https://www.coals2u.co.uk/files/images/CPL_Biomassv3.pdf

materials, such as food waste.

The main benefits of ACTs can be outlined as:

- Expands suitable feedstock therefore increasing limit of sustainable supply
- Greater supply sources lowers costs
- Increases energy density reduces emissions and costs associated with transport
- Improve efficiency solid biomass boilers
- Can improve efficiency of biomass gasification

As outlined above CPL is exploring torrefaction/HTC technologies but there are a number of challenges. In particular, that despite its potential benefits there is currently insufficient early support for the commercialisation of this technology.